

anatomy

An International Journal of Experimental and Clinical Anatomy

Volume 19
Supplement 1
August 2025

Special Issue includes
abstracts of the
25th National Anatomy Congress,
25–28 August 2025,
Ordu, Türkiye



anatomy

An International Journal of Experimental and Clinical Anatomy

Official Publication of the Turkish Society of Anatomy and Clinical Anatomy

Aim and Scope

Anatomy, an international journal of experimental and clinical anatomy, is a peer-reviewed journal published three times a year with an objective to publish manuscripts with high scientific quality from all areas of anatomy. The journal offers a forum for anatomical investigations involving gross, histologic, developmental, neurological, radiological and clinical anatomy, and anatomy teaching methods and techniques. The journal is open to original papers covering a link between gross anatomy and areas related with clinical anatomy such as experimental and functional anatomy, neuroanatomy, comparative anatomy, modern imaging techniques, molecular biology, cell biology, embryology, morphological studies of veterinary discipline, and teaching anatomy. The journal is currently indexing and abstracting in TUBITAK ULAKBIM Turkish Medical Index, Proquest, EBSCO Host, Index Copernicus and Google Scholar.

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Phone: +90 216 414 83 43 (Pbx) / Fax: +90 216 414 83 42
www.deomed.com / e-mail: medya@deomed.com

Publication Information

Anatomy (e-ISSN 1308-8459) as an open access electronic journal is published by Deomed Publishing, İstanbul, for the Turkish Society of Anatomy and Clinical Anatomy, TSACA. Due the Press Law of Turkish Republic dated as June 26, 2004 and numbered as 5187, this publication is classified as a periodical in English language.

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- **Case Reports** include new, noteworthy or unusual cases which could be of help for basic notions and clinical practice.
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- **Viewpoint** articles give opinions on controversial topics or future projections, some of these are invited.
- **Historical View** category presents overview articles about historical sections from all areas of anatomy.
- **Terminology Zone** category is a platform for the articles which discuss some terminological controversies or opinions.

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- *Journal article with indication article published electronically before print:* Sengul G, Fu Y, Yu Y, Paxinos G. Spinal cord projections to the cerebellum in the mouse. *Brain Struct Funct* Epub 2014 Jul 10. DOI 10.1007/s00429-014-0840-7.
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 - *Chapter in a book:*
 - *Standard chapter in a book:* Doyle JR, Botte MJ. Surgical anatomy of the hand and upper extremity. Philadelphia (PA): Lippincott Williams and Wilkins; 2003. Chapter 10, Hand, Part 1, Palmar hand; p. 532–641.

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25th National Anatomy Congress

25–28 August 2025, Ordu, Türkiye

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Welcome Address of the Congress President

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Dear Participants,

It is our great pleasure and honor to cordially invite you to the 25th National Anatomy Congress, which will be hosted by our University between August 25–28, 2025.

Academic studies and scientific events in the field of anatomy play a crucial role in sharing knowledge and fostering collaborations. Platforms that bring together theoretical knowledge and practical experience—particularly those that discuss contemporary research methods—contribute significantly to the advancement of the discipline of anatomy. In this context, events organized with the aim of deepening progress in anatomical sciences and shedding light on future scientific goals serve an important mission by providing both scientific and social benefits.

In cooperation with Ordu University and the Turkish Society of Anatomy and Clinical Anatomy (TAKAD), the 25th National Anatomy Congress aims to offer participants a rich and multidimensional scientific exchange environment. At the same time, we attach great importance to supporting our

young researchers by providing them with opportunities to present their work and develop their knowledge and experience.

Our congress is not only a scientific event but also a social and cultural gathering point. Throughout this event, which will be hosted by our university, we aim to create an atmosphere that combines both scientific and social engagement. Within a program enriched by the historical and natural beauty of our city, we hope that you will accumulate both valuable knowledge and enjoyable memories.

We would be delighted to welcome you, esteemed scientists, under the roof of Ordu University, and we sincerely invite you to participate in the 25th National Anatomy Congress, to be held August 25–28, 2025.

Best regards,

Prof. Dr. Orhan Baş

Congress President

Rector of Ordu University

25th National Anatomy Congress

25–28 August 2025, Ordu, Türkiye

Scientific Program

24 August 2025, Sunday

Hall 1

10.00–15.00	Course on segmentation of brain structures in T1-weighted MRI images using VolBrain and 3D modeling with ITK-SNAP Course Instructors: Prof. Dr. Niyazi Acer, Asst. Prof. Dr. Özgür Palancı, Asst. Prof. Adem Tokpınar
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25 August 2025, Monday

Conference Hall

08.00–10.00	Registration Procedures
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10.00–11.00	Opening Ceremony
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11.00–11.15	Coffee Break
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11.15–12.00	Prof. Gazi YAŞARGİL and basic medicine Prof. Dr. Muzaffer Şeker
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12.00–13.00	Lunch
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13.00–13.40	The media representation of the post-biological body: technologization, enhancement, and transhumanism Prof. Dr. Fatih Keskin
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13.40–13.55	Coffee Break
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Hall 1

13.15–15.00	Oral Presentation Session 1 / Prof. Gazi Yaşargil Session
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Session Chairs: Prof. Ahmet Kağan Karabulut, Assoc. Prof. Emre Atay
 Evaluation of the peer teaching method in anatomy laboratory education (1256)
Sümeyye Yahyaoğlu, Nurullah Yücel, Simge Kökcan, Mehmet Yiğit, Duygu Aydın Haklı

The effect of visual worksheets on learning process and study behaviors in anatomy education at the faculty of dentistry (1504)
Pelin İsmailoğlu, Nevrihal Akbaytürk

Morphometric analysis of redundant sigmoid colon and associated structures (1693)

Tayfun Aygün, Arif Keskin, Ahmet Cumhuri Dülger

Investigation of the effect of flipped learning on neuroanatomy education in dentistry faculty students (3123)

Nevnihal Akbaytürk, Tayfun Aygün

Evaluation of ventricular wall illustrations in anatomy atlases and books in terms of anatomical accuracy (3312)

Sevdenur Bekam, Nurullah Yücel, Ahmet Sınay

Determining the performance of artificial intelligence programs in medical school board exams (4055)

Arif Keskin, Tayfun Aygün

Hall 2

13.55–15.00 Oral Presentation Session 2 / Prof. Aziz Sancar Session

Session Chairs: Prof. Nadire Ünver Doğan, Assoc. Prof. Güneş Bolatlı

Brachial plexus variation (6916)

Sema Nihal Küçükoğlu, Zeynep Sarımermer Yücel, Emine Öztaş

Anatomical evaluation of the morphometric characteristics of the talus bone (7223)

Eylem Yalman, Bahadır Murat Demirel, Sükrü Ateş, Emre Şahin, Sema Nihal Küçükoğlu, Seher Yılmaz

A design proposal for anatomy laboratory training focusing on the Dick and Carey model: lower extremity bones example (1870)

Sevda Canbay Durmaz, Güneş Bolatlı, Zafer Bolatlı

Second spinous process on greater sciatic notch (8766)

Mustafa Canbolat, Merve Aydın, Damla Bilge, Veysel Burulday

Antitumoral effects of EMF, carboplatin, and paclitaxel in U87 cells (8704)

Fatih Mehmet Koca, Kardelen Tur, Esin Tuğlacı, Sema Nihal Küçükoğlu, Mehtap Nisari

Multiple anatomical variation of the vertebrobasilar system: a cadaveric case study (9943)

Aymen A. Warille, Emrah Altuntaş, Marwa M.A. Mohamed, Meltem Açar Güdek, Ebru Yolaçan, Burak Oğuzhan Karapınar, Hanife Doğru, Naci Furkan Gülhan, Orhan Baş

Hall 3

13.55–15.00 Oral Presentation Session 3 / Prof. Osman Zeki Zeren Session

Session Chairs: Prof. Ayhan Cömert, Prof. Erdoğan Unur

Investigation of the effect of goji berry extract on the u87 glioblastoma cell line (1178)

Ahmet Can Şanlı, Sümeyye Uçar

Evaluation of pannexin localisation in mouse ovarian and testis tissue (5169)

Selda Kahveci, Şaban Varinli, Sümeyye Aktaş, Züleyha Doğanyığıt

The relationship between single nucleotide polymorphisms in the beta-2 adrenergic receptor gene and intraoperative hypotension in pregnant women undergoing cesarean section under spinal anesthesia (7118)

Anil Kılınç, Çağrı Doğan, Ebru Çanakçı

Surgical and anatomical collaboration in Müllerian anomalies: a case of deep uterine septum (5939)

Mehmet Fatih Kaya, Özgür Palancı, Hidayet Şal, Ömer Demir

Investigation of the effects of obesity on sperm parameters, DNA fragmentation, chromatin structure, and oxidative stress in male infertility (9427)

Seda Karabulut, Fatıma Feyzanur Mete, Ceren Erdem Altun, Pelin Macit, Beril Aleyna Tuncer

Investigation of the effect of Cannabis sativa L. on Ehrlich ascites tumor (9224)

Özge Al, Canan Gönülalan, Serhat Al, Betül Yüksel, Hazal Çobur, Neriman Löker, Melike Vurmaz, Adnan Hayaloğlu, Mehtap Nisari

Meeting Room	
13.55–15.00	Poster Session 1
Session Chairs: Assist. Prof. Ozan Alper Alkoç, Assist. Prof. Ahmet Payas The effect of VR technology on dentistry students' anatomy learning: short-term success and perception evaluation (2554) Methiye Batur	
Challenging the gold standard: statistical reliability of ImageJ versus caliper in cadaveric morphometry (8858) Emre Kaygın, Gamze Gül, Tuncay Çolak	
A case of double inferior vena cava (5233) Muhammet Değermenci, Selen Kazancı, Ali Aygün	
Anastomosis between musculocutaneous nerve and median nerve: a case report (2419) Büşra Sancaklı, Sevdenur Yazı, Abdul Veli İsmailoğlu, Ümit Süleyman Şehirli	
Anatomical variations of femoral nerve, obturator nerve, and lateral femoral cutaneous nerve: a case report (2649) Sevdenur Yazı, Büşra Sancaklı, Özlem Kirazlı, Ümit Süleyman Şehirli	
Hall 1	
15.00–16.00	Oral Presentation Session 4 / Prof. Kaplan Arıncı Session
Session Chairs: Prof. Tolga Ertekin, Assoc. Prof. Abdulkadir Bilir Topographic anatomy of the marginal mandibular and cervical branches of the facial nerve for a safe approach in submandibular gland resections (2737) Abdul Veli İsmailoğlu, Ömer Selim Al, Sevdenur Yazı, Pelin İsmailoğlu, Mustafa Aktekin, Ümit Süleyman Şehirli	
Morphometric evaluation of vocal cord length in relation to sex, age, height, and weight: a clinical anatomy study (3568) Ayşe Ömerli, Mehtap Balcı, Fatih Balcı, Yasemin Savranlar	
Localization and classification of the asterion on the cranium (3939) Gökçenur Özer, Sevgi Elif Ünal, İhsan Hız	
Morphometric analysis of the foramen magnum and occipital condyle dorsally: an anatomical study (4207) Bahar Selenay Bulut, Aysun Uz, Murat Doğuş Günel	
Examination of the anatomical features of the latissimus dorsi in human fetuses (5022) Fatma Aydemir, Piraye Kervancioğlu, Saliha Seda Adanır	
Evaluation of craniometric measurements and cranial indices with gender differences in dry skulls (4906) Burak Oğuzhan Karapınar, Orhan Baş, Yarenkür Alkan	
Hall 2	
15.00–16.00	Oral Presentation Session 5 / Prof. Cahit Arf Session
Session Chairs: Prof. Çağatay Barut, Assoc. Prof. Murat Gölpınar System-based comparison of the knowledge level of popular AI chatbots on human anatomy: a multiple-choice exam analysis of GPT-4.1, DeepSeek, Co-Pilot, and Gemini models (5585) Mert Nahir, Abdülkerim Kasap, Bünyamin Şahin	
Artificial intelligence in anatomy education: a systematic review of effectiveness and limitations (6729) Esin Erbek, Seval Çalışkan Pala, Güneş Bolatlı, Fatih Çavuş	
Student perceptions of the concept of anatomy: a metaphor analysis in the context of school of health services (8743) Meliha Berdan, R. Sinem Balcı, Burcu Atıcı, Ekin Dağ, Caner İncekaş, Esin Özşahin	
Evaluation of medical students' clinical anatomy knowledge in terms of different types of cancer (4903) Cansu Gül Gür, Begümhan Turhan, Esra Tekmen, İsmail Can Pelin	

Investigation of self-efficacy levels of undergraduate medical students regarding anatomy course (4090)
Fatıma Sümeyye Bolat, Nurullah Yücel, Tayfun Aygün

Anatomical reconstruction, postoperative rehabilitation and functional recovery in type II os naviculare accessorium: a case report (3033)
Büşra Aydar, Serpil Çilingiroğlu Anlı, Ayla Kürkçüoğlu, Anıl Tarık Saygılı

Hall 3

15.00–16.00 Oral Presentation Session 6 / Prof. Hamit Ziya Gökalp Session

Session Chairs: Prof. Burak Bilecenoğlu, Assoc. Prof. İlke Ali Gürses
 The relationship between hand and forearm anthropometric measurements and hand grip strength in athletes of professional football clubs (9719)
Ahmet Uzun, Hüseyin Başar, Emrah Altuntaş, Büşra Nur Özcan Erişgin

Morphological analysis of the number and localization of nutrient foramina in dry femora (8576)
Tarik Can Ekici, Zeynep Akca Andı, Mehmet Emirzeoğlu, Ahmet Uzun

Anatomical evaluation of the relationship between hand morphometry and goniometry and grip strength in university students (9401)
Ayla Arslan, Gökçe Bağcı Uzun, Hakan Ocak, Muhammed Furkan Arpacı, Emre Demirel

Three-dimensional digital bone atlas (7184)
Ceren Uğuz Gencer, Mustafa Deniz Yörük, Tuğba Günaydın, Zeynep Nisa Karakoyun, Berke Soyuer, Hasan Tetiker, Mehmet İlkay Koşar

The effect of data volume and model complexity in femur segmentation: a comparative analysis of classical machine learning and deep learning approaches (6542)
Cumali Çatak, Mert Ocak

Anatomy and morphometry of the inferior lateral brachial cutaneous nerve and posterior antebrachial cutaneous nerve (7422)
Buse Naz Candır Gürses, Özge Irmak Doğancı, Ahmet Ertaş, İlke Ali Gürses

Meeting Room

15.00–16.00 Poster Session 2

Session Chair: Asst. Prof. Meltem Alpay
 A case report including the variant of the vertebral artery originating from the arch of the aorta and its clinical significance (2648)
Ali Keleş, Büşra Gül Aytürk, Ahmet Dursun, Figen Taşer

Evaluation of the morphometry of the superior scapular notch in dry scapula bones (4201)
Şükrü Ateş, Sümeyye Uçar, Eylem Yalman, Bahadır Murat Demirel, Hatice Kübra Aslantas, Seher Yılmaz

Corpus callosum hypogenesis: a case report (4288)
Betül Sevindik, Büşra Pirinç, Ayşe Gamze Özcan, Emine Uysal

26 August 2025, Tuesday

Hall 1

09.00–10.00 Oral Presentation Session 7 / İbn-i Sina Session

Session Chairs: Prof. Zeliha Fazlıoğulları, Prof. Nihal Apaydın
 Effect of deferroxamine on neural tube development in chick embryo model (1113)
Alperen Sarıtaş, Emre Atay, Tolga Ertekin, Abdülkadir Bilir, Gülan Albaş Kurt, Melike Emirali, Fatma Fırat

Evaluation of the efficacy of GDNF-loaded bacterial cellulose grafts in peripheral nerve injury using GFAP and S100B immunofluorescence staining (2930)
Fatih Maral, Nermin Yasinoğlu, Fatih İcbudak, Sezin Çevik, Semra Ünal Yıldırım, Banu Taktak Karaca, Merve Açikel Elmas, Ümit Süleyman Şehirli, Yasin Arifoğlu, Özlem Kirazlı

Subtype-specific innervation of VIP interneurons by distinct basket cell types in layer 2/3 of mouse primary somatosensory cortex (3273)

Merve Özgür Erat, Mirko Witte, Jochen Staiger

The effect of maternal sleep deprivation on dopaminergic neurons in the next generation Parkinson's disease model (1240)

Sercan Doğukan Yıldız, Sevdener Yazı, Ayberk Övet, Mehmet Ali Kuver, Mustafa Kemal İslı, Gökhan Biçim, Ümit Süleyman Şehirli, Özlem Kirazlı

In vivo investigation of the effects of NOX-1 enzyme inhibition in a pentylene-tetrazol-induced epileptic seizure model (7163)

Ahmet Ozan Kaleci, Ahmet Altun

Effect of risperidone on neural tube development in early-stage chick embryos (4573)

Gölan Albas Kurt, Tolga Ertekin, Emre Atay, Abdülkadir Bilir, Alperen Sarıtaş, Melike Emirali, Tuğçe Aladağ

Hall 2

09.00–10.00 Oral Presentation Session 8 / Farabi Session

Session Chairs: Prof. Rabet Gözil, Assoc. Prof. Seher Yılmaz

Morphometric and correlational analysis of the radius: an anatomical study (7662)

Seda Nur Şişman, Ümit Can Yıldırım, Mehmet Yılmaz, Ayhan Cömert

Thickness of the tibial nerve at the intercondylar line and arcus tendineus of the soleus muscle: cadaveric study (7799)

İşık Ecem Kılıç, Ayla Kürkcüoğlu, Caner İncekaş, Can Pelin

Neuroanatomical relationship between the plexus caroticus internus and the nervus abducens: a cadaver-based morphological assessment (9488)

Mehmet Deniz Yener, Ayşe Baydere

Consistency and differences of cortical thickness measurements among FreeSurfer, FastSurfer, BrainVolume, and volBrain softwares (1858)

Emre Emekli, Burak Can Demirel, Esra Emekli, Uğur Toprak

Can macrodactyly become an anatomical finger? (4977)

Erdinç Acar

Evaluation of neuroplastin, TRAF6, GluA1, GABA(A) receptor and PMCA expressions in brain tissue in experimental Parkinson's disease model (3444)

Pınar Kaçamak, Sümeyye Uçar, Taha Berkay Bor, Aslı Okan Oflamaz, Seher Yılmaz, Züleyha Doğanyığıt

Hall 3

09.00–10.00 Oral Presentation Session 9 / İbnü'n Nefis Session

Session Chairs: Prof. Necdet Kocabıyık, Asst. Prof. Pelin İsmailoğlu

Evaluation of the relationship between longitudinal arch of foot medial part height and proprioception (1496)

Neslihan İpek, Yılmaz Üçüncü, Abdurrahim Eyüp Canbaloğlu

Relationship between quadriceps angle, hamstring flexibility and lower extremity anthropometry according to gender (1884)

Rabia Koca, Ümrhan Arıcan

Comparison of lumbar range of motion in first- and fifth-year dental students using an inclinometer (2780)

Meltem Açar Güdek, Şirin Aslan Baran, Bedrettin Çinpolat

The relationship between the insertion sites of the achilles tendon and plantar fascia on the calcaneus and plantar fasciitis: a geometric approach (4942)

Begüm Turna, Tuğrul Örmeci

The role of nervus vestibulocochlearis in balance in individuals with fibromyalgia (5408)

Fatih Çiçek, Turgut Seber, Fatma Gül Ülkü Demir, Dilek Aydemir Çildir, İlyas Uçar

Changes in brain ventricular volumes according to frontotemporal dementia subtypes (5786)

Necati Emre Şahin, Menşure Şahin, Şeyma Toy, Bünyamin Şahin

Meeting Room

09.00–10.00 Poster Session 3

Session Chairs: Asst. Prof. Ali Faruk Özyaşar, Asst. Prof. Özge Al

Right testicular artery with retrocaval course: a case report (4339)

Ali Keleş, Büsra Gül Aytürk, Ahmet Dursun, Figen Taşer, Ecem Siyahçınar

A bilateral case of “flexor carpi radialis muscle” originating from bicipital aponeurosis and variation of median nerve (5279)

Kamil Uygur Pınar, Onur Can Koçak, İbrahim Kaan Özer, Zeliha Kurtoğlu Olgunus

Unilateral ovarian agenesis: a case report (5684)

Büşra Pirinç, Betül Sevinç, Ayşe Gamze Özcan, Emine Uysal

A rare injury due to electric shock: a case of bilateral anterior shoulder dislocation (1195)

Sevda Canbay Durmaz, Ali Canbay

An interesting case and an important message from the past to the present: supraorbital ethmoid cell (9431)

Methiye Batur

Conference Hall

10.00–10.50 Panel 1 / Bridging Basic and Clinical Sciences: Global Perspectives on Anatomist–Clinician Collaboration

Moderators: Prof. İbrahim Tekdemir, Prof. Ayhan Cömert

New concepts and new models in anatomist–clinician collaboration

İbrahim Tekdemir

Publication ethics and challenges in anatomist–clinician collaboration: towards transparent and equitable interdisciplinary research

Ayhan Cömert

Outcomes and reflections of collaboration between anatomists and general surgeons

Halil İbrahim Açar

Outcomes and reflections of collaboration between anatomists and orthopedic surgeons

Erdinç Acar

Outcomes and reflections of collaboration between anatomists and obstetricians–gynecologists

Merve Didem Eşkin Tanrıverdi

10.50–11.05 Coffee Break

11.05–12.05 Panel 2 / The Digital World at the Center of Our Lives: Social Media

Moderator: Prof. Nadire Ünver Doğan

Anatomy on screen: behind the scenes of an educational YouTube channel

Cağatay Barut

Social media: those on screen teach those beyond it

Abdullah Ortadeveci

12.05–13.00 Lunch

13.00–14.00	Panel 3 / Ethical Use of Cadaver Images in Anatomy
	Moderators: Prof. Gülgün Şengül, Prof. Zeliha Kurtoğlu Olgunus IFAA best practice recommendations for the ethical use of human tissue images in anatomy education and research: have you noticed them before? Çağatay Barut
	The use of cadaver images in anatomical resources: are IFAA recommendations applicable in practice? Nihal Apaydın
	Consent, context, and cadavers: ethics beyond convenience İlke Ali Gürses
14.00–14.15	Coffee Break
14.15–15.00	Mapping functional connectivity in the brain Gülgün Şengül
15.00–16.15	Oral Presentation Session 10 / Ephesian Rufus Session
	Session Chairs: Prof. Seda Arslan, Assoc. Prof. Mazhar Özkan Morphometric characteristics of the posterior condylar fossa and its relationship with surrounding anatomical structures (6784) Hilal Gören, Nilgün Tuncel Çini
	The presence of nutrient foramen in the rib: a morphometric study (7305) Damla Şahin, Ebru Yolaçan, Necdet Kocabıyık
	Volumetric reduction in thalamic subnuclei and microstructural alterations in thalamocortical pathways in essential tremor: a neuroimaging analysis based on VolBrain and DSI studio (5398) Ali Faruk Özyaşar, Kübra Erten, Vildan Altunayoğlu Çakmak, İlker Eyüboğlu, Ömer Demir
	Comparison of Cormack-Lehane and Mallampati tests with mandibular and neck measurements in predicting difficult intubation (7399) Meliha Berdan, R. Sinem Balcı, Ümmü Kızıldeniz, Ece Ekici, Numan Berk, Caner İncekaş, Esin Özşahin
	Volumetric analysis of the maxillary sinus in subjects diagnosed with temporomandibular dysfunction and healthy controls: an anatomical, radiological, and machine learning approach (1165) Sema Polat, Mahmut Tunc, Hazal Duyan Yüksel, Mahmut Öksüzler, Önder Çoban, Önder Yentar, Esin Özşahin, Pınar Göker
	External auditory canal morphometric and morphological evaluation based on computed tomography: anatomical characteristics by age and sex with clinical implication: a preliminary study (6809) Sümeyra Doğmus, Betül Digiilli Ayaş, Aynur Emine Çiçekcibaşı, Demet Aydoğdu
	Hall 1
15.00–16.15	Oral Presentation Session 11 / Andreas Vesalius Session
	Session Chairs: Prof. Ceren Günenç Beşer, Assoc. Prof. Zümrüt Doğan Comparison of the effects of flipped anatomy classroom and traditional education on dental students' perception of education method, satisfaction and anxiety level (8254) Hilal Melis Altıntaş, Tuğçe Akın, Gizem Kaya, Berin Tuğtağ Demir, Burak Bilecenoğlu
	Quantitative analysis of academic staff in anatomy departments (8778) Emre Atay, Tolga Ertekin, Abdülkadir Bilir
	Morphometric analysis and clinical significance of lumbar arteries (2059) Abdullah Taha Talan, Pınar Diydem Yılmaz, İsmihan İlknur Uysal, Duygu Akın Saygın
	Application of nausea wristband pressing the P6 acupressure point in dental treatment patients with excessive gag reflex: a case series (9372) Özlem Bozkurt, Hilal Erdoğan, Hatice Aydoğdu, Ali Bozkurt

The comparative impact of cadaveric and 3D printed bone models on student learning and attitudes in anatomy education (1317)

Abdülkadir Bilir, Emre Atay, Ahmet Fatih Yuran, Tolga Ertekin

Scientific publication trends on osteochondral lesions of talus between 2000 and 2024 (7012)

Ümmühan Yağmurkaya, Burak Bilecenoğlu

Hall 2

15.00–16.15 Oral Presentation Session 12 / Galenos Session

Session Chairs: Prof. Ayla Kürkçüoğlu, Assoc. Prof. İlyas Uçar

The relationship between anthropometric characteristics and physical fitness parameters in elite male basketball players (6733)

Aysun Güler Kanter, Yunus Gür, Mehmet Ferhat Karaoğlu

evaluation of uncinat process variations and ethmoid roof morphology according to the Keros classification: implications for functional endoscopic sinus surgery (1707)

Helin Yücedağ Gündoğdu, Onur Gündoğdu

Morphometric analysis of mandible: sex differences and clinical significance (8020)

Figen Koç Direk, Rabia Filik, Ayşe Acar

A systematic review of complications following malar filler injections: focus on anatomical risk factors (7440)

Esin Erbek, Güneş Bolatlı, Sevda Canbay Durmaz, Fatma Mutlu Çamlı, Seval Çalışkan Pala

An investigation of the relationship between university students' 2D:4D finger ratio, their demographic characteristics, and exam success (2804)

Damla Bilge Taşdemir, Gülsüm Sude Kocamaz, İpek Balıkçı Çiçek, Turgay Karataş

Intermediate branch of hepatic artery: radiological evaluation and its clinical importance in liver transplant surgery (6921)

Tuğçe Taşkindere Abbasoğlu, Helin Yücedağ Gündoğdu, Bahattin Paslı, Mehmet Ülkir, Muşturay Karçaaltıncaba, Ayşegül Fırat

Hall 3

15.00–16.15 Oral Presentation Session 13 / Hippocrates Session

Session Chairs: Prof. İbrahim Tekdemir, Asst. Prof. Adem Tokpınar

Investigation of the change of radial bow depending on age and gender (6394)

Orhan Soğanç, Mustafa Canbolat

Evaluation of hippocampus and cerebellum volumes in patients with type 2 diabetes mellitus (1257)

Serra Özcan, Selva Şen, Muhammed İkbāl Alp

Investigation of variations in the innervation of the thenar muscles by the median nerve (7386)

Erdinc Acar, Mehmet Yılmaz, Yusuf Kıratlıoğlu, Halil İbrahim Açar, Mehmet Armangil, İbrahim Tekdemir

Frequency, dimension and location of the foramen venosum in children (2106)

Ali Atadağ, Ebru Sena Poyraz, Ceyda Şevval Çetin, Aslıhan Artaş, Firdevs Aşantoğlu, Serdar Sönmezşık, Ömer Faruk Cihan, Orhan Beger

Development of an academic achievement test for neck anatomy: validity and reliability analysis (4774)

Dilber Polat, Halil Yılmaz

Meeting Room	
15.00–16.15	Poster Session 4
Session Chairs: Asst. Prof. Hilal Akdemir Aktaş, Asst. Prof. Arif Keskin A hidden tunnel at the skull base: anatomical and surgical importance of the foramen mastoideum (9829) <u>Ceren Uğuz Gencer, Mustafa Deniz Yörük, Zeynep Nisa Karakoyun, Hasan Tetiker, Mehmet İlkay Koşar</u>	
The role of donated cadavers in anatomy education and commemorative practices for raising public awareness (7334) <u>Ayla Tekin, Nursen Zeybek, Abdullah Örs, Mehmet Deniz Yener, Belgin Bamaç, Tuncay Çolak</u>	
Multiple muscle variations in the left upper extremity (6596) <u>Anıl Tuğçe Başderici, Fatma Aydemir, Özdemir Sevinç, Salih Murat Akkın</u>	
Investigation of the relationship between foot morphometric parameters and vertical jump performance in professional football players (8836) <u>Alisan Özarslan, Serkan Özgür, Tuncay Varol, Çağlar Edis</u>	
Duplication of vena saphena magna in a male cadaver (9436) <u>Zeynep Sarımermer Yücel, Emine Öztas, Sema Nihal Küçükoğlu</u>	

27 August 2025, Wednesday

Conference Hall	
09.00–10.00	Oral Presentation Session 14 / Albert Einstein Session
Session Chairs: Prof. Gülgün Şengül, Assoc. Prof. Rabia Taşdemir Comparison of lumbar intervertebral disc heights by sex in adults using computed tomography images (6991) <u>Hümeysra Tombaş, Bünyamin Şahin, Mehmet Selim Nural</u>	
Evaluation of optical biometric measurements of the eye and measurements of tissues in the iris and iridocorneal angle with anterior segment optical coherence tomography in healthy individuals (8662) <u>Methiye Batur, Samet Kapakin, Muhammed Batur</u>	
An anatomical and clinical assessment of lipoma arborescens: a rare lesion of the knee joint (9067) <u>Sema Polat, Mahmut Tunc, Mahmut Öksüzler, Pınar Göker</u>	
Examining the relationship between 2D:4D finger ratio and motor and cognitive performance in young individuals (7438) <u>Yunus Emre Kundakçı, Rabia Koca, Zeynep Arıkan, Ümran Arıcan</u>	
Variation of phonation time by gender and smoking status (9192) <u>Beyza Bilici, Tayfun Aygün, Nurullah Yücel</u>	

Hall 1	
09.00–10.00	Oral Presentation Session 15 / Marie Curie Session
Session Chairs: Prof. Harun Ülger, Asst. Prof. Muhammet Değermenci From tradition to the future of anatomy education: the effectiveness of digital tools (8224) <u>Yusuf Jamil, Hale Öktem, Sinem Nur Sever</u>	
Active learning in anatomy: the impact of flipped teaching and digital resources on medical students (6822) <u>Hale Öktem, Sinem Nur Sever, Yusuf Jamil, Necla Tülek</u>	
Comparison of methods used in the measurement of 2D:4D digit ratios (1395) <u>İlknur Çöllü, Mehmet Ali Malas</u>	
Anatomical evaluation of the morphometric characteristics of the calcaneus bone (4491) <u>Bahadır Murat Demirel, Eylem Yalman, Şükrü Ateş, Elif Beyza Uysal, Emine Öztas, Zeynep Sarımermer Yücel, Seher Yılmaz</u>	

Hall 2	
09.00–10.00	Oral Presentation Session 16 / Nicola Tesla Session
Session Chairs: Prof. Ali Aydın, Assoc. Prof. Duygu Akın Saygın Preparation of an upper extremity cadaver using the alkyd resin method (4750) <u>Selim Cınaroğlu, Faruk Gazi Ceranoğlu, Fatih Çiçek, Ali Aydın</u>	
"A difficult airway in a prematurely aging face": anesthetic management for dental surgery in a child with Hutchinson-Gilford progeria syndrome (4726) <u>Ümit Can OK, Hilal Çelik, Zübeyir Cebeci, Didem Odabaşı</u>	
Morphometric features of the carotid canal (5180) <u>Latif Sağlam, Gökçe Cenk, Osman Coşkun, Aysin Kale, Özcan Gayretli</u>	
Three-dimensional examination of spleen anatomy in individuals with accessory spleen and healthy individuals: preliminary study (2594) <u>Bilge Türkmen, Duygu Akın Saygın, Senem Erdoğan Koç, Mehmet Tuğrul Yılmaz, Anıl Didem Aydın Kabakçı, Cengiz Kadiyoran</u>	
Hall 3	
09.00–10.00	Oral Presentation Session 17 / Edward Jenner Session
Session Chairs: Prof. Zülal Ekincioglu Öner, Assoc. Prof. Gökçe Bağcı Uzun The relationship between formaldehyde exposure and reproductive problems in anatomists: a preliminary study from Türkiye (8768) <u>Özge İrmak Doğancı, Zennure Adıgüzel Şahin, Elif Cansu İbiş, Ömer Alp Taştan, İlke Ali Gürses, Sibel Kıran</u>	
Factors affecting the decision for body donation: a survey study on donors (1755) <u>Ege Alkan, Umur Özsoy</u>	
Glandula pinealis volume in taekwondo athletes: a cross-sectional study (4130) <u>Erdal Kurtoglu, Demet Ünalms Aykar</u>	
Body donation awareness among individuals receiving education in health and non-health fields: a descriptive survey study (1639) <u>Elif Emre, Derya Öztürk Söylemez</u>	
Being a woman in anatomy: rising charts, unreachable summits (8894) <u>Sabiha Nisa Çandır, Buse Naz Çandır Gürses, İlke Ali Gürses</u>	
The perspectives of donor families on the whole-body donation process: a qualitative study from Türkiye (3895) <u>Melih Berk Yazar, Ali Aygün Yaban, Zeynep Bengi Eren, Selen Ünlü, Arif Narin, Berk Kabadayı, Nuri Eren Akmehtmet, Bedirhan Haykar, Okan Derin, Servet Çelik, İlke Ali Gürses</u>	
Meeting Room	
09.00–10.00	Poster Session 5
Session Chairs: Asst. Prof. Büşra Piring, Asst. Prof. Betül Sevinç Tolosa-Hunt syndrome followed by cavum septum pellucidum and cavum vergae: a rare case (9631) <u>Umur Serkan Söztanacı, Nazlı Gamze Bülbül, Mete Büyükertan, Doruk Işık, Dilara İlyaz</u>	
The subpubic angle and palpable pelvic parameters in sex determination using machine learning algorithms (3155) <u>Seda Sertel Meyvacı, Beyza Çelik, Handan Ankaralı, Sıddıka Halıcıoğlu, Buse Karabacak</u>	
The morphometry of the anterior surface of the sacrum and its clinical importance: an anatomical study (2532) <u>Merve Didem Eşkin Tanrıverdi, Mehmet Yılmaz, Ayhan Cömert</u>	
The role of the os coxae in sex estimation (4538) <u>Gülfer Özçat, Abdullah Taha Talan, İsmihan İlknur Uysal</u>	

Effects of boldine on ovarian injury induced by ovarian torsion detorsion (biochemical parameters) (8164)
Elmira Madadzada, Zeynep Yıgman, Çağla Köse, Sibel Söylemez, Elvan Anadol, Ayşegül Küçük, Mustafa Arslan

Surgical treatment of thyroglossal ductus cyst: case report (2080)
Dilara İlyas, Umur Serkan Söztanacı, Alaaddin Zirek, Doruk Işık, Mete Büyükkertan

Conference Hall

10.00–10.45 Our interdisciplinary clinical anatomy studies and outcomes
Bayram Ufuk Şakul

10.45–11.00 Coffee Break

11.00–12.00 Panel 4 / Radiological and Biomechanical Anatomy

Moderators: Prof. Niyazi Acer, Prof. Figen Gökmen
 How MRI and CT Images are formed and the importance of radiological anatomy
Sefa Işıklar

Three-dimensional examination and modeling of the head and brain using MRI and CT
Niyazi Acer

Biomechanical and surgical applications of 3D-printed models: use in clinical practice and education
Figen Gökmen

Artificial intelligence applications in biomechanical principles of the skeletal muscle system
Aslı Beril Karakaş

Biomechanics of gait: a functional anatomy perspective – changes in anatomical structures during movement
Seda Adanır

12.00–13.00 Lunch

13.00–13.45 Characterization of a novel animal model allowing multifaceted investigation of the neurodegeneration process
Emel Ulupınar

13.45–14.00 Coffee Break

Hall 1

14.00–15.00 Oral Presentation Session 18 / Alexander Fleming Session

Session Chairs: Prof. Tuğrul Örmeci, Prof. Zeliha Fazlıoğulları
 Examination of the relationship between the anteversion angle of the femur, lumbar lordosis and sacral slope angle according to gender (9742)
Gökçe Bağcı Uzun, Mehtap Nisari, Emre Demirel, Mehmet Akççek, İpek Balıkçı Çiçek, Nihal Sümeyye Ulutaş, Muhammed Furkan Arpacı, Anıl Kaya, Ayla Arslan

The link between fear of failing anatomy and solution-focused thinking: evidence from health sciences students (5096)
Hatice Güler, Halil Yılmaz, Gökçe Bağcı Uzun

Investigation of the morphometric relationship between Haller index and costovertebral joint angle using CT imaging (9538)
Saadet Erdem, Sıddika Halicioğlu, Sena Demiroğlu

Defining the interlaminar window metrics with ultrasonography: a cadaveric study (9842)
Ahmet Soyer, Süleyman Filiz, Halil Gök, Necati Salman, Betül Nergiz Akbaba, Mehmet Yılmaz, Necdet Kocabıyık, Tülin Şen Esmer

Determination of normative brainstem volume values in healthy individuals: a study using 3D segmentation method (8609)
Ece Zeliha Büyükuysal, Gamze Taşkın Şenol, Sıddika Halicioğlu

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10.45–11.25 A multidisciplinary Journey of an Anatomist
Meltem Bahçelioğlu

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Kaan Orhan

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Anatomical rationale for osteopathic therapy and Karabakh folk medicine in facial nerve palsy treatment (6541)
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Mazhar Özkan, Hadi Sasani

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Abstracts of the 25th National Anatomy Congress 25–28 August 2025, Ordu, Türkiye

Anatomy 2025;19(Suppl 1):S1–S93 ©2025 Turkish Society of Anatomy and Clinical Anatomy (TSACA)

Speech Summaries (SS-01 — SS-12)

SS-01

Characterization of a novel animal model allowing multifaceted investigation of the neurodegeneration process

Emel Ulupınar

Department of Neurology and Clinical Neurological Sciences, Feinberg School of Medicine, Northwestern University, Chicago, IL, USA

Neurodegenerative diseases are characterized by progressive neuronal loss and impairment of brain functions. Amyotrophic lateral sclerosis (ALS), a member of this group, had long been regarded as a motor neuron disease characterized solely by the loss of lower and upper motor neurons. However, in recent years, clinical, pathological, and genetic studies have shown a strong link between ALS and frontotemporal dementia (FTD). The hexanucleotide repeat expansion in the C9orf72 gene is the most common genetic risk factor for both ALS and FTD. The presence of ALS and FTD in different members of the same family further confirms this relationship with the most prominent shared feature being the abnormal accumulation of the TDP-43 protein in both conditions. This proteinopathy leads to degeneration in the motor cortex and frontal/temporal lobes, shaping the clinical picture. Approximately 15% of ALS patients exhibit prominent FTD, while 30–50% present with milder cognitive impairments. Therefore, ALS and FTD are considered as a single disease spectrum ranging from ALS with motor findings to FTD with purely cognitive impairments.

Although the shared mechanisms are increasingly recognized, experimental models that fully reflect both the motor and cognitive features of this spectrum are lacking. In this talk, pathological and behavioral findings observed in a transgenic mouse model that overexpresses the TDP-43 protein in neurons will be presented. Depending on differences in protein expression levels, homozygous mice exhibit early motor impairments, motor neuron loss, neuroinflammation, and cognitive decline, whereas heterozygous mice show milder but significant changes. This phenotypic spectrum provides a valuable research platform for investigating disease progression, identifying biomarkers, and evaluating therapeutic strategies.

SS-02

Consent, context, and cadavers: ethics beyond convenience

İlke Ali Gürses

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In whole body donation practices, the ethical validity of consent is not solely determined by its presence, but also by the degree of information disclosed, its scope, temporal relevance, and contextual sensitivity. This presentation explores the boundaries of informed consent by focusing specifically on the acquisition, use, and dissemination of cadaveric images. In the digital era, where anatomical representations carry personal,

cultural, and symbolic significance, traditional one-time consent models often fall short. Donor images persist beyond the physical body, demanding renewed attention to transparency, accountability, public communication, and cultural appropriateness. The presentation highlights the growing need for layered and dynamic consent processes that align with contemporary donor expectations. It also offers a comparative analysis of major ethical frameworks and demonstrates how each leads to different implications in the daily use of donor images. In conclusion, a need for an ethical framework that evolves with donor opinions and expectations, and addresses both individual and collective sensitivities is highlighted.

Keywords: body donation, consent, informed consent, dynamic consent, cadaveric images, ethical frameworks

SS-03

Social media: those on screen teach those beyond it

Abdullah Ortadeveci

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Anatomy constitutes one of the fundamental pillars of medical education. Traditionally, it has been taught through theoretical lectures complemented by practical sessions utilizing cadavers and anatomical models. However, rapid technological advancements in recent years have profoundly transformed anatomy education, particularly its theoretical component, prompting increasing debate in the literature regarding the continued relevance of conventional lectures. In response, various remote learning modalities have been developed as alternatives to in-person instruction. Among these, social media has emerged as a powerful and flexible medium, offering unparalleled accessibility. By 2025, with the global population reaching 8.2 billion, social media users numbered 5.24 billion, accounting for 63.9% of the world's population. On average, individuals spend 141 minutes daily on social media, while the 16–24 age group exceeds three hours per day. Empirical studies indicate that students demonstrate strong motivation to learn through social media, a trend reinforced by the rising quality of anatomy-related content. Furthermore, educational materials produced by professional anatomists enhance both the credibility and pedagogical value of these digital resources. Given the substantial amount of time students devote to social media, these platforms should be recognized by academics as valuable educational tools. Addressing the current shortage of high-quality anatomical content through resources developed by anatomists may significantly improve learning outcomes.

Conversely, leaving this space unoccupied risks allowing unqualified individuals to fill the void, thereby increasing the potential for misinformation among students and the wider public.

SS-04

The digital world at the center of our lives: social media

Nadire Ünver Doğan

Department of Anatomy, Faculty of Medicine, Selçuk University, Konya, Türkiye

Social media entered our lives with simple promises, such as finding old school friends and connecting, dating back to 1997. It evolved at an unexpected pace, starting to offer a much wider range of functions. It now permeates many areas of our daily lives, including following the news, shopping, travel planning, acquiring health information, and education. These platforms have become indispensable tools that directly influence our daily decisions and habits. Globally, there are 5.7 billion active social media users. This figure corresponds to more than 71% of the global population. Almost all internet users (95%) visit at least one social media platform every month. Social media's place in our lives is further clarified by the daily time we spend on it. An average user spends about 2 hours and 45 minutes on social media per day. This equates to approximately 19 hours and 15 minutes per week. Social media usage habits in Türkiye show distinct differences, especially among young people. According to research, more than 90% of university students spend at least 1 hour a day on social media. This clearly demonstrates the central role these platforms play in the daily lives of the youth. Social media is no longer just an entertainment tool; it is also used as a powerful educational instrument. Students in Türkiye, particularly in fields like Law, Engineering, and Dentistry, actively use social media for academic purposes. They dedicate approximately 1–3 hours per day to research course materials, follow professional groups, or interact with experts. As content consumption habits fundamentally change in the digital world, short video formats have become the pioneers of this shift. Short videos on platforms like Instagram Reels, YouTube Shorts, and TikTok are the content types that currently receive the highest engagement. This trend clearly reflects users' desire to access information quickly, dynamically, and visually. Smartphones hold an overwhelming dominance in accessing social media. Current data shows that over 90% of social media users access platforms via mobile devices. Mobile devices offer users the opportunity to

access the internet, and thus social media platforms, anytime and anywhere, making the digital experience seamless. Social media is not just a trend; it is an integral component of modern life. It will continue to evolve in the future but will maintain its central role in human life.

SS-05

IFAA best practice recommendations for the ethical use of human tissue images in anatomy education and research: have you noticed them before?

Çağatay Barut

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Objective: The ethical use of human tissue images in anatomy education and research has become increasingly complex with the widespread use of digital technologies, social media, and imaging tools such as CT, MRI, and 3D printing. In response, the International Federation of Associations of Anatomists (IFAA), through the Federative International Programme for Ethics and Medical Humanities (FICEM), has published best practice recommendations to guide anatomists in maintaining the highest ethical standards. This presentation aims to summarize these key recommendations and highlight their importance in contemporary anatomical practice.

Methods: The IFAA guidelines, published in *Anatomical Sciences Education* (2024), were reviewed and summarized under thematic categories, including informed consent, image acquisition, storage, dissemination, and institutional oversight.

Results: The IFAA recommendations emphasize respect for donors as a central ethical principle in all educational and research contexts. The document outlines 14 core principles addressing the use of human images—ranging from the inclusion of image consent in donor forms and prohibitions on social media sharing, to secure storage, restricted access, and eventual deletion of unused images. Institutions are encouraged to establish Anatomy Oversight Committees to ensure transparency, security, and compliance.

Conclusion: These recommendations offer a global ethical framework for anatomists, ensuring that the dignity of donors is preserved even in the digital era. Adoption of these guidelines promotes ethical consistency, safeguards public trust, and supports responsible innovation in anatomical science.

Keywords: ethics, human tissue images, anatomy education, IFAA, best practice recommendations, informed consent.

SS-06

Anatomy on screen: behind the scenes of an educational YouTube channel

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Objective: Recent advances in digital education have transformed the way anatomy is taught and learned. This study aimed to evaluate the effectiveness and engagement metrics of a YouTube channel designed to support anatomy education through standardized, pre-laboratory visual materials.

Methods: Between January 2023 and March 2024, a total of 87 educational videos demonstrating anatomical structures on cadavers and models were recorded and uploaded to YouTube prior to each anatomy lab session. The video descriptions included standardized structure lists to guide student learning. YouTube Analytics data (watch time, viewer demographics, device usage, and geographic distribution) were analyzed. Additionally, structured student feedback was collected through Google Forms from first- and second-year medical students (n=407) at Istanbul Medeniyet University.

Results: Viewership included both male (45.5%) and female (54.5%) students, predominantly aged 18–24 years (30.5%). The average view duration was 1 minute 53 seconds. The majority of views (76%) originated from Türkiye, followed by Azerbaijan, Germany, and France. Mobile devices accounted for over 60% of total access. Statistical analysis of survey responses revealed significant differences in perceived educational benefit across class years ($p<0.05$).

Conclusion: Structured YouTube-based anatomy videos effectively supplement traditional laboratory teaching and foster student engagement in digital learning environments. The use of standardized pre-lab visual materials may enhance comprehension, motivation, and accessibility in anatomy education.

Keywords: anatomy education, YouTube, medical students, e-learning, digital anatomy

SS-07

New concepts and new models in anatomist: clinician collaboration

İbrahim Tekdemir

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Rapid technological progress in medicine requires clinicians to constantly adapt to new surgical and interventional methods.

In this evolving environment, anatomy has regained a central and dynamic role. Collaborative, cadaver-based studies between anatomists and clinicians facilitate the safe translation of novel technologies into clinical practice and strengthen the bridge between basic and applied medical sciences. Anatomical expertise contributes to higher precision, reproducibility, and educational quality in clinical procedures. Successful models have already been demonstrated in otorhinolaryngology and neurosurgery, where cadaveric dissections have directly informed operative techniques. Building on these experiences, new concepts and models of collaboration aim to expand into all medical specialties, promoting innovation, ethical integrity, and long-term interdisciplinary cooperation. Such partnerships will form the foundation for larger, multi-institutional studies that advance both scientific understanding and patient safety.

Keywords: anatomy, clinician collaboration, cadaver studies, surgical innovation, interdisciplinary research, medical education

SS-08

Publication ethics and challenges in anatomist–clinician collaboration: towards transparent and equitable interdisciplinary research

Ayhan Cömert^{1,2}

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Anatomy represents one of the foundational pillars of medical science and remains indispensable for the safety and success of clinical practice. The growing emphasis on surgical innovation, cadaver-based research, and interdisciplinary projects has amplified the importance of collaboration between anatomists and clinicians. However, these collaborations often face ethical and methodological challenges that can compromise research integrity. This presentation highlights key issues encountered in anatomist–clinician research, including authorship determination, balancing contributions, terminological disparities, data ownership, and the management of ethical approvals. While clinical and patient-based studies require formal ethics committee review, cadaveric studies typically do not, provided that donation is voluntary, and informed consent has been obtained. Differences in research culture—such as clinicians’ outcome-oriented focus versus anatomists’ morphological precision—may lead to conflicts regarding authorship order, credit distribution, and publication expectations. Additional barriers include unequal access to cadaveric or clinical data, clinical ethics committee requirements, and discipline-specific power asymmetries. Key ethical principles, as outlined by ICMJE rec-

ommendations, include transparent authorship criteria, appropriate ethical approval for clinical studies, disclosure of conflicts of interest, and strict avoidance of duplicate or “salami” publications. Promoting a culture of long-term collaboration built on respect, open communication, and shared ethical guidelines is essential for sustainable scientific progress. Ultimately, adherence to integrity, fairness, and accountability will strengthen both anatomical and clinical research, ensuring that multidisciplinary cooperation serves the advancement of medicine responsibly.

Keywords: interdisciplinary research, publication ethics, authorship, anatomy, cadaver studies, ethical approval, research integrity

SS-09

Outcomes and reflections of collaboration between anatomists and general surgeons

Halil İbrahim Açar

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Collaboration between anatomists and general surgeons significantly enhances both surgical practice and anatomical education, particularly in colorectal surgery where precise knowledge of pelvic and mesenteric anatomy is crucial. Over the past decade, our interdisciplinary team has conducted cadaveric dissections, clinical studies, and computer-based simulations to refine understanding of rectal and mesocolic anatomy, focusing on critical vascular structures such as the superior, middle, and inferior rectal arteries and their variations. These efforts have clarified the surgical planes essential for procedures including total mesorectal excision, lateral lymph node dissection, and right-sided colon resections. The integration of anatomical detail into surgical training has facilitated the development of standardized minimally invasive techniques and multimodal training modules, improving intraoperative safety, oncological outcomes, and functional preservation. Joint reflections highlighted the importance of ongoing dialogue, precise anatomical mapping, and iterative feedback between surgeons and anatomists. This approach not only strengthens surgical education but also fosters innovation, translating detailed anatomical knowledge directly into operative strategy. The outcomes underscore that sustained collaboration between anatomy and surgery departments is vital for advancing both educational and clinical standards in colorectal surgery.

Keywords: colorectal surgery, rectal anatomy, pelvic vessels, mesocolic excision, surgical anatomy, anatomist–surgeon collaboration

SS-10**Outcomes and reflections of collaboration between anatomists and orthopedic surgeons**Erdoğan Acar^{1,2}¹Department of Hand Surgery, Ankara Bilkent City Hospital, Ankara, Türkiye; ²Clinical Anatomy (PhD Program), Ankara University Health Sciences Institute, Ankara, Türkiye

Collaboration between anatomists and hand surgeons provides an essential bridge between basic anatomical science and advanced clinical practice. The hand is one of the most anatomically complex regions of the human body, containing intricate relationships among tendons, nerves, vessels, and small articulations within a confined space. A precise understanding of these structures is fundamental for performing safe and effective surgical interventions. Cadaveric dissections conducted jointly by anatomists and hand surgeons allow detailed exploration of anatomic planes, vascular networks, and potential surgical corridors. Such cooperation contributes to the refinement of flap designs, tendon and nerve transfer techniques, and microsurgical reconstructions. It also provides valuable insight into anatomic variations that may influence both surgical planning and outcomes. Anatomy laboratories thus serve as vital training grounds where young surgeons can develop dissection skills, spatial orientation, and three-dimensional understanding. These experiences translate into improved intraoperative confidence, reduced complication rates, and enhanced postoperative function. Future directions include integrating 3D anatomical modeling, augmented reality navigation, and simulation-based microsurgical training into both education and research. Continued collaboration between anatomists and hand surgeons will foster innovation, strengthen surgical precision, and ultimately improve patient safety and outcomes in modern hand and upper extremity surgery.

Keywords: hand surgery, upper extremity, clinical anatomy, microsurgery, cadaveric dissection, surgical education, anatomical variation, interdisciplinary collaboration

SS-11**Outcomes and reflections of collaboration between anatomists and obstetricians: gynecologists**Merve Didem Eşkin Tanrıverdi^{1,2}¹Ankara Bilkent City Hospital, Department of Obstetrics and Gynecology, Ankara, Türkiye; ²Clinical Anatomy (PhD Program), Ankara University Health Sciences Institute, Ankara, Türkiye

Close collaboration between anatomists and gynecologic surgeons plays a crucial role in enhancing the safety and precision of pelvic surgery. Due to the complex spatial relationships between the ureter, bladder, rectum, and major pelvic vessels, a detailed

anatomical understanding is essential—particularly in advanced cases such as deep endometriosis and pelvic malignancies. Cadaveric dissection programs provide three-dimensional comprehension of pelvic topography and neuroanatomical structures, while 3D printing and virtual simulation models support the transfer of this knowledge into clinical practice. Joint anatomy–gynecology education improves spatial orientation and surgical confidence among young surgeons. Preoperative anatomical mapping and nerve-sparing approaches—such as preservation of the hypogastric nerve and pelvic plexus—help reduce intraoperative bleeding and postoperative functional loss. Consequently, collaborative efforts lead to lower complication rates, shorter operative times, and better preservation of urinary, bowel, and sexual function, as well as fertility. In the future, technology-assisted training through 3D modeling, virtual reality, and standardized multidisciplinary teamwork will define a new era in patient safety and surgical excellence.

Keywords: pelvic surgery, clinical anatomy, gynecology, nerve-sparing techniques, cadaver dissection, 3D simulation, multidisciplinary collaboration

SS-12**AI-assisted segmentations: new horizons in anatomy education and clinical applications**

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In recent years, artificial intelligence (AI)-based image analysis has brought revolutionary advancements in both anatomy education and clinical diagnostic processes. Especially in magnetic resonance imaging (MRI) and computed tomography (CT) data, organ segmentation enables the rapid, accurate, and reproducible delineation of complex anatomical structures. This presentation will discuss the role of modern AI techniques, particularly deep learning algorithms, in organ segmentation. Examples will be provided using software such as VolBrain, ITK-SNAP, and 3D Slicer, visually demonstrating segmentation processes of the brain, liver, lungs, and maxillofacial region. In the educational context, the speed and accuracy advantages of AI in the preparation of virtual cadavers and 3D anatomical models will be discussed; in the clinical field, applications such as surgical planning, radiotherapy targeting, and disease monitoring will be addressed. Moreover, ethical and technical challenges including data privacy, algorithm transparency, and model generalizability will be explored. The aim is to present the current status, potential, and future research opportunities of AI-assisted segmentation to the anatomy community.

Oral Presentations

(OP-001 — OP-145)

OP-001

Abstract no: 1256

Abstract group: Anatomy Education and Terminology /
Anatomy Education

Evaluation of the peer teaching method in anatomy laboratory education

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Objective: The aim of this study was to evaluate the anatomy laboratory courses given by peer educators at the International Faculty of Medicine of the University of Health Sciences by the medical faculty students who received this training.

Methods: A total of 101 first-year students from the International Faculty of Medicine at the University of Health Sciences participated in the study. To evaluate peer-assisted anatomy laboratory education, weekly topic-specific study cards were prepared and topics were distributed among anatomy assistants. Sixteen students were selected as peer tutors, with four tutors per session rotating weekly, and were trained by anatomy assistants before each session. Practical sessions were held without theoretical instruction. At the end of each session, tests were administered using anatomical models to assess students' knowledge. A questionnaire consisting of 10 Likert scale items was distributed via Google Forms to evaluate the perceptions of the participating students.

Results: Of the 101 students who participated in our study, 47 were male (46.5%) and 54 were female (53.5%). 76 (75.2%) of the students were placed in the university through ÖSS and 25 (24.8%) through YÖS. According to the data obtained from the survey, the responses to the statement “the laboratory exam encouraged me to come prepared for laboratory practices” showed a significant difference in terms of gender (female-male) and exam type (ÖSS-YÖS) ($p<0.05$).

Conclusion: It was also concluded that peer-assisted education contributed to students' social and cognitive gains as well as being prepared for the course before the anatomy laboratory.

Keywords: anatomy, medical education, peer assisted education

OP-002

Abstract no: 1504

Abstract group: Anatomy Education and Terminology /
Anatomy Education

The effect of visual worksheets on learning process and study behaviors in anatomy education at the faculty of dentistry

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Objective: This study aimed to examine the effect of visual worksheets on students' academic performance and study behaviors in anatomy education.

Methods: This study was approved by the University Ethics Committee with the decision number 2025/304. The study was conducted with 96 first-year students at the Faculty of Dentistry, Recep Tayyip Erdoğan University. After theoretical and laboratory instruction on the anatomy of neck muscles and triangles, students completed structured visual worksheets. Data collection tools included a pre-test, post-test, the Study Behavior Scale (SBS), a demographic form, and a post-intervention feedback questionnaire. Data were analyzed using Wilcoxon signed-rank, Mann-Whitney U, and Spearman correlation tests.

Results: After the visual worksheet intervention, students' academic performance significantly improved (pre-test $\bar{X}=4.95$; post-test $\bar{X}=23.54$; $z=-8.52$, $p<0.001$). Students who studied before class scored significantly higher in the SBS subscales of “Initiation and Persistence,” “Conscious Study,” and “Exam Preparation” ($p<0.05$). Regular students had significantly higher scores in all subdimensions ($p<0.001$). Regression analysis showed that only regular study habits significantly predicted final exam scores ($B=9.55$, $p=0.002$). In total, 42.71% of students rated the visual worksheet intervention as “very useful.”

Conclusion: Visual worksheets effectively improved academic outcomes. However, consistent and conscious study habits played a more substantial role in both learning behavior and exam success. Students' positive perception of the method highlights the potential of visual materials as engaging and supportive tools in anatomy education. These findings underscore the importance of combining instructional materials with behavioral strategies for effective learning.

Keywords: anatomy, dental student, study behavior, visual worksheet

OP-003**Abstract no:** 1693**Abstract group:** Clinical Anatomy /
Radiological and Cross-Sectional Anatomy**Morphometric analysis of redundant sigmoid colon and associated structures**Tayfun Aygün¹, Arif Keskin¹, Ahmet Cumhur Dülger²¹Department of Anatomy, Faculty of Medicine, Giresun University, Giresun, Türkiye; ²Department of Internal Medicine, Faculty of Medicine, Giresun University, Giresun, Türkiye**Objective:** This study aimed to characterize redundant sigmoid colon (RSC) morphology diagnosed during colonoscopy and determine its anatomical relationships with adjacent structures.**Methods:** Patients with RSC detected by colonoscopy between January 2020–July 2024 were retrospectively analyzed. Individuals with computed tomography (CT) or magnetic resonance imaging were included. Colon segmentation was performed using 3D Slicer software on DICOM data, and morphometric measurements of surrounding tissues were obtained.**Results:** In this study, the prevalence of RSC was determined as 6.14% (n=151) in the retrospective analysis of 2458 colonoscopy cases. Morphometric evaluation was performed in 86 cases whose abdominal CT images could be analyzed. The proportion of female patients was higher than male patients (76.7%, n=66). In 94.2% of the cases diagnosed with RSC by colonoscopy, no radiological diagnosis was made. In 57 of 86 RSC cases, the rectosigmoid junction first curved to the right and more than two curves were detected in all RSC cases. While the anus-rectosigmoid junction distance, musculus (m) psoas major thickness and m. rectus abdominis thickness were significantly higher on the left side in men, the anteroposterior abdominal distance and subcutaneous fat tissue thickness were higher in women (p<0.05).**Conclusion:** Preoperative diagnosis of sigmoid redundancy is critical for surgical planning. In addition, some demographic features and morphometric parameters can be used to predict colonoscopy duration.**Keywords:** anatomical variation, CT, colonoscopy, morphometric analysis, redundant sigmoid colon**OP-004****Abstract no:** 3123**Abstract group:** Anatomy Education and Terminology /
Anatomy Education**Investigation of the effect of flipped learning on neuroanatomy education in dentistry faculty students**

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Objective: Flipped learning is a learning model in which students are active and effective. This study is a quasi-experimental study conducted in a pre-post-follow-up test design with experimental and control groups to evaluate the effect of flipped learning on neuroanatomy education of 2nd year students of the faculty of dentistry.**Methods:** The study was conducted with 59 students in the experimental (n=28) and control (n=31) groups in the 2nd year of Giresun University Faculty of Dentistry. Data were collected using the “Student Demographic Characteristics Form”, “N.Facialis Anatomy Knowledge Test”, and “Flipped Learning Feedback Form”. Students in the experimental group were trained using the flipped learning method prepared by the researchers. Students in the control group were trained using the traditional education method. Permission and ethical approval were obtained from the institution where the study was conducted (19.03.2025, no:2025/47).**Results:** It was found that there was a statistically significant difference between the pre-test, post-test and follow-up test of the N. facialis anatomy knowledge test of the students in the experimental group (p=0.000). It was found that there was a statistically significant difference between the pre-test, post-test and follow-up test of the N. facialis anatomy knowledge test of the students in the control group (p=0.022). Students in the experimental group evaluated the benefit of flipped learning as beneficial with a median value of 4.**Conclusion:** Flipped learning, with its student-centered nature, shows that it can be effective as a support to traditional anatomy education for better understanding of the subjects and reinforcement of information in anatomy education.**Keywords:** dental students, anatomy, dental education, flipped learning**OP-005****Abstract no:** 3312**Abstract group:** Anatomy Education and Terminology /
Anatomy Education**Evaluation of ventricular wall illustrations in anatomy atlases and books in terms of anatomical accuracy**Sevdenur Bekam^{1,2}, Nurullah Yücel², Ahmet Sınay³¹Department of Anatomy, Istanbul Aydın University, Faculty of Medicine, Istanbul, Türkiye; ²Department of Anatomy, Hamidiye International Faculty of Medicine, University of Health Sciences, Istanbul, Türkiye; ³Department of Anatomy, Faculty of Dentistry, Istanbul Galata University, Istanbul, Türkiye**Objective:** The aim of this research is to examine the illustrations in books and atlases used as educational materials in various faculties and programs, especially medical faculties, with-

in the scope of information on normal heart anatomy and to discuss the anatomical accuracy and adequacy of heart ventricles illustrations.

Methods: Within the scope of this study, 27 anatomy books and atlases and 7 anatomy atlases with photographs were used. A total of 31 illustrations and 5 photographs were included.

Results: In 15 of 31 illustrations in which we compared the wall thickness of the ventriculus dexter and sinister, the ratio of the ventriculus sinister to dexter was found to be less than 2.5 times; in 10 illustrations, the ratio of the ventriculus sinister to dexter was found to be 2.5 to 3 times; and in 6 illustrations, the ratio of the ventriculus sinister to dexter was found to be greater than 3 times. A total of 10 illustrations were found to be compatible with the information on heart anatomy. In 21 illustrations, a difference was observed in the thickness ratio according to the information on heart anatomy. During the oral presentation, the illustrations and photographs of each different atlas will be explained to the participants.

Conclusion: It was determined that a significant portion of the illustrations examined within the scope of the research conveyed different information in terms of anatomical accuracy.

Keywords: anatomy, heart ventricles, cardiology, medical illustration

OP-006

Abstract no: 4055

Abstract group: Anatomy Education and Terminology / *Anatomy Education*

Determining the performance of artificial intelligence programs in medical school board exams

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Objective: This study aims to evaluate the reliability of artificial intelligence (AI) programs widely used in medical education in answering anatomy questions and compare them with student performance.

Methods: A total of 222 multiple-choice anatomy questions in all exams taken by the students of the Faculty of Medicine, Term I and II in the 2023–2024 academic year were asked to Microsoft Copilot, Google Gemini and OpenAI ChatGPT. Questions were classified as very difficult, difficult, medium and easy according to student success rates. Students' exam success was obtained using exam analysis reports. The answers of the AI programs were recorded as correct and incorrect.

Results: AI programs performed significantly better than students' 61.35% success rate with 92.63% accuracy ($p<0.001$).

CoPilot achieved 97% accuracy, ChatGPT 94.4% and Gemini 86.5% accuracy. While there was a significant difference between the programs for Term I questions ($p<0.001$), CoPilot was the most successful program. Gemini's performance on Term II questions was found to be significantly higher than Term I ($p<0.05$). As question difficulty increased, all programs' success decreased significantly ($p<0.05$). For very difficult questions, ChatGPT's success dropped to 57% and Gemini's to 42.9%.

Conclusion: The high performance of AI applications on informational questions shows that they are suitable for use as a resource that students can refer to in their educational processes. However, we believe that such programs are suitable for limited use due to their poor performance on more complex questions that require clinical thinking and experience.

Keywords: artificial intelligence, ChatGPT, Gemini, Copilot, anatomy

OP-007

Abstract no: 6916

Abstract group: Clinical Anatomy / *Anatomical Variations*

A plexus brachialis variation

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Objective: To demonstrate plexus brachialis variation encountered during cadaver dissection.

Case: Plexus brachialis has a complex structure from its origin in neck to its course in fossa axillaris. Its neighborhood with important anatomical structures makes it open to various variations. These variations increase clinical/ surgical importance of plexus brachialis. During anatomical dissections, case of unilateral plexus brachialis variation was encountered in 45-year-old cadaver. In case, anterior branches of C5 and C6 spinal nerves merged to form truncus superior, the anterior branch of C7 spinal nerve alone formed truncus medius, and anterior branches of C8 and T1 spinal nerves merged to form truncus inferior. Although fasciculus posterior should branch from three truncus, it was found that it was formed by the posterior branches of truncus superior and truncus medius and did not branch from truncus inferior. Truncus inferior was only involved in formation of fasciculus medialis.

Conclusion: Plexus brachialis blockade is an effective component of anesthesia in upper extremity surgery and has many potential benefits. Awareness of formation/structural variations

of plexus brachialis is important for increased surgical success, efficacy of regional anesthesia. Being aware of various variations in its formation and structure will contribute to minimizing plexus brachialis damage radical neck dissection, fossa axillaris and upper arm surgical operations.

Keywords: fasciculus posterior variation, plexus brachialis

OP-008

Abstract no: 7223

Abstract group: Clinical Anatomy / *Anatomical Variations*

Anatomical evaluation of the morphometric characteristics of the talus bone

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Objective: The talus, the most proximal of the tarsal bones, plays a vital role in transferring body weight between the leg and foot. This study aimed to classify talar articular surfaces, perform detailed morphometric analyses, and identify morphological variations important for osteotomy procedures.

Methods: Fifty dry talus bones (29 left, 21 right) from Yozgat Bozok and Erciyes University medical faculties were examined. Articular surfaces were categorized using Boyan's classification (Types A, B, C), and 16 morphometric parameters were measured using a digital caliper and goniometer. The collum-corpus tali angle was also evaluated. Data were analyzed with GraphPad Prism 9. Right-left differences were tested with the Student's t-test ($p < 0.05$).

Results: Type B was the most common (82%), followed by Type A (10%) and Type C (2%). Subtype distribution showed B1: 30%, B2: 52%, and A3: 8%; Type A4 was not observed. No significant right-left differences were found in anterior-posterior length or transverse width. However, statistically significant asymmetries were identified in lateral articular surface height, caput tali width, total talar height, and collum tali angle ($p < 0.05$).

Conclusion: The study highlights side-dependent asymmetries and morphological variations in the talus. Findings such as collum tali angle differences are critical for surgical planning, prosthesis design, and biomechanical modeling. These results contribute to the anatomical understanding of talar morphometry and align with existing literature on variability in talus structure.

Keywords: anatomy, morphometry, talus

OP-009

Abstract no: 1870

Abstract group: Anatomy Education and Terminology / *Anatomy Education*

A design proposal for anatomy laboratory training focusing on the Dick and Carey model: lower extremity bones example

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Objective: Various innovative models have emerged that enhance learning quality, simplify complex concepts, and—most importantly—bridge the gap between basic and clinical sciences. This study aims to assess student performance by enriching anatomy laboratory education, which students often find challenging through traditional methods, with technology-enhanced and collaboration-based teaching strategies.

Methods: First-year medical students were divided into two groups. The control group received traditional laboratory instruction. The experimental group was further divided into six subgroups and received instruction via Google Classroom, structured in three phases: in the first phase, they studied the anatomical structures of bones; second, they examined the clinical relevance of these structures; and in the third, they were presented with a clinical problem related to the content they had learned and engaged in group discussions around it. All students from both groups were assessed using an Academic Achievement Test and the Motivation and Learning Strategies Inventory.

Results: According to the findings, before the intervention, the students' achievement scores on the topic of the lower extremity were comparable between the two groups, indicating no significant difference at baseline. However, following the instructional intervention, the experimental group exhibited a statistically significant increase in mean achievement scores compared to the control group. Furthermore, the students in the experimental group demonstrated significantly higher retention scores than those in the control group, indicating improved long-term learning outcomes.

Conclusion: The implemented instructional approach was observed to have positive effect on student achievement, and it is believed that this method can offer significant benefits for both academician and students.

Keywords: anatomy, laboratory training, bones, problem-based teaching

OP-010

Abstract no: 8766

Abstract group: Clinical Anatomy / *Anatomical Variations*

Second spinous process on greater sciatic notch

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Objective: Greater sciatic notch is on the posterior side of the pelvis, above the ischial spine. Piriformis muscle, vessels and nerves related to gluteal region and lower extremity pass through here. We know that the upper edge of this notch is straight. While conducting a study about the female pelvis, we detected a spinous process on the upper edge of the notch. Aim of study is to examine the prevalence of this spinous process and its changes according to age.

Methods: We used CT images of 324 female patients aged 18–60 years who had no history of surgery or trauma to the pelvis and spine, no history of malignancy or chemotherapy, and who applied to the hospital with complaints of renal colic, urinary infection, abdominal pain and to become organ donors. 3D images used axial, coronal, and sagittal planes in MPR format.

Results: The mean age of the women was found to be 41.58±11.02. We detected this spinous process in the left notch in 82 women and in the right notch in 80 women. 78 of them were on both sides. No significant difference was found between the presence of this spinous process and the age groups.

Conclusion: This spinous process may put pressure on the veins, nerves and piriformis muscle passing through this region. This structure may be included in the etiology of painful conditions of the hip region. We believe that its prevalence should be revealed with studies conducted in larger populations and including men.

Keywords: pelvis, ischial spine, computerized tomography, piriformis muscle

OP-011

Abstract no: 8704

Abstract group: Experimental Research and Neuroscience / *Cellular and Molecular Anatomy*

Antitumoral effects of EMF, carboplatin, and paclitaxel in U87 cells

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Objective: The effects of electromagnetic fields (EMF) on cellular processes have been studied in recent years and have attracted attention for their antitumour potential. In this study, the effects of EMF exposure in combination with the chemotherapeutic agents carboplatin and paclitaxel on proliferation and migration in the U87 glioblastoma cell line were investigated.

Methods: Following the application of carboplatin (40 µM) and paclitaxel (6 µM) to the U87 cell line, electromagnetic field (EMF) exposure was performed at a frequency of 50 Hz for 1 hour per day. Cell migration was assessed at 0, 24, and 48 hours using the scratch assay. Cellular proliferation was analysed using the AgNOR staining method. The obtained data were statistically analysed using the Kruskal-Wallis and Dunn multiple comparison tests.

Results: EMF, carboplatin, and paclitaxel treatments significantly reduced both cell migration and AgNOR counts ($p<0.05$). The most pronounced inhibition was observed in the group where EMF and paclitaxel were applied together; in this group, significant decreases were detected in cell migration and AgNOR parameters. Additionally, the TA/NA (Total AgNOR area/Nuclear area) ratio was significantly reduced in all treatment groups compared to the control group.

Conclusion: The combined application of EMF with carboplatin and paclitaxel produced a synergistic effect that suppressed proliferative activity and cell migration in U87 glioblastoma cells. These findings suggest that the combination of electromagnetic fields with chemotherapy may enhance the antitumoural response at the cellular level and that this combination may be considered as a complementary strategy in glioblastoma treatment.

Keywords: glioblastoma, electromagnetic field, AgNOR staining, cell migration

OP-012

Abstract no: 9943

Abstract group: Clinical Anatomy / *Anatomical Variations*

Multiple anatomical variation of the vertebrobasilar system: a cadaveric case study

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Objective: This report aims to document multiple atypical anatomical variations in the vertebrobasilar system encountered during cadaveric dissection and to emphasize their potential clinical relevance.

Case: During the dissection of a 74-year-old male cadaver, significant variations were identified from the fourth segment of the vertebral arteries to the terminal branches of the basilar artery. Bilateral vertebral artery co-dominance was observed, with hypoplasia of the right vertebral artery and absence of the left posterior inferior cerebellar artery, indicating possible compensatory enlargement of the right posterior inferior cerebellar artery. The basilar artery followed a rightward C-shaped course, with asymmetrical origins of the anterior inferior cerebellar arteries and duplication of the right superior cerebellar artery. The basilar artery bifurcated typically into the posterior cerebral arteries.

Conclusion: Detailed anatomical knowledge of such vascular variations is crucial for neurosurgical and endovascular procedures. In particular, variations such as duplication of the superior cerebellar artery near the course of the oculomotor nerve may lead to neurovascular compression syndromes and related clinical symptoms.

Keywords: vascular variations, vertebrobasilar system, cadaveric study, vertebral artery

OP-013

Abstract no: 1178

Abstract group: Experimental Research and Neuroscience / *Cellular and Molecular Anatomy*

Investigation of the effect of goji berry extract on the u87 glioblastoma cell line

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Objective: Glioblastoma is the most common malignant brain tumor with poor prognosis due to its high aggressiveness and resistance to treatment. The U87 cell line is widely used to investigate the mechanisms of this disease and explore new therapeutic options. Goji berry (*Lycium barbarum*) has recently drawn attention for its reported anticancer, antioxidant, and immunomodulatory effects. This study aims to examine the time- and dose-dependent effects of goji berry extract on U87 glioblastoma cells.

Methods: U87 cells were cultured under standard conditions (5% CO₂, 37°C) and treated with goji berry extract at 1500 and 2000 µg/mL for 24 and 48 hours. Cell proliferation was assessed using the AgNOR (Argyrophilic Nucleolar Organizer

Region) staining method. Morphometric analysis was performed using ImageJ. Statistical evaluation of the data obtained at 24 and 48 hours was carried out using One-way ANOVA and Tukey's post-hoc tests.

Results: A statistically significant reduction in the ratio of total AgNOR area (TAA) to nuclear area (NA) was observed in the 1500 µg/mL group at 48 hours compared to the control group ($p < 0.05$). No significant difference was found in the 2000 µg/mL group relative to the control ($p > 0.05$).

Conclusion: These findings suggest that 1500 µg/mL goji berry extract may have a measurable inhibitory effect on glioblastoma cell proliferation after 48 hours. The higher dose (2000 µg/mL) did not result in significant change, indicating 1500 µg/mL as a potentially optimal concentration.

Keywords: cell culture, goji berry, U87 glioblastoma, AgNOR staining

OP-014

Abstract no: 5169

Abstract group: Experimental Research and Neuroscience / *Cellular and Molecular Anatomy*

Evaluation of pannexin localisation in mouse ovarian and testis tissue

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Objective: Cell-to-cell and cell-to-matrix communication is crucial for the development of ovarian follicles, the maturation of oocytes, and the development of spermatogenic cell lines. Our study aimed to investigate the role of the Pannexin (Panx) family members; Pannexin 1 (Panx1), Pannexin 2 (Panx2), and Pannexin 3 (Panx3) in mouse ovarian follicles and in each component of the testis tissue spermatogenic cells.

Methods: Pannexins were localised in primordial, primary, secondary and tertiary follicles in ovarian tissue and in the spermatogenic cells in the seminiferous tubule in testis tissue and their severity was analysed by the immunohistochemical method.

Results: Immunohistochemical analysis revealed no significant difference in the intensity of Panx1 expression in follicle cells and follicular oocytes. However, the signal intensity of Panx2 and Panx3 was higher in follicular oocytes and cells ($p < 0.05$). In spermatogenic cells, there was no difference in Panx1 intensity, whereas Panx2 and Panx3 proteins were intensely expressed

especially in spermatogonium and primary spermatocytes ($p < 0.05$). Furthermore, Panx2 was found to be concentrated in the membrane area of Sertoli cells in the seminiferous tubule. In the germinal epithelium and adipose tissue, all Panx members were found to be densely localized in both ovarian and testis tissues.

Conclusion: This study provides *in vitro* evidence suggesting that Panxs play an important role in the communication of mice's ovarian follicles and their oocytes, as well as male germ cells.

Keywords: ovary, Pannexin 1, Pannexin 2, Pannexin 3, testis

OP-015

Abstract no: 7118

Abstract group: Experimental Research and Neuroscience / Cellular and Molecular Anatomy

The relationship between single nucleotide polymorphisms in the beta-2 adrenergic receptor gene and intraoperative hypotension in pregnant women undergoing cesarean section under spinal anesthesia

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Objective: Maternal hypotension is a common event during spinal anesthesia in cesarean section procedures. In order to maintain fetal and maternal well-being, it is important to prevent maternal hypotension. Our study aimed to prospectively evaluate the effect of chromosome 16 and 27 polymorphisms on the incidence of maternal hypotension and the amount of ephedrine consumption following spinal anesthesia in Turkish pregnant women undergoing cesarean section.

Methods: 52 on-term gravida in ASA II–II risk class were included in the study. Pregnant women who spoke Turkish without ethnic differences, residing in the Eastern Black Sea region included in the study. After standard monitoring, spinal anesthesia was performed, mean arterial pressures (MAP) and heart rates (HR) at 0th, 5th, 10th, 20th, 40th, and 60th minutes, whether they needed ephedrine and how many mg of ephedrine were administered in total were recorded. DNA amplification of the cases was achieved by the PCR method.

Results: It was observed that the cases were in 3 different mutants in terms of beta-2 adrenoreceptor gene polymorphism. Homozygous mutant was 27 (51.9%), heterozygous mutant was 23 (44.2%), and wild type was 2 (3.9%). Maternal hypotension developed in 33 (64.7%) of the cases and ephedrine was used to provide normotension.

Conclusion: No association was found between single-nucleotide polymorphism in the Beta-2 Adrenoceptor gene and intraoperatively developing maternal hypotension and ephedrine use in pregnant women undergoing cesarean section under spinal anesthesia. We believe that our study will guide future large-population, multicenter studies involving different ethnic groups on this subject.

Keywords: beta-2 adrenoreceptor gene polymorphism, maternal hypotension, ephedrine use, Turkish pregnant woman

OP-016

Abstract no: 5939

Abstract group: Clinical Anatomy / Macroscopic and Surgical Anatomy

Surgical and anatomical collaboration in Müllerian anomalies: a case of deep uterine septum

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Objective: Uterine septum, a type of Müllerian duct fusion anomaly, is a significant cause of recurrent pregnancy loss. Differentiating between a septate and bicornuate uterus is crucial for determining the appropriate surgical intervention. This case demonstrates how laparoscopic evaluation of uterine fundal anatomy contributed to accurate diagnosis and successful reproductive outcome.

Case: A 28-year-old woman with a history of three miscarriages was referred for evaluation of recurrent pregnancy loss. Hysterosalpingography revealed suspicion of a “bicornuate uterus?” and/or “uterine septum?”. Diagnostic laparoscopy and hysteroscopy were performed. Laparoscopy showed a flat external contour of the uterine fundus, ruling out a bicornuate uterus. Concurrent hysteroscopy confirmed the presence of a deep uterine septum, which was subsequently resected via operative hysteroscopy. The patient later achieved a spontaneous pregnancy that progressed uneventfully to term and resulted in delivery at 39 weeks of gestation.

Conclusion: Accurate diagnosis of uterine anomalies relies on the integration of embryological knowledge and precise anatomical evaluation. Laparoscopic assessment of the uterine fundus plays a key role in differentiating septate from bicornuate uterus. This case highlights the importance of anatomical awareness in surgical planning and demonstrates its contribution to a favorable obstetric outcome.

Keywords: uterine septum, bicornuate uterus, Müllerian anomalies, laparoscopy, hysteroscopy

OP-017

Abstract no: 9427

Abstract group: Experimental Research and Neuroscience / *Cellular and Molecular Anatomy*

Investigation of the effects of obesity on sperm parameters, DNA fragmentation, chromatin structure, and oxidative stress in male infertility

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Objective: According to WHO, obesity is defined as a body mass index (BMI) ≥ 30 kg/m². Most studies investigating the relationship between obesity and infertility have been conducted in animal models. The present study aimed to elucidate the impact of obesity on human male fertility by evaluating sperm parameters (concentration, motility, and morphology), DNA integrity, chromatin structure, and oxidative stress, comparing these parameters between obese and healthy men.

Methods: A total of 30 men were included (control: n=20; obese: n=10). Semen analysis was performed following WHO guidelines. DNA fragmentation was assessed using the Halosperm kit, while chromatin integrity was evaluated by Toluidine Blue staining. Total oxidant (TOS) and antioxidant (TAS) levels were measured using commercial kits (Rel Assay, Sigma-Aldrich), and the oxidative stress index (OSI) was calculated as $TOS/(TAS \times 10)$.

Results: Sperm concentration was significantly lower in the obesity group than in controls (16.40 ± 6.73 vs. $30.62 \pm 23.90 \times 10^6$ /mL, $p < 0.05$), whereas total motility was higher ($66 \pm 3\%$ vs. $53.65 \pm 18.74\%$, $p = 0.035$). DNA fragmentation ($p < 0.05$) and chromatin damage were significantly increased in obese men compared to the control group ($74.60 \pm 4.91\%$ vs. $52.50 \pm 14.53\%$, $p = 0.003$). No significant difference was observed in the oxidative stress index ($p > 0.05$).

Conclusion: This study shows that obesity significantly alters sperm quality, with lower sperm concentration but unexpectedly higher motility compared to controls. Increased DNA fragmentation and chromatin damage in the obesity group indicate impaired genome integrity, likely due to hormonal disturbances or defective chromatin remodelling. There was a lack of a significant difference in the oxidative stress index.

Keywords: infertility, obesity, sperm parameters

OP-018

Abstract no: 9224

Abstract group: Experimental Research and Neuroscience / *Cellular and Molecular Anatomy*

Investigation of the effect of Cannabis sativa L. on Ehrlich ascites tumor

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Objective: Cancer is the second leading cause of death worldwide, following cardiovascular diseases. Among the complementary therapies applied to enhance the efficacy of conventional cancer treatments and mitigate their side effects, phytotherapy approaches have gained attention. This study aimed to investigate the *in vitro* effects of Cannabis sativa L. infusion on Ehrlich ascites tumor (EAT) cells.

Methods: Plant material obtained from the Yozgat Bozok University Cannabis Research Institute was dried under appropriate conditions. Leaves were prepared as a hot infusion solution, filtrates obtained were lyophilized. The lyophilized extracts were evaluated for their chemical characterization, antioxidant capacities, *in vitro* cytotoxic effects, and impact on total apoptosis. EAT cells were used to determine cytotoxic effects. Cells were incubated for 24 hours at standard conditions. MTT assays were conducted to evaluate viability. Annexin V apoptosis analyses were subsequently performed based on the determined effective doses.

Results: Chemical characterization analysis revealed that sinapic acid (15.38 ppm) was the most abundant antioxidant compound. High levels of quercetin, caffeic acid, and benzoic acid were also detected. DPPH and FRAP assays confirmed the extract's high antioxidant capacity. *In vitro* cytotoxicity experiments showed that the IC₅₀ value of the lyophilized extract on EAT cells was 71.76 mg/ml. Annexin V analyses demonstrated that Cannabis sativa L. extract altered the total apoptotic ratio dose-dependently ($p < 0.005$).

Conclusion: Extract of Cannabis sativa L., shown to be biologically active, exhibited *in vitro* effects on target cancer cells. This study may serve as a preliminary step for further research into the therapeutic potential of natural bioactive compounds in oncology.

Keywords: Cannabis sativa L., Ehrlich ascites tumor, antioxidant, apoptosis, cancer

OP-019

Abstract no: 2737

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

Topographic anatomy of the marginal mandibular and cervical branches of the facial nerve for a safe approach in submandibular gland resections

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Objective: Submandibular gland (SMG) resection is traditionally performed via a lateral cervical approach, during which the marginal mandibular branch (MMB) and cervical branch (CB) of the facial nerve may be injured. Such injuries often lead to facial asymmetry and undesirable cosmetic outcomes. This study aims to define the topographic anatomy of MMB and CB and develop a surgical technique to reduce injury risk during SMG resection.

Methods: Twelve hemifaces from 7 lightly formalin-fixed, red-blue latex-injected cephalic specimens were dissected under surgical microscopy at 2.5× magnification. After elevating a skin-SMAS-platysma flap, meticulous dissection was performed to expose the MMB, CB, facial artery/vein, hypoglossal nerve, and masseter muscle. All structures were mapped using key surgical landmarks (mandibular angle, inferior mandibular border, and anterior masseter border).

Results: The MMB was predominantly located (91.6%) within a 10-mm zone above and below the inferior mandibular border. Crossing the mandibular border at the anterior masseter border (mean 42±0.8 mm anterior to the mandibular angle), the MMB consistently traversed superficial to the facial artery. The most inferior CB branch lay 37±0.6 mm below the mandibular border. In all specimens, both nerves coursed between the two layers of the investing fascia deep to platysma.

Conclusion: Elevating a composite flap (skin, platysma, and deep fascia) from 4 cm below the mandibular border may provide safe SMG access while preserving the MMB and CB.

Keywords: marginal mandibular branch, cervical branch, submandibular gland resection, nerve injury, safe zone

OP-020

Abstract no: 3568

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

Morphometric evaluation of vocal cord length in relation to sex, age, height, and weight: a clinical anatomy study

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Objective: The vocal cords are key anatomical structures involved in phonation, respiration, and airway protection. Understanding anatomical variations in these structures is of great clinical importance, particularly in procedures involving airway management and laryngeal surgery. However, morphometric studies correlating vocal cord length with demographic and anthropometric factors remain limited.

Methods: This cross-sectional study included a total of 215 adult individuals (both male and female) aged between 15–85 years. Vocal cord lengths were measured bilaterally using laryngoscopic imaging. Participants' age, height, weight, and sex were recorded. Statistical analyses were conducted to evaluate correlations and group differences between vocal cord lengths and demographic parameters.

Results: The mean vocal cord length was found to be significantly longer in males compared to females ($p<0.001$). A strong positive correlation was observed between vocal cord length and height ($r=0.58$, $p<0.001$). A moderate but statistically significant correlation was also identified between vocal cord length and weight ($r=0.41$, $p<0.001$). No significant relationship was found between vocal cord length and age. A high degree of bilateral symmetry was observed between right and left vocal cord lengths ($r=0.95$, $p<0.001$).

Conclusion: Vocal cord length is a key anatomical factor influencing fundamental voice frequency. Sex and height are the most prominent factors affecting vocal cord length. These measurements contribute to anatomical databases and can assist clinicians in preoperative planning, especially in fields such as otolaryngology, anesthesiology, and speech pathology. They may also guide diagnosis, surgical planning, and therapeutic strategies for voice disorders.

Keywords: vocal cord, morphometry, laryngoscopy, anatomical variation, airway anatomy

OP-021**Abstract no:** 3939**Abstract group:** Clinical Anatomy /
*Macroscopic and Surgical Anatomy***Localization and classification of the asterion on the cranium**Gökçenur Özer, Sevgi Elif Ünal, İhsan Hız*Department of Anatomy, Faculty of Medicine, Süleyman Demirel University, Isparta, Türkiye*

Objective: The asterion represents the anatomical junction point of the lambdoid, occipitomastoid, and parietomastoid sutures. It serves as a critical surface landmark for localizing the transverse and sigmoid sinuses during posterior cranial fossa surgical interventions. This study aimed to conduct a detailed morphological and morphometric evaluation of the asterion.

Methods: This investigation was performed on 35 adult human craniums (totaling 70 asterions) at the Anatomy Department of Süleyman Demirel University. Asterions were classified into type 1 (presence of Wormian bones) and type 2 (absence of Wormian bones). The linear distances from the asterion to the zygomatic root, suprameatal spine, mastoid apex, inion, and lambda were recorded.

Results: The mean distance from the asterion to the zygomatic root was 59.26 ± 2.94 mm (right) and 58.58 ± 2.76 mm (left); to the suprameatal spine, 42.41 ± 3.55 mm and 41.35 ± 3.34 mm; to the mastoid apex, 50.47 ± 4.79 mm and 48.88 ± 4.64 mm; to the inion, 62.83 ± 4.01 mm and 63.59 ± 4.50 mm; and to the lambda, 85.81 ± 5.05 mm and 86.49 ± 5.34 mm, on the right and left sides respectively. Wormian bones were found in %17.65 of right and %26.47 of left asterions.

Conclusion: The asterion is an important location for determining the correct burr-hole site in craniotomies performed on the posterior cranial fossa. The data obtained in this study are intended to provide guidance in reducing the risk of damage to neurovascular structures in surgical interventions for the posterior cranial fossa.

Keywords: asterion, wormian bones, posterior cranial fossa

OP-022**Abstract no:** 4207**Abstract group:** Clinical Anatomy /
*Macroscopic and Surgical Anatomy***Morphometric analysis of the foramen magnum and occipital condyle dorsally: an anatomical study**Bahar Selenay Bulut¹, Aysun Uz¹, Murat Doğuş Günel²¹Department of Anatomy, School of Medicine, Ankara University, Ankara, Türkiye; ²Department of Statistics, School of Medicine, Ankara University, Ankara, Türkiye

Objective: Foramen magnum and occipital condyle are important anatomical structures for neurosurgeons and radiologists. Our aim is to describe the morphometry of these anatomical structures in the Turkish population together with foramen magnum area measurements.

Methods: Morphometric measurements of 70 (right and left) occipital condyle and 35 foramen magnum in dry human occipital bones were performed using mitutoyo digital callipers (0.01 mm). ImageJ programme was used for area measurements.

Results: Occipital condyle length 23.11 ± 2.31 mm on the right side, 23.75 ± 2.69 mm on the left side. Occipital condyle width 12.00 ± 1.03 mm on the right side, 12.27 ± 1.24 mm on the left side. The distance between the posterior end of the occipital condyle and the hypoglossal canal was 9.22 (6.35 – 11.22) mm on the right side and 10.00 (6.32 – 14.71) mm on the left side. Distance between the two condyles 25.77 mm anteriorly, distance between the two condyles 41.18 ± 3.21 mm posteriorly. The distance between the basion- and opisthion was 34.82 ± 2.50 mm, the transverse diameter of the foramen magnum was 28.40 ± 2.18 mm and the surface area of the foramen magnum was 789.58 ± 288.76 mm².

Conclusion: Neurosurgeons access the cranial skeleton with a transcondular approach in their interventions and surgery of some malformations. It is important to know the morphometry of the occipital condyle and foramen magnum in dorsal approaches. Therefore, we think that the results of this study will contribute to neurosurgeons, radiologists and anatomists as a reference.

Keywords: occipital bone, occipital condyle, anatomical study, foramen magnum, transcondular approach

OP-023**Abstract no:** 5022**Abstract group:** Clinical Anatomy /
*Macroscopic and Surgical Anatomy***Examination of the anatomical features of the latissimus dorsi in human fetuses**Fatma Aydemir^{1,2}, Piraye Kervancıoğlu¹, Saliha Seda Adanır³¹Department of Anatomy, Institute of Health Sciences, Gaziantep University, Gaziantep, Türkiye; ²Department of Anatomy, Faculty of Medicine, SANKO University, Gaziantep, Türkiye; ³Department of Anatomy, Faculty of Medicine, Gaziantep University, Gaziantep, Türkiye

Objective: Latissimus dorsi (LD) is frequently preferred in both adult and neonatal reconstructive surgeries because it can cover large defects and its absence does not cause any significant loss in individual. There are very few studies in literature that examine the morphometric characteristics and fetal devel-

opment of LD. The present study aims to investigate the anatomical characteristics of LD in human fetuses.

Methods: Ethical approval was obtained from Gaziantep University Non Interventional Clinical Research Ethics Committee (Decision No.2025/204). Thirty two LD specimens from 16 fetuses (mean age: 24.38 ± 4.34 weeks; 4 males, 12 females) in Department of Anatomy, Gaziantep University Faculty of Medicine, were dissected. The origins and insertions of LD were identified, and the dissected areas were photographed with a 24 MP camera at $\times 10$ digital magnification. Edge lengths, width, and surface area of the muscle were measured using ImageJ software. Statistical analyses were performed with SPSS 24.0; $p < 0.05$ was considered significant.

Results: In all specimens, LD originated from the T6–T12 spinous processes and thoracodorsal fascia, inserting into the intertubercular sulcus of the humerus. Mean measurements were as follows: superior edge length: 44.85 ± 12.41 mm, anterior edge length: 78.51 ± 24.37 mm, posterior edge length: 54.83 ± 22.14 mm, width: 41.23 ± 13.74 mm, and surface area: 2350.35 ± 1497.73 mm². Anterior and posterior edge lengths were significantly greater in male than in female fetuses ($p < 0.05$).

Conclusion: This preliminary study characterizes the anatomical features and variations of LD in human fetuses. Because LD flaps are widely used to treat congenital conditions such as diaphragmatic hernia, aplasia cutis congenita, meningomyelocele, and Poland, Fryns, and Jarcho Levin syndromes, expanding the sample size and analyzing gestational age-related developmental dynamics are planned for future research.

Keywords: latissimus dorsi muscle, fetus, flap surgery

OP-024

Abstract no: 4906

Abstract group: Lifelong Anatomy /
Physical Anthropology and Paleoanthropology

Evaluation of craniometric measurements and cranial indices with gender differences in dry skulls

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Objective: This study aimed to obtain fundamental anthropometric data by measuring craniometric parameters and cranial indices in dry skull bones and to evaluate gender-related differences in these parameters.

Methods: This study analysed 51 dry skulls of individuals of known age and gender. These skulls were obtained during the 2020 excavations at the Karlık Tepesi Necropolis in Battalgazi, Malatya, which were conducted by the Malatya Museum Directorate. A single researcher manually performed all measurements using a Mitutoyo digital caliper with 0.1 mm precision. A total of 20 parameters pertaining to the cranial, orbital, facial, nasal, palatal, maxillary, and lower facial regions were measured. Additionally, cranial, facial, orbital, nasal, and zygomatic indices were calculated. All collected data were statistically compared to evaluate gender-related differences.

Results: The mean orbital index was calculated as 89.01 ± 7.14 mm in males and 94.15 ± 8.19 mm in females, and this difference was statistically significant ($p < 0.05$). No statistically significant differences were found between males and females in the mean values of the cranial, nasal, and zygomatic indices. A moderate positive correlation was identified between the cranial index and the zygomatic index.

Conclusion: The craniometric data obtained in this study contribute to the understanding of morphological variation and provide an important reference for sex estimation processes in forensic medicine, forensic anthropology, and osteoarchaeology. We believe that such studies will help reveal inter-population differences and contribute to the improvement of sex estimation methods, making them more accurate and reliable.

Keywords: craniometry, cranial index, anthropometry

OP-025

Abstract no: 5585

Abstract group: Anatomy Education and Terminology /
Anatomy Education

System-based comparison of the knowledge level of popular AI chatbots on human anatomy: a multiple-choice exam analysis of GPT-4.1, DeepSeek, Co-Pilot, and Gemini models

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Objective: This study aimed to comparatively assess the knowledge level of AI-based chatbots on human anatomy systems using multiple-choice questions, and to analyze their potential contribution to medical education.

Methods: Seventy multiple-choice questions covering seven major anatomical systems (musculoskeletal, respiratory, circulatory, digestive, urinary, genital, and nervous systems) were translated in accordance with Terminologia Anatomica and present-

ed to GPT-4.1, DeepSeek, Co-Pilot, and Gemini. Questions were selected from first- and second-year medical student exams and distributed based on item difficulty index (Pj). All bots were tested under the same conditions to minimize bias. Success rates and statistical differences were evaluated using Kruskal-Wallis and Cochran's Q tests. The relationship with item difficulty was assessed using point biserial correlation.

Results: GPT-4.1 showed the highest accuracy (95.7%), followed by Co-Pilot (94.3%), DeepSeek (92.9%), and Gemini (91.4%). System-based results showed Co-Pilot reached 100% in musculoskeletal, and GPT-4.1 reached 90% in nervous system questions. All bots scored 100% in respiratory and circulatory systems. In other systems, success rates ranged from 80% to 100%. No significant correlation was found between item difficulty and chatbot accuracy.

Conclusion: Chatbots achieved high accuracy in anatomy questions, but there were notable differences across systems and areas. While their supportive role in medical education is increasing, expert supervision is still recommended. These results show that AI-based systems can serve as complementary educational tools, but further improvement is needed for complete reliability.

Keywords: anatomy, artificial intelligence, chatbot, exam evaluation, medical education

OP-026

Abstract no: 6729

Abstract group: Anatomy Education and Terminology / *Anatomy Education*

Artificial intelligence in anatomy education: a systematic review of effectiveness and limitations

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Objective: This systematic review aims to evaluate the impact of artificial intelligence (AI) on anatomy education, focusing on its strengths and limitations in supporting student learning.

Methods: Conducted in accordance with PRISMA guidelines, this review included English-language research articles published between 2023 and 2025. Studies investigating the effects of AI on macroscopic anatomy education were searched in Google Scholar, PubMed, and Springer databases. Inclusion criteria were defined using the PICOS framework, incorporating both qualitative and quantitative designs. Data from 13 selected studies were analyzed using content analysis.

Results: In one of the studies, ChatGPT-4 achieved 100% accuracy on TUS-style questions, while in another study, GPT-3.5's accuracy dropped as low as 33.3%. GPT-4 outperformed Copilot by 18.6%, GPT-3.5 by 19.5%, and Gemini by 27% in upper extremity questions. However, performance declined in open-ended and clinical scenario-based questions, with inconsistencies and terminological errors noted. Region-specific accuracy was highest in pelvis (95.3%), thorax (94%), and head-neck (92.9%), while lowest in upper extremity (72.9%) using GPT-4o. Claude excelled in visual recognition and labeling, whereas ChatGPT showed limitations despite correctly identifying structures. ChatGPT-3.5's responses were rated "good" by educators in 50% of cases.

Conclusion: AI tools (particularly GPT-4/4o) serve as effective, personalized support in anatomy education. However, due to limitations in visual and complex topics, their use is best guided by instructors as complementary resources.

Keywords: anatomy education, artificial intelligence, medical education

OP-027

Abstract no: 8743

Abstract group: Anatomy Education and Terminology / *Anatomy Education*

Student perceptions of the concept of anatomy: a metaphor analysis in the context of school of health services

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Objective: This study aims to explore the perceptions of healthcare students regarding the concept of anatomy through metaphors. By examining students' metaphorical expressions, the study seeks to uncover their emotional and cognitive approaches to the course.

Methods: Conducted during the 2024–2025 academic year, the study involved 296 students from the Anesthesia, Physiotherapy, Medical Imaging, and Emergency and First Aid programs at Başkent University Adana Vocational School of Health Services. Participants completed the prompt: "Anatomy is like ... because ..." via an online form. A total of 263 valid responses were analyzed using qualitative content analysis. Metaphors sharing similar conceptual characteristics were grouped under common themes.

Results: Six dominant metaphorical themes emerged: time/structure (n=106), emotional (n=23), nature/inclusive (n=14), infinity (n=13), guidance (n=13), and challenging (n=12). The time/structure theme included metaphors such as “clock” and “calendar,” while the emotional theme involved terms like “love” and “life.” The nature/inclusive theme was represented by “ocean” and “space,” suggesting vastness. “Endless road” and “highway” reflected the infinity theme, while “compass” and “map” conveyed guidance. Metaphors such as “mountain” and “marathon” illustrated the challenging aspect. These findings indicate that students perceive anatomy not only as a scientific subject but also as a complex emotional and experiential process.

Conclusion: Students’ perceptions of anatomy are multidimensional. Metaphor analysis provides meaningful insights into the student experience and may inform the development of more student-centered teaching strategies.

Keywords: anatomy, metaphor analysis, health education, student perception, qualitative research

OP-028

Abstract no: 4903

Abstract group: Anatomy Education and Terminology / *Anatomy Education*

Evaluation of medical students’ clinical anatomy knowledge in terms of different types of cancer

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Objective: In this study, we aimed to determine the ability of medical students to use their anatomical knowledge in evaluating cancer-related localization, clinical presentation, and complications.

Methods: It was conducted with second- and sixth-year students at Başkent University. Data were collected through a Google Forms questionnaire consisting of three sections. The questionnaire included sociodemographic questions, 10 case-based clinical anatomy questions, 10 visual anatomy questions related to the same type of cancer. Each correct answer was scored as 1 point, and scores—along with consistent correct responses to clinical and visual questions—were compared between second- and sixth-year students.

Results: Participants scored a mean of 4.99 ± 2.42 on clinical questions and 6.04 ± 1.77 on visual questions. Sixth-year students performed significantly better in clinical questions ($p < 0.05$), with no difference in visual scores between groups ($p > 0.05$). A very

weak correlation was found only in thyroid and liver cancer questions ($p < 0.05$, $r = 0.191$; $r = 0.194$). Nasopharyngeal, thyroid cancers, and pituitary adenoma were most correctly answered clinically; breast, prostate, and liver cancers visually.

Conclusion: It was observed that clinical knowledge significantly increased with academic year, whereas visual-anatomical knowledge remained similar between groups. The high success of sixth-year students in clinical questions may reflect experience gained during clinical training and case-based learning. The weak correlation between clinical and visual question accuracy indicates students may struggle to integrate visual-anatomical knowledge into clinical reasoning. Therefore, strengthening integration of basic and clinical sciences in all years, especially linking anatomical knowledge with clinical scenarios, is important.

Keywords: basic medical sciences, clinical anatomy, anatomy education, clinical integration

OP-029

Abstract no: 4090

Abstract group: Anatomy Education and Terminology / *Anatomy Education*

Investigation of self-efficacy levels of undergraduate medical students regarding anatomy course

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Objective: To evaluate the self-efficacy levels of second-year medical faculty students taking anatomy courses.

Methods: The ‘Self-Efficacy Perception Scale for Human Anatomy Course’ was prepared and administered via Google Forms to second-year medical students studying at the University of Health Sciences International Faculty of Medicine. The students were divided into 2 groups as ÖSS (71) and YÖS (45). Their demographic data (gender, nationality) and whether they were taking the anatomy course for the first time were questioned.

Results: Of the 116 students who participated in our study, 59 were male (50.9%) and 57 were female (49.1%). Of the students, 71 (61.2%) were Turkish nationals and 45 (38.8%) were foreign nationals. While 59 (50.9%) of the students were taking the anatomy course for the first time, 57 (49.1%) had repeated the course. 87.9% of the participants received a moderate score, 10.3% received a high score, and 2% received a very high score. No statistically significant difference was found in the self-efficacy scores between genders and between

Turkish and foreign national students. Each item of the scale was analyzed separately. Statistically significant differences were found in some items. It was observed that Turkish national students had higher self-efficacy perception, application skills, and interest in the course towards anatomy.

Conclusion: Although there was no significant difference between the two groups in the total mean score of the scale, when the items were examined individually, it was seen that the self-efficacy levels of the students of Turkish nationality towards anatomy were higher in certain areas.

Keywords: anatomy, education, scale, self-efficacy

OP-030

Abstract no: 3033

Abstract group: Clinical Anatomy /
Anatomical Variations

Anatomical reconstruction, postoperative rehabilitation and functional recovery in Type II os naviculare accessorium: a case report

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Objective: The os naviculare accessorium (ONA), located medially to the navicular bone, is an accessory ossicle that is usually congenital and often detected incidentally. Type II ONA is clinically significant due to its fibrocartilaginous connection with the navicular bone, which may become pathological under repetitive mechanical stress, trauma, or overload. This case aims to evaluate how the anatomical and biomechanical features of Type II ONA may influence postoperative rehabilitation, with a focus on the role of personalized rehabilitation in functional recovery.

Case: A 23-year-old female presented with chronic pain in the right foot. Radiological and clinical evaluation confirmed the presence of a Type II ONA. After the failure of conservative treatment methods, surgical excision was performed. Postoperatively, short-term immobilization with an orthosis and cast was followed by a personalized rehabilitation program. Joint range of motion improved from 0° to 20° in dorsiflexion, inversion, and eversion by the sixth postoperative week. Muscle strength increased from grade 2 to 5 (Lovett scale), and pain decreased from 8 to 4 Visual Analog Scale (VAS). Significant improvements were observed in functional mobility and daily activities.

Conclusion: This case illustrates that Type II ONA, a skeletal variation of the foot, can lead to clinical symptoms, and that precise anatomical diagnosis is crucial for successful treatment. Post-surgical individualized rehabilitation proved effective not only in symptom management but also in restoring musculoskeletal function. This report highlights the clinical relevance of accessory bone classification in treatment planning and contributes valuable insight to the field of clinical anatomy.

Keywords: Type II accessory navicular bone, foot pain, surgical excision, physiotherapy, functional recovery

OP-031

Abstract no: 9719

Abstract group: Clinical Anatomy /
Biomechanics and Musculoskeletal System Anatomy

The relationship between hand and forearm anthropometric measurements and hand grip strength in athletes of professional football clubs

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Objective: The hand and forearm, as distal segments of the upper extremity, play a crucial role in motor control, grip, and fine motor skills. The structural features of the hand and grip strength are key components of athletic performance, particularly in football players for ball control and balance, and in goalkeepers for ball handling. Grip strength is a core metric in functional assessment and a critical factor in enhancing athletic performance. This study aimed to investigate the relationship between dominant-hand anthropometric measurements of the hand and forearm and grip strength in male athletes (football players and goalkeepers).

Methods: The study included 60 male athletes aged 18–36 years (30 football players and 30 goalkeepers). Measurements included hand length, palm length, hand circumference, finger lengths (1st–5th), wrist circumference, forearm length, hand breadth, hand shape index, and grip strength.

Results: The mean age was 19.57±2.96 years for football players and 24.33±6.26 years for goalkeepers. Goalkeepers were taller (188.80±4.45 cm) and heavier (80.20±4.37 kg). Right-hand dominance was observed in 86.7% of participants. A significant positive correlation was found between hand length and right-hand grip strength in football players ($r=0.365$; $p=0.047$). Hand cir-

conference showed strong correlations with grip strength in both hands (right: $r=0.536$, $p<0.001$; left: $r=0.432$, $p=0.001$).

Conclusion: The study demonstrates that hand and forearm anthropometric characteristics are associated with grip strength. Goalkeepers exhibited higher dominant-hand grip strength, likely due to greater functional demands of their position.

Keywords: athlete, football player, goalkeeper, grip strength, anthropometry

OP-032

Abstract no: 8576

Abstract group: Clinical Anatomy /
Biomechanics and Musculoskeletal System Anatomy

Morphological analysis of the number and localization of nutrient foramina in dry femora

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Objective: The nutrient artery passing through the nutrient foramen (NF) plays an important role in ensuring that the bones receive sufficient blood for growth and development. The purpose of this study was to determine the number and location of the NF of the femur, which is the longest bone in the body.

Methods: This study examined 70 adult dry femur bones of unknown age and sex (35 right and 35 left) at the Department of Anatomy, Faculty of Medicine, Ondokuz Mayıs University. Hypodermic needles of 20- and 24-gauge were used to determine the patency of the foramina. The localization of the foramina was evaluated based on their location in the upper, middle, and lower thirds of the femur. The major NF was identified, and the foraminal index was calculated. The data were analyzed using SPSS V.23 software.

Results: In our study, 35.7% of the samples had one, 37.1% had two, 14.3% had three and 4.3% had four, 8.6% had noNF. 33.61% of the NF were located in the upper 1/3 segment of the bone, 60.5% in the middle 1/3 segment, and 5.88% in the lower 1/3 segment. The mean foraminal index value was 41.43 ± 12.85 . No statistically significant correlation was found between the foraminal index and femur length or the number of NF.

Conclusion: The data obtained can provide guidance to clinicians and surgeons in creating treatment strategies to preserve the bone vascular structure in interventions performed in this region.

Keywords: nutrient foramina, femur, dry bone, foraminal index

OP-033

Abstract no: 9401

Abstract group: Clinical Anatomy /
Biomechanics and Musculoskeletal System Anatomy

Anatomical evaluation of the relationship between hand morphometry and goniometry and grip strength in university students

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Objective: The aim of our study is to contribute to the literature and researchers by examining the relationship between hand morphometry and wrist goniometric measurements and hand grip strength.

Methods: Permission was obtained from the Non-Interventional Ethics Committee for our study (2024:B.248). 59 males and 53 females between the ages of 18–25 in Ağrı and Malatya provinces participated in our study. Demographic information, hand morphometric measurements, wrist goniometric measurements, grip strength measurements and hand function index measurements were performed. SPSS 28.0 software was used.

Results: In the study, a significant relationship was found between the SF-12 quality of life scale score and the right hand flexion value ($p<0.05$). Similarly, significant relationships were found between right hand function index and left radial deviation and left ulnar deviation values. A significant relationship was also found between right flexion and right radial deviation measurements. Significant relationships were found between right U3 measurement and left hand flexion and left ulnar deviation. Significant relationships were observed between right U7 and SF-12 score; right U8 and left hand function index; right U9 and left hand grip strength. In addition, significant relationships were found between left U5 and right flexion; left U6 and left flexion; left U7 and right flexion and right radial deviation; left U9 and left U11 and left radial deviation. However, there was a significant relationship between left U8 and SF-12 score ($p<0.05$).

Conclusion: Significant relationships were found between upper extremity joint range of motion, functional capacity and quality of life parameters.

Keywords: handgrip strength, hand morphometry, anthropometry

OP-034

Abstract no: 7184

Abstract group: Anatomy and Innovation /
Digital Anatomy and Virtual Reality in Anatomy

Three-dimensional digital bone atlas

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Objective: This project aimed to create highly accurate three-dimensional (3D) digital models from real human bones and compile them into a comprehensive digital bone atlas. Furthermore, it sought to generate an alternative, domestic, and accessible educational resource by producing physical models through 3D printing to overcome challenges in bone procurement.

Methods: Intact human bones from the Department of Anatomy were selected. 3D modeling was conducted using the Qlone 3D Scanner application on a smartphone. The models were edited in Blender software and validated for anatomical accuracy by two independent experts. Verified models were transferred into the Unity platform to build an interactive digital atlas, with anatomical labels provided in both Latin and English.

Results: Real human bones were successfully modeled. A desktop-accessible digital version was developed, allowing individual viewing of each bone in separate scenes. Physical 3D-printed models were created, including hard-to-obtain structures such as viscerocranium bones, which were distributed to student groups. Compared to plastic models, these bone-derived outputs offered more effective and cost-efficient alternatives in anatomy education.

Conclusion: This project resulted in the first scientifically validated 3D digital bone atlas created from real human bones in Türkiye. Despite technical challenges, both digital and physical outputs were achieved successfully. Its domestic and accessible nature reduces dependence on foreign sources and expands student access through affordable bone sets. It supports educational equity in anatomy and provides a strong foundation for digital transformation in medical faculties. This study was supported by the TÜBİTAK 1005 – National New Ideas And New Products Research Funding Program Project No: 222S939.

Keywords: digital anatomy, 3D print, 3D anatomy, bone atlas

OP-035

Abstract no: 6542

Abstract group: Anatomy and Innovation /
Digital Anatomy and Virtual Reality in Anatomy

The effect of data volume and model complexity in femur segmentation: a comparative analysis of classical machine learning and deep learning approaches

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Objective: The difficulty in acquiring sufficient cadaveric images for anatomical education and AI development creates significant data set limitations. This study investigates whether a limited data set, enriched via data augmentation, can achieve performance comparable to models trained on a large, original data set for anatomical femur segmentation.

Methods: Two scenarios were compared: training on 800 original images versus a set augmented from 80 images. Classical Machine Learning (ML) algorithms and the convolutional neural network-based YOLOv8 model were employed. Performance was evaluated using foreground accuracy, mean Average Precision (mAP), Dice Score, and F1-Score, with inter-group statistical significance analyzed.

Results: The YOLOv8 model trained on 800 images achieved high performance in both object detection (Box F1: 0.997) and segmentation (Mask F1: 0.993). Confirming the hypothesis, a statistically significant performance drop occurred with the 80-image set, especially in segmentation quality (Mask mAP50-95: 0.846 to 0.432) and Mask F1 score (0.993 to 0.679) ($p < 0.001$). Classical ML models reached 85–90% foreground accuracy on the large set, but their low Dice (best 0.043) and mIoU (best 0.024) scores demonstrated an inability to preserve shape integrity.

Conclusion: Data set volume is the most critical factor determining femur segmentation performance. As hypothesized, the large data set yielded a statistically significant and clinically valuable performance increase over the limited set. This study underscores that for high-precision medical imaging, robust data collection strategies are essential, and the choice of model architecture is paramount, with deep learning vastly outperforming classical methods in maintaining spatial integrity.

Keywords: data augmentation, deep learning, femur segmentation, machine learning, medical image analysis

OP-036

Abstract no: 7422

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

Anatomy and morphometry of the inferior lateral brachial cutaneous nerve and posterior antebrachial cutaneous nerve

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Objective: The inferior lateral brachial cutaneous nerve (ILBCN) and the posterior antebrachial cutaneous nerve (PACN), branches of the radial nerve, provide sensory innervation to the lower lateral arm and posterior forearm, respectively. Their anatomical descriptions in literature are limited and inconsistent. This study aimed to clarify their courses and relationships with key anatomical landmarks.

Methods: Twenty-one upper limbs from twelve cadavers were dissected. ILBCN and PACN were traced from their origin to distribution in the proximal forearm. Their courses and relationships with the lateral head of the triceps brachii, lateral intermuscular septum (LIMS), and brachial fascia were recorded. Distances from the deltoid insertion and lateral epicondyle were measured.

Results: ILBCN and PACN originated as a common trunk in 52.4% and separately in 47.6% of cases. ILBCN pierced the LIMS and brachial fascia anteriorly in 57.1%, while PACN pierced the lateral head of triceps brachii and then brachial fascia posterior to LIMS in 61.9%. The fascial hiatuses through which ILBCN and PACN emerged to become superficial were a mean of 36.6±21.2 and 70.4±20.6 mm distal to the deltoid attachment, and 104±17.9 and 68.9±19.9 mm proximal from the lateral epicondyle. In 5 (23.8%) arms, there was an undefined cutaneous nerve that featured the superficial course of both ILBCN and PACN.

Conclusion: ILBCN and PACN show greater anatomical interrelation and variability than previously reported. These findings should be considered during lateral arm free flap harvesting, distal humeral plating or ultrasound-guided nerve block for lateral epicondylitis.

Keywords: radial nerve, inferior lateral brachial cutaneous nerve, posterior antebrachial cutaneous nerve

OP-037

Abstract no: 1113

Abstract group: Experimental Research and Neuroscience /
Neuroanatomy and Neuroscience

Effect of deferoxamine on neural tube development in chick embryo model

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Objective: Deferoxamine is a chelating agent used in the treatment of iron and aluminum overload. Its use during pregnancy is recommended only when the potential therapeutic benefits outweigh the associated risks. Animal studies have shown that deferoxamine may have teratogenic effects on the developing fetus. Since iron plays a critical role in neural tube development, deferoxamine-induced iron depletion may adversely affect this process. This study aimed to investigate the dose-dependent effects of deferoxamine on neural tube development using a chick embryo model.

Methods: Forty fertilized, specific pathogen-free chicken eggs were randomly assigned to four groups (n=10) and incubated for 28 hours. Following incubation, the control group received physiological saline, while the experimental groups were administered deferoxamine (25, 50 and 100 mg/kg). At the 48th hour of incubation, embryos were collected, dissected from extraembryonic membranes, evaluated both morphologically and histopathologically.

Results: Evaluation of the experimental groups based on neural tube position (open or closed) revealed a statistically significant increase in neural tube opening with increasing deferoxamine doses (p<0.05). In terms of developmental delay, only the high-dose group showed a significant difference compared to the control. Morphological analysis demonstrated a dose-dependent decrease in craniocaudal length across all experimental groups and a significant reduction in somite number in the medium and high-dose groups (p<0.05).

Conclusion: The findings of this study suggest that deferoxamine administration in early chick embryos impairs neurogenesis and morphological development in a dose-dependent manner.

Keywords: chick embryo, deferoxamine, neural tube

OP-038

Abstract no: 2930

Abstract group: Experimental Research and Neuroscience /
*Neuroanatomy and Neuroscience***Evaluation of the efficacy of GDNF-loaded bacterial cellulose grafts in peripheral nerve injury using GFAP and S100B immunofluorescence staining**Fatih Maral^{1,2}, Nermin Yasinoglu¹, Fatih İcbudak³, Sezin Çevik⁴,
Semra Ü. Yıldırım⁵, Banu T. Karaca⁶, Merve A. Elmas⁴,
Ümit Süleyman Şehirli¹, Yasin Arifoğlu², Özlem Kirazlı¹¹Department of Anatomy, School of Medicine, Marmara University, Istanbul, Türkiye; ²Department of Anatomy, School of Medicine, Bezmialem Vakıf University, Istanbul, Türkiye; ³Department of Plastic, Reconstructive and Aesthetic Surgery, School of Medicine, Marmara University, Istanbul, Türkiye; ⁴Department of Histology and Embryology, School of Medicine, Acibadem Mehmet Ali Aydınlar University, Istanbul, Türkiye; ⁵Department of Neurological Sciences, Institute of Neurological Sciences, Marmara University, Istanbul, Türkiye; ⁶Department of Immunology, School of Medicine, Marmara University, Istanbul, Türkiye**Objective:** Peripheral nerve injuries are common clinical conditions causing functional loss. Graft applications facilitate healing by providing structural support for axonal regeneration. Glial cell-derived neurotrophic factor (GDNF) accelerates the regenerative process and support nerve repair by stimulating extracellular matrix synthesis. GFAP (glial fibrillary acidic protein) is a marker for glial activation and neural scar formation, and S100B protein is a marker for glial cell activity, cellular differentiation, and neuroinflammation.**Methods:** Wistar albino rats were divided into three groups: autologous nerve graft (OG, n=6), bacterial cellulose graft (BS, n=6), and GDNF-loaded bacterial cellulose graft (BS+GDNF, n=6). After 8 weeks, GFAP and S100B expression in samples of the sciatic nerve was evaluated using immunofluorescence staining. Imaging was performed with a confocal microscope (Zeiss LSM 700). Fluorescence intensities in the immunostained sections were quantitatively analyzed using ImageJ software.**Results:** When fluorescence intensities between groups were compared, GFAP expression significantly decreased in the BS group compared to the OG group ($p<0.001$), while it increased again in the BS+GDNF group ($p<0.01$). Similarly, S100B expression was reduced in the BS group compared to the OG group ($p<0.001$), but significantly increased in the BS+GDNF group ($p<0.001$).**Conclusion:** Bacterial cellulose grafts are innovative alternatives offering biocompatibility and cost-effectiveness in nerve repair. Our study demonstrated that GDNF-enriched grafts support glial activity and the regenerative process, as evidenced

by GFAP and S100B staining. This approach may contribute to the development of advanced bioengineering-based therapeutic strategies for nerve repair. **This study was supported by Marmara University BAPKO (TDK 2024/11274).

Keywords: bacterial cellulose graft, glial cell line-derived neurotrophic factor, immunofluorescence staining, peripheral nerve injury

OP-039

Abstract no: 3273

Abstract group: Experimental Research and Neuroscience /
*Neuroanatomy and Neuroscience***Subtype-specific innervation of VIP interneurons by distinct basket cell types in layer 2/3 of mouse primary somatosensory cortex**Merve Özgür Erat¹, Mirko Witte², Jochen Staiger²¹Department of Anatomy, Faculty of Medicine, Izmir University of Economics, Izmir, Türkiye; ²Georg August University of Göttingen, Göttingen, Germany**Objective:** A fundamental question in modern neuroscience is how different types of neurons contribute to signal processing within neural networks. Recent studies have focused on VIP-expressing interneurons due to their key roles in sensory processing, sensorimotor integration, and behavioral control. These neurons, are known to be activated by a range of cortico-cortical inputs. However, their recruitment is highly dependent on the nature of the inputs they receive. Therefore, understanding the activity, recruitment, and interactions of specific cell types is essential. This raises the question of what mechanisms influence VIP integration regulation? In this study, we propose that GABAergic basket cells may play a critical role in modulating VIP neuron activity?**Methods:** Using the genetical targeting method, in our lab we generated the VIP/CR and VIP/CCK animal lines from VIPcre/tdTomato animals. CB and PV immunohistochemistry were done in the overlaps between tdTomato and VIP+ CR or CCK expressing neurons.**Results:** Our results reveal distinct patterns of innervation among VIP+ interneuron subtypes in the mouse somatosensory cortex. VIP+/CCK+ interneurons received preferential innervation from PV+ basket cells, whereas VIP+/CR+ cells showed stronger CB1R+ input. PV bouton density on VIP+/CCK+ dendrites was about four times higher than on VIP+/CR+ cells, while CB1R bouton density on VIP+CCK+ dendrites was approximately three times higher than on VIP+/CR+ dendrites.**Conclusion:** These findings suggest that VIP+ interneurons in the mouse primary somatosensory cortex are functionally

diverse, receiving selective input from different basket cell types, which may contribute to distinct roles in cortical circuitry.

Keywords: transgenic animal line, interneuron

OP-040

Abstract no: 1240

Abstract group: Experimental Research and Neuroscience / *Neuroanatomy and Neuroscience*

The effect of maternal sleep deprivation on dopaminergic neurons in the next generation Parkinson's disease model

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Objective: Parkinson's disease (PD) develops as a result of both environmental and genetic factors. Maternal sleep deprivation can lead to increased neuroinflammation in the offspring. Maternal inflammation may reduce mitochondrial DNA content, increase mitochondrial fragmentation, and consequently impair the development of glial and neural cells in the brain. In this study, we aimed to investigate the response to PD in the offspring of mothers exposed to sleep deprivation.

Methods: Following pregnancy confirmation, female rats were exposed to an 18-hour REM sleep deprivation protocol for 21 days using the multiple platform method. Offspring of sleep-deprived mothers (OSDM) (n=5) and offspring of non-sleep deprived mothers (control) (n=5) were subjected to a PD model induced by 6-OHDA at 2 months of age. Behavioral and rotation tests were performed 21 days after stereotaxic surgery. Brain tissues and blood samples were obtained by transcardial perfusion. Total antioxidant capacity was measured with CUPRAC assay. Immunohistochemistry procedures were conducted to detect neurons containing dopamine and calretinin (a calcium-binding protein) in the substantia nigra.

Results: There were no significant differences between OSDM and control groups in behavioral tests assessing anxiety and memory. However, rotation scores were significantly higher (p=0.0106), and total antioxidant capacity was significantly lower (p=0.0006) in the OSDM group. In the substantia nigra, the number of neurons containing dopamine (p=0.0027) and calretinin (p=0.0022) was significantly lower in the OSDM group compared to the control group.

Conclusion: Maternal sleep deprivation may lead to increased neuroinflammation in offspring, which could enhance susceptibility to Parkinson's disease.

Keywords: maternal sleep deprivation, Parkinson's disease, dopamine, calretinin

OP-041

Abstract no: 7163

Abstract group: Experimental Research and Neuroscience / *Neuroanatomy and Neuroscience*

In vivo investigation of the effects of NOX-1 enzyme inhibition in a pentylenetetrazol-induced epileptic seizure model

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Objective: The aim of this study was to evaluate the effects of ML-171, a selective NADPH oxidase-1 (NOX-1) inhibitor, on neural tissue in a PTZ-kindled epilepsy model.

Methods: Forty-eight Wistar albino rats were divided into groups: control, PTZ-only, PTZ + valproic acid (200 mg/kg), and PTZ + ML-171 (0.1, 1, 10 mg/kg). Epileptic seizures were induced by pentylenetetrazol (PTZ, 35 mg/kg i.p.) using a kindling protocol. After kindling, electrodes were implanted for electrocorticogram (ECoG) recordings to monitor seizures. At the end of the experiment, rats were sacrificed and hippocampal tissues collected. Bax, Bcl-2 and cleaved caspase-3 were measured by ELISA, and total antioxidant status (TAS) and total oxidant status (TOS) were measured spectrophotometrically.

Results: In the PTZ-only group, seizures caused increased oxidative stress, severe neuronal damage, and apoptosis in the hippocampus. In the VPA and ML-171 groups seizure severity was reduced, latency to generalized seizures was prolonged, and oxidative stress levels were significantly lower than in PTZ-only. ML-171 also decreased Bax and cleaved caspase-3 while increasing Bcl-2.

Conclusion: ML-171 reduced seizure-induced oxidative stress, neuronal damage, and apoptosis in the PTZ-kindled rat model. These findings suggest that NOX-1 inhibition may have potential antiepileptic and neuroprotective effects in epilepsy.

Keywords: apoptosis, epilepsy, oxidative stress, pentylenetetrazole

OP-042**Abstract no:** 4573**Abstract group:** Experimental Research and Neuroscience / *Neuroanatomy and Neuroscience***Effect of risperidone on neural tube development in early-stage chick embryos**Gülan Albaş Kurt¹, Tolga Ertekin¹, Emre Atay¹, Abdülkadir Bilir¹, Alperen Sarıtaş¹, Melike Emirali¹, Tuğçe Aladağ²¹Department of Anatomy, Faculty of Medicine, Afyonkarahisar Health Sciences University, Afyonkarahisar, Türkiye; ²Department of Histology and Embryology, Faculty of Medicine, Afyonkarahisar Health Sciences University, Afyonkarahisar, Türkiye**Objective:** The data on the effects of antipsychotic drugs on the fetus during pregnancy are insufficient. Risperidone is an atypical antipsychotic drug, and studies conducted on experimental animals have shown that it may cause harm to the fetus. Therefore, in this study, the effects of different doses of risperidone on neural tube development in early-stage chick embryos will be investigated.**Methods:** In the study, 52 specific pathogen-free eggs were used. Four experimental groups were formed, each consisting of 13 eggs. At the 28th hour of incubation, the control group received physiological saline, while the experimental groups were administered risperidone at three different doses (0.8, 1.6, and 2.4 mg/kg). At hour 48, the eggs were opened. The embryos were dissected from the embryonic membranes and evaluated morphologically and histopathologically.**Results:** Neural tube opening increased in direct proportion to the risperidone dose and was statistically significant in the medium- and high-dose groups compared to the control ($p<0.05$). Morphological evaluation showed a dose-dependent decrease in average craniocaudal length and somite number. A significant developmental delay was observed only in the high-dose group ($p<0.05$).**Conclusion:** This study showed that risperidone negatively affected neural tube and morphological development in chick embryos, with dose-dependent increases in neural tube closure defects. We believe these findings will contribute to the literature, though we recognize the limitations in applying this model directly to humans and recommend further comprehensive research.**Keywords:** chick embryo, neural tube defect, risperidone**OP-043****Abstract no:** 7662**Abstract group:** Clinical Anatomy / *Macroscopic and Surgical Anatomy***Morphometric and correlational analysis of the radius: an anatomical study**

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Objective: The main approach in radial head fractures is arthroplasty. Therefore it is important to set forth the anatomy of radial head accurately and precisely. The aim of this study is assessing the morphological measurements of the structure in the region and the relationships among them.**Methods:** 50 dry radius bones were used. Maximum-minimum diameters and the length of the radial head, depth of the fovea, length of the radial neck, length of the radial tuberosity and several other distances were measured. Any possible correlations were calculated.**Results:** Radial head was found oval shaped in 80% of the bones and circular in 20%. In all bones, the radial fovea was located closer to the dorsal side of the radial head. The fovea depth was found 2.93 ± 0.6 mm. The distances from the uppermost point of radius to the top, middle and bottom of the radial tuberosity were found 21.66 ± 3.86 mm, 31.07 ± 4.56 mm ve 44.05 ± 7.73 mm respectively. Strong correlations were found between proximal circumference of the radial neck and the anteroposterior diameter ($p=0.002$), transverse diameter ($p=0.001$) and the circumference ($p=0.004$) of the radial head; between the lateral length of the radial head and the anteroposterior diameter ($p=0.005$), transverse diameter ($p=0.008$) and the circumference ($p=0.006$) of the radial head; between the thicknesses of the medial and ventral curves ($p=0.006$).**Conclusion:** This study shows the proximal end of the radius has numerous correlations in terms of size and shape. The obtained data is of great importance for planning surgical interventions involving the proximal forearm.**Keywords:** morphometry, radius, forearm**OP-044****Abstract no:** 7799**Abstract group:** Clinical Anatomy / *Macroscopic and Surgical Anatomy***Thickness of the tibial nerve at the intercondylar line and arcus tendineus of the soleus muscle: cadaveric study**Işık Ecem Kılıç¹, Ayla Kürkçüoğlu², Caner İncekaş³, Can Pelin¹¹Department of Anatomy, Faculty of Medicine, Başkent University, Ankara, Türkiye; ²Department of Anatomy, Faculty of Medicine, Yüksek İhtisas University, Ankara, Türkiye; ³Department of Biostatistics, Faculty of Medicine, Başkent University, Ankara, Türkiye**Objective:** The tibial nerve's thickness in the popliteal fossa and posterior leg is critical in cases such as aneurysms, tumor-

related surgeries, or entrapment syndromes. One potential compression site is the arcus tendineus of the soleus muscle. This cadaveric study aimed to measure tibial nerve thickness at two reference levels.

Methods: Twenty lower limbs from ten formalin-fixed cadavers were dissected. Using a 0.01 mm-sensitive digital caliper, the tibial nerve was measured at the intercondylar line and the arcus tendineus of the soleus. Additionally, motor branches to the gastrocnemius muscle were evaluated.

Results: Mean tibial nerve thickness at the intercondylar line was 7.38 ± 1.73 mm (right) and 6.72 ± 2.34 mm (left). At the arcus tendineus musculi solei, thickness was 7.81 ± 2.22 mm (right) and 6.59 ± 2.17 mm (left). The differences between these two levels were not statistically significant ($p=0.241$ for right, $p=0.333$ for left). The thickness of the tibial nerve at the level of the arcus tendineus of the soleus muscle was found to be 1.03 times that of its thickness at the level of the intercondylar line. The motor branch thicknesses to the lateral and medial heads of the gastrocnemius were 2.47 ± 0.92 mm and 2.20 ± 0.99 mm, respectively.

Conclusion: The tibial nerve shows slightly increased thickness at the arcus tendineus level, a known potential entrapment site. Recognizing this variation is important in planning posterior leg surgeries.

Keywords: cadaver, arcus tendineus musculi solei, tibial nerve

OP-045

Abstract no: 9488

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

Neuroanatomical relationship between the plexus caroticus internus and the nervus abducens: a cadaver-based morphological assessment

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Objective: The Plexus caroticus internus (PCI) contains postganglionic sympathetic fibers surrounding the Arteria carotis interna (ACI), supplying sympathetic innervation to various head and neck structures. Due to its course through the Sinus cavernosus and its proximity to cranial nerves, especially the Nervus abducens, the PCI holds clinical relevance in skull base surgery. Although sympathetic fibers originating from the PCI have been reported to form anatomical connections with the Nervus abducens within the Sinus cavernosus, this relationship exhibits

considerable anatomical variability. This study aimed to document such a connection through detailed morphological dissection.

Methods: A descriptive dissection was conducted on a 72-year-old female cadaver. After removal of the Calvarium and Cerebrum, the lateral wall of the Sinus cavernosus was exposed using microsurgical techniques. The PCI was identified around the ACI, and sympathetic branches projecting to the Nervus abducens were documented macroscopically and photographed.

Results: Two sympathetic branches were observed arising from the lateral aspect of the ACI and coursing inferolaterally toward the Nervus abducens. One joined the mid-segment, and the other reached a more distal portion of the nerve. These patterns correspond to Type IB or Type II variants described in the anatomical literature.

Conclusion: This study demonstrated a clear morphological relationship between the PCI and the Nervus abducens. Awareness of this connection is essential in skull base surgeries to preserve both sympathetic and motor functions. The findings may support future anatomical classification studies involving larger cadaveric series.

Keywords: plexus caroticus internus, sinus cavernosus, rami sympathici, nervus abducens

OP-046

Abstract no: 1858

Abstract group: Experimental Research and Neuroscience /
Neuroanatomy and Neuroscience

Consistency and differences of cortical thickness measurements among FreeSurfer, FastSurfer, BrainVolume, and volBrain softwares

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Objective: This study aims to evaluate the consistency and measurement differences of four automated brain segmentation methods — FreeSurfer (FS), FastSurfer (FaS), BrainVolume (BS), and volBrain (volB) — in cortical thickness measurements across different brain regions.

Methods: Forty healthy individuals (20 females; mean age 24.35 ± 3.66 ; females 23.7 ± 2.35 , males 25 ± 4.52) were included. Cortical thickness was measured in 32 regions using the four segmentation programs. Differences between measurements were analyzed using the Friedman test, with pairwise comparisons conducted via the Wilcoxon test. Inter-method consis-

tency was assessed using the intraclass correlation coefficient (ICC), and sex differences with the Mann-Whitney U test.

Results: Significant differences were found among the programs in all regions ($p < 0.001$). Pairwise comparisons showed significant differences in 22 regions for FS/FaS; in 28 regions each for FS/BS, FS/volB, FaS/volB, and volB/B; in 29 regions for FaS/BS. ICC analysis indicated that FS was inconsistent with the other programs across all regions. FaS/volB showed consistency in 11 (ICC: 0.441–0.603), FaS/BS in 20 (0.428–0.843), and volB/BS in 9 regions (0.421–0.570). No significant sex differences were generally observed (except the right insula).

Conclusion: Measurement differences among the four segmentation programs are evident; their results are not directly interchangeable. FS demonstrates lower consistency, while the others show moderate-to-good consistency in certain regions. However, full agreement across all regions is not achieved. Differences among methods should be considered in clinical and research applications, and caution is warranted in inter-method comparisons.

Keywords: cortical thickness, brain segmentation, FreeSurfer, FastSurfer, volBrain

OP-047

Abstract no: 4977

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

Can macrodactyly become an anatomical finger?

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Objective: The aim of this study was to determine whether or not an anatomic and functional finger could be obtained after soft tissue excision and tendon repair performed in a patient with macrodactyly.

Methods: A 24-year-old male patient presented in March 2018 and was diagnosed with macrodactyly in the second finger of the right hand as a result of the anamnesis and physical examination. Soft tissue excision and tendon repair surgery was planned. No bone pathology was determined on X-ray.

Results: Surgical treatment was performed in March 2018 as soft tissue excision to include the nail and tendon repair applied from the radial side of the second finger. Fixation was made with a single longitudinal K-wire, which was removed after 4 weeks. In the postoperative follow-up period, pain decreased,

the finger became fully functional, and a visually anatomical finger was seen to have been obtained. The patient was followed up for 6 years.

Conclusion: In adult patients with macrodactyly, it should be kept in mind that well-planned surgery meticulously performed will be helpful in obtaining an anatomical and functional finger.

Keywords: anatomical finger, excision, macrodactyly

OP-048

Abstract no: 3444

Abstract group: Experimental Research and Neuroscience /
Neuroanatomy and Neuroscience

Evaluation of neuroplastin, TRAF6, GluA1, GABA(A) receptor and PMCA expressions in brain tissue in experimental Parkinson's disease model

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Objective: Parkinson's disease is the second most common neurodegenerative disease. Pathological changes cause motor and nonmotor symptoms. Nonmotor symptoms include deterioration memory ability and sleep patterns, hallucinations and dementia as a result of impaired synaptic plasticity, but the underlying molecular mechanism is not yet known. In our study, which was supported by Bozok University Scientific Research Projects Unit with the code TGA-2024-1471, we aimed to investigate expression levels of neuroplastin, TNF receptor-associated factor 6 (TRAF6), AMPA receptor subunit type 1 (GluA1), gamma amino butyric acid type A [GABA(A)] receptor and plasma membrane Ca²⁺ ATPase (PMCA), which are known to be involved in synaptic plasticity, in Parkinson's disease model.

Methods: 48 male and female Sprague dawley rats were used. For 21 days, 2 mg/kg rotenone was administered intraperitoneally (i.p) to induce Parkinson's disease model. After completion of experimental procedure, behavioral tests were performed and it was observed that the model was formed. Histopathological and immunohistochemical analyses were performed on brain tissues.

Results: The formation of experimental model was demonstrated by behavioral tests and immunohistochemical analysis.

As a result of histopathologic evaluation, it was determined that neuron degeneration were higher in hippocampus and cortex regions of rotenone groups. In rotenone groups, neuroplastin TRAF6 and GABA(A) immunoreactivities decreased in hippocampus and cortex regions, while GluA1 immunoreactivity decreased especially in hippocampus region. In terms of PMCA immunoreactivity, no difference was observed between control and sham groups and rotenone groups.

Conclusion: We suggest that the mechanism involving the interaction of neuroplastin, TRAF6, GABA(A) and GluA1 plays role in synaptic plasticity in experimental Parkinson's disease model.

Keywords: experimental Parkinson's disease, neuroplastin, TRAF6, GluA1, PMCA

OP-049

Abstract no: 1496

Abstract group: Clinical Anatomy /
Biomechanics and Musculoskeletal System Anatomy

Evaluation of the relationship between longitudinal arch of foot medial part height and proprioception

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Objective: The longitudinal arch of foot medial part (LAFMP) is the highest among the arches of the foot. Foot proprioception is provided by processing afferent information through the muscle spindle and golgi tendon organ located in the structures that provide dynamic support to the foot. This study aimed to evaluate the relationship between LAFMP height and proprioception.

Methods: The study included 61 participants and measurements were performed on 122 feet, 95 with normal arch and 27 with low arch. A questionnaire was used for sociodemographic information, hand and foot preference. Arch height was evaluated with two parameters and proprioception ability was assessed with four angles in weight-bearing and non-weight-bearing positions.

Results: When proprioception acuity was compared, a significant difference was found between normal and low arch groups at 20° plantar flexion (PF) angle on the dominant side in the weight-bearing position. In the analysis between arch height and proprioception acuity, a negative low-level relationship

was found at a 20° PF angle in the weight-bearing position and 10° PF angle in the non-weight-bearing position on the dominant side. No significant correlation was found on the recessive side.

Conclusion: A significant correlation was found between arch height and proprioception on the dominant side, especially in the weight-bearing position. As the arch height decreases for the dominant side, proprioceptive acuity also decreases. Therefore, during pes planus treatment, caution is advised for exercises involving the dominant side and proprioception exercises should be included.

Keywords: cerebral lateralization, foot, medial longitudinal arch, pes planus, proprioception

OP-050

Abstract no: 1884

Abstract group: Clinical Anatomy /
Biomechanics and Musculoskeletal System Anatomy

Relationship between quadriceps angle, hamstring flexibility and lower extremity anthropometry according to gender

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Objective: To evaluate the relationship between the quadriceps (Q) angle and hamstring flexibility, lower extremity anthropometric measurements, and general body composition based on gender.

Methods: 74 healthy individuals, 37 female and 37 male, aged 18–50, participated in this study. Q angle was measured with participants lying in a supine position, knees and hips extended, and feet in a neutral position. Correlation analysis was performed between Q angle and hamstring flexibility, anthropometric measurements (hip, right/left thigh and calf circumference, thigh and leg length), and general body composition (height and weight). Additionally, differences in these measurements were examined according to gender. Gender-based differences in these measurements were analyzed. Independent t-tests were used for normally distributed data, and Mann-Whitney U tests for non-normal distributions. Pearson or Spearman correlation test were used according to data distribution.

Results: The ages of female participants were 25.05±1.11, and male participants were 27.56±1.44 years. The height, weight, right/left thigh and leg lengths, and calf circumference of males were significantly higher than those of females (p<0.05).

Conversely, women's right/left Q angles were significantly higher than men's ($p<0.05$). In both genders, increased Q angle was significantly associated with reduced hamstring flexibility ($p<0.05$). Additionally, in females, a positive correlation was found between the left Q angle and hip, thigh, and calf circumferences ($p<0.05$).

Conclusion: The findings indicate that greater Q angle correlates with decreased hamstring flexibility and is linked to certain lower extremity measurements in females. This suggests Q angle should be considered in gender-specific postural assessments.

Keywords: anthropometric measurements, hamstring flexibility, Q angle

OP-051

Abstract no: 2780

Abstract group: Clinical Anatomy /
Biomechanics and Musculoskeletal System Anatomy

Comparison of lumbar range of motion in first- and fifth-year dental students using an inclinometer

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Objective: Dynamic and static postures adopted during dental practice frequently lead to musculoskeletal disorders among professionals, with the lumbar region being one of the most commonly affected areas. Current literature highlights the role of postural disturbances developed during clinical procedures in the onset of such pain. In this study, it was aimed to determine whether there is a difference between first- and fifth-year dental students by measuring their lumbar joint range of motion.

Methods: A total of 120 students (1st year: 60, 5th year: 60) from the Faculty of Dentistry at Tokat Gaziosmanpaşa University were included in the study. The participants' lumbar flexion, extension, right and left lateral flexion range of motion were measured using a digital inclinometer. The measurements were statistically analyzed by grouping the data according to class level and gender.

Results: No statistically significant difference was found in lumbar range of motion between first- and fifth-year students ($p=0.178>0.05$). Although the mean values were higher in fifth-

year students, this difference was not statistically significant. Similarly, no statistically significant difference was observed in gender-based comparisons within each class or in the overall comparison of all participants ($p>0.05$).

Conclusion: In dental education, it is crucial to address not only professional knowledge and skills but also ergonomic risks associated with the profession. The use of ergonomically designed equipment, proper working posture, and regular postural exercise programs can help ensure long-term occupational sustainability for both students and professionals.

Keywords: dentistry, postural problems, low back pain, inclinometer, ergonomics

OP-052

Abstract no: 4942

Abstract group: Clinical Anatomy /
Biomechanics and Musculoskeletal System Anatomy

The relationship between the insertion sites of the achilles tendon and plantar fascia on the calcaneus and plantar fasciitis: a geometric approach

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In our study, we aimed to evaluate the relationship between plantar fasciitis and two important structures connected to the calcaneus; fascia plantaris and Achilles tendon. Our study consisted of two groups of 100 people, the patient and the control group. In both groups, plantar fascia and Achilles tendon length, hypotenuse length of the triangle formed between lines perpendicular and parallel to the ground passing through the attachment surfaces of plantar fascia and Achilles tendon, Achilles/hypotenuse ratio, internal angles of the triangle and angle between triangle and Achilles tendon and calcaneal inclination angle were measured in foot and ankle radiological images and these values were compared between patient and control groups. According to the measurements, the average angle was 56.55 ± 4.95 degrees, the average angle was 33.55 ± 4.88 degrees, and the average angle was 133.62 ± 2.63 degrees. The Achilles tendon length was 6.52 ± 0.56 centimeters, the fascia plantaris length was 15.13 ± 1.00 centimeters, and the hypotenuse length was 2.88 ± 0.34 centimeters. Calcaneal inclination angle was 19.61 ± 2.90 degrees and Achilles/hypotenuse ratio was 2.28 ± 0.31 . Achilles/hypotenuse

ratio, and angle values, Achilles tendon length, plantar fascia length, hypotenuse length and calcaneal inclination angle were found to be statistically significant difference between fasciitis group and control group ($p<0.05$). However, no statistically significant difference was found between fasciitis and control group for angle ($p>0.05$). In addition, a negative strong correlation was found between angle and calcaneal inclination angle.

Keywords: achilles tendon, biomechanics, calcaneus, plantar fascia, plantar fasciitis

OP-053

Abstract no: 5408

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

The role of nervus vestibulocochlearis in balance in individuals with fibromyalgia

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Objective: Fibromyalgia syndrome (FMS) is a chronic disease of unknown etiology characterized by widespread pain, balance disturbance, decreased sense of smell and psychological symptoms. The aim of this study was to compare the tractography analysis of the vestibulocochlear nerve between FMS and control subjects to assess whether there is involvement of the peripheral nervous system (PNS).

Methods: The study consisted of 30 individuals diagnosed with FMS and 31 asymptomatic volunteers. All individuals participating in the study were female and their age range was 18–65 years. Brain Diffusion Tensor Imaging (DTI) was performed in all individuals in the groups. Tractography analysis of the DTG data was performed using DSI Studio software program.

Results: There was no significant difference between the groups in terms of age and body mass index (BMI) ($p>0.05$). There was no statistically significant difference between the FMS and control groups in terms of fiber count, FA, MD, AD and RD averages in the tractography analysis results of vestibulocochlear nerve ($p>0.05$).

Conclusion: The data obtained showed that there was no PNS involvement in FMS. This suggests that the balance and olfactory disorders seen in FMS may originate from the central nervous system. Therefore, CNS-oriented treatment approaches may provide more effective results.

Keywords: fibromyalgia, tractography, vestibulocochlear nerve

OP-054

Abstract no: 5786

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Changes in brain ventricular volumes according to frontotemporal dementia subtypes

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Objective: This study aimed to compare brain ventricular volumes (VV) according to frontotemporal dementia (FTD) subtypes.

Methods: Four groups of 16 individuals each, matched for age and sex, were included: control group (CG), behavioral variant FTD (bvFTD), progressive non-fluent aphasia (PNFA), and semantic variant FTD (svFTD). T1-weighted 3 Tesla magnetic resonance images were analyzed with FreeSurfer. Volumes of left and right lateral ventricles (LV), inferior lateral ventricles (ILV), third (3V), and fourth ventricles (4V) and normalized ratios, relative to the total intracranial volume, were calculated and compared.

Results: Left LV volume (cm^3) was larger in bvFTD, PNFA, and svFTD (24.87 ± 9.47 ; 21.88 ± 7.36 ; 20.30 ± 6.61) compared to CG (13.41 ± 7.18) ($p=0.003$). Right LV was higher in bvFTD (23.15 ± 8.99) than CG ($p=0.001$). 3V volume increased in bvFTD (2.22 ± 0.81) vs. CG (1.50 ± 0.75) ($p=0.004$), while 4V volumes were similar ($p=0.403$). ILV volumes were greater in svFTD (2.12 ± 1.02 left; 1.66 ± 1.00 right) than CG (0.52 ± 0.39 ; 0.47 ± 0.30) and PNFA (1.08 ± 0.73 ; 0.63 ± 0.29) ($p=0.001$). Normalized LV ratios (%) were higher in bvFTD (1.65 ± 0.50 left; 1.54 ± 0.56 right) vs. CG (0.88 ± 0.43 ; 0.79 ± 0.36). Normalized left LV was also greater in PNFA (1.46 ± 0.44) than CG (0.88 ± 0.43). The normalized 3V ratio increased in bvFTD (0.15 ± 0.04) vs. CG (0.09 ± 0.04). Normalized ILVs were higher in svFTD (0.14 ± 0.06 left; 0.11 ± 0.07 right) than CG ($0.03\pm$

0.02) and PNFA (0.07 ± 0.04 ; 0.04 ± 0.02). Normalized 4V ratios were similar ($p=0.330$).

Conclusion: Ventricular enlargement patterns differ among FTD subtypes. LVs are enlarged in bvFTD, ILVs in svFTD, indicating ventricular measures may aid in differentiating FTD subtypes.

Keywords: biomarker, FreeSurfer, frontotemporal dementia, magnetic resonance imaging, ventricular volume

OP-055

Abstract no: 6784

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

Morphometric characteristics of the posterior condylar fossa and its relationship with surrounding anatomical structures

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Objective: The posterior condylar fossa (PCF), as the origin of the condylar canal (CC) transmitting emissary veins, is a critical structure in transcondylar approaches. This study aims to classify PCF morphology, determine CC location when present, and assess PCF's morphometric relationship with key cranial landmarks. **Materials and**

Methods: Nine dry human skulls of unknown age and sex, obtained from the Faculty of Medicine, Bilecik Şeyh Edebali University, were used. Posterior condylar fossae on both sides were classified as circular, oval, or irregular. Based on anatomical landmarks—namely the foramen jugulare, basion, opisthion, midsagittal plane, and condylus occipitalis—11 linear parameters were measured. All measurements were performed with a digital caliper, and data were analyzed using SPSS version 25.0 ($p<0.05$).

Results: Statistically significant side differences were observed in the distances between PCF and the anterior/posterior parts of the jugular foramen (FCP–FJA, FCP–FJP) and the basion (FCP–Basion) ($p<0.05$). On the right side, strong positive correlations were found between PCF and both basion and FJP ($R=0.924$). On the left, significant correlations were observed between PCF and both opisthion and the midsagittal plane ($R=0.879$). PCF depth varied significantly with morphological type ($p<0.001$). Mean depths were 2.43 mm (irregular) and 5.07 mm (oval) on the right; 5.75 mm (circular), 5.38 mm (oval), and 2.15 mm (irregular) on the left.

Conclusion: The morphometry and morphology of the PCF are surgically important due to their relationship with surrounding landmarks. Variations in depth by type and side-related distance differences highlight the need for individualized planning in skull base surgery.

Keywords: posterior condylar fossa, condylar canal, emissary veins, transcondylar approach

OP-056

Abstract no: 7305

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

The presence of nutrient foramen in the rib: a morphometric study

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Objective: Although they have been studied in depth in the long bones of the upper and lower extremities, there is limited information in the literature regarding the presence and morphometric characteristics of nutrient foramen in the rib bone. The aim of this study was to evaluate the number, location, and orientation of nutrient foramen in these bones.

Methods: The study was conducted on 81 rib bone from the Anatomy Laboratory at Gülhane Medical Faculty, Health Sciences University. Each rib was divided into three equal regions (anterior, middle, posterior), and the number of nutrient foramen in each region was determined, along with the location and direction of entry of the largest foramen.

Results: On average, 3.6 nutrient foramen were identified on each rib bone. According to regional distribution, the number of foramen was determined to be 1.1 in the anterior region, 2.6 in the middle region, and 1.3 in the posterior region. The largest foramen was found to be localized in the posterior region at the level of the costal angle in 79% of cases. All foramen were found to be oriented from the sternal end to the vertebral end.

Conclusion: The identification of foramen nutritium in the costae is important in clinical applications such as graft surgery, bone fractures, and thoracic surgery in terms of preserving vascular integrity. This study systematically reveals these anatomical structures, which have not been previously described in

detail, and emphasizes the importance of foramen nutricium in clinical and surgical approaches.

Keywords: nutrient foramen, costae, costal groove, costal angle

OP-057

Abstract no: 5398

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Volumetric reduction in thalamic subnuclei and microstructural alterations in thalamocortical pathways in essential tremor: a neuroimaging analysis based on VolBrain and DSI studio

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Objective: This study aimed to investigate thalamic nucleus volumes and thalamocortical tract integrity in patients with essential tremor (ET) compared to healthy controls (HC) using advanced neuroimaging techniques.

Methods: 19 ET and 20 HC underwent MRI scanning. Thalamic nuclei volumes were analyzed using VolBrain, while diffusion metrics of tracts were assessed with DSI Studio. Mean ages were 46.31 years for the ET group and 47.9 years for the HC group (p=0.416).

Results: Volumetric analysis revealed significant volume reductions in the ventral lateral anterior nucleus (VLAN) both bilaterally (total p=0.026) and the right hemisphere (p=0.031) in the ET group. Additionally, the right ventral lateral posterior nucleus (VLPN) showed a significant volume decrease in ET patients (p=0.033). Diffusion analysis showed a significant decrease in mean diffusivity (MD) of the inferior cerebellar peduncle in the ET group, indicating possible microstructural changes. Furthermore, radial diffusivity (RD) of the right ansa lenticularis was reduced in ET patients (p=0.043), while axial diffusivity (AD) was increased in the right thalamic radiata (p=0.038), suggesting altered axonal properties. A significant reduction in AD was also observed in the right ansa subthalamica in the ET group (p=0.038).

Conclusion: This study demonstrates microstructural alterations in thalamocortical and cerebellothalamic pathways, as well as volumetric reduction in specific thalamic nuclei in ET

patients. These findings support the hypothesis that ET involves not only cerebellar circuits but also thalamic subregions and related tracts. Further research with larger cohorts is needed to confirm these findings.

Keywords: dsi studio, essential tremor, thalamus

OP-058

Abstract no: 7399

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

Comparison of Cormack-Lehane and Mallampati tests with mandibular and neck measurements in predicting difficult intubation

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Objective: This study aims to evaluate the association of Mallampati and Cormack-Lehane tests with parameters like sternomental distance (SMD), tiromental distance (TMD), mandibula length (ML), neck length (NL) and neck circumference (NC) to predict difficult intubation.

Methods: 75 adult cases (36 female, 39 male) to undergo elective surgery under general anesthesia in Başkent University Adana Dr. Turgut Noyan Practice and Research Center have been recruited in the study. Mallampati and Cormack-Lehane classifications are made anatomical measurements are taken with digital calipers and tape measure. Data is analyzed with SPSS 25.0 program.

Results: In our study, 20% of the participants were classified as risky according to Mallampati and 25,3% were classified as risky according to Cormack-Lehane test. The mean age of the risk group in Cormack-Lehane test is significantly higher (64.63±8.22, 54.24±14.84; p<0.001). There was a weak but a negative association between age and SMD (r=-0.249; p=0.030) and TMD (r=-0.254; p=0.027). For the neck circumference (NC), there was a significant association only between body mass index (BMI).

Conclusion: According to the data of this study it is found that age is a significant risk factor for difficult intubation. The evaluation of anatomic measurements with tests can augment the prediction power clinically. Therefore; we believe the use of

multivariate evaluations would be beneficial to be used before intubation for risk analysis.

Keywords: antropometry, cormack-lehane. airway management, mallampati, difficult intubation

OP-059

Abstract no: 1165

Abstract group: Clinical Anatomy / Radiological and Cross-Sectional Anatomy

Volumetric analysis of the maxillary sinus in subjects diagnosed with temporomandibular dysfunction and healthy controls: an anatomical, radiological, and machine learning approach

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Objective: The aim of this study is to determine the maxillary sinus volume and surface area values and their relationship in individuals with and without temporomandibular dysfunction using computed tomography and machine learning.

Methods: This retrospective study was performed on 127 subjects, 66 in the control group (41 females, 25 males; mean age 28.35±9.9years) and 61 in the TMD group (54 females, 7 males; mean age 35±12.6years) using dento-maxillo-facial CBCT images. Images were acquired as DICOM files and imported into 3D Slicer (version 5.6.2). The volume and surface area of the maxillary sinus were automatically calculated by the 3D Slicer programme. In addition, automatic prediction was performed using classical machine learning techniques on the dataset obtained in the study.

Results: Maxillary sinus volume was 29811.88±8863.88 mm³ in the control group and 25840.83±8168.64 mm³ in the TMD group. Statistically significant differences were found between the groups in terms of maxillary sinus volume and surface area (p=0.010 and p<0.001, respectively). In addition, no statistically significant difference was found in the evaluation of the

measurements made in the study according to age deciles in both groups (p>0.05). Furthermore, the results obtained in machine learning showed that gender selection generally improved the results and the most successful classifier was Logistic Regression algorithms.

Conclusion: This study demonstrates that temporomandibular dysfunction may have an indirect effect on volumetric and surface area measurements of the maxillary sinus. It is also concluded that a machine learning-based model can be used to discriminate temporomandibular dysfunction even when the size of the dataset is small.

Keywords: temporomandibular dysfunction, maxillary sinus, machine learning

OP-060

Abstract no: 6809

Abstract group: Clinical Anatomy / Radiological and Cross-Sectional Anatomy

External auditory canal morphometric and morphological evaluation based on computed tomography: anatomical characteristics by age and sex with clinical implications: a preliminary study

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Objective: This preliminary study aims to evaluate the morphometric and morphological characteristics of the external auditory canal (EAC) using computed tomography (CT) images, to identify anatomical differences based on age and sex, and to discuss their clinical relevance.

Methods: This retrospective study included CT images of 100 individuals (50 males, 50 females) aged 18 years and older. Shape types of the EAC (ovoid, conical, cylindrical, hourglass) and morphometric parameters were assessed on axial and coronal sections. Measurements were compared by sex, side, age groups (<30, 30–45, >45 years), and shape.

Results: In the coronal section, the vertical height at the bony-cartilaginous junction (COHE2) was significantly greater in males on the right (p=0.000) and left (p=0.001) sides. In the axial section, the medial width (AXWI4) (p=0.001) and the entrance-level vertical height in the coronal section (COHE1) (p=0.007) were significantly higher on the left side. The inferior angulation angle was significantly lower in hourglass-shaped EACs compared to other types on the right (p=0.000) and left

($p=0.000$) sides. Among age groups, right-sided AXWI4, COHE1, and COHE2 values were significantly lower in the <30 age group compared to those >45 ($p=0.040$, $p=0.020$, $p=0.038$, respectively). A strong positive correlation was found between age and right-sided AXWI4 ($r=0.282$, $p=0.004$).

Conclusion: EAC morphometric and morphological features vary significantly with age, sex, side, and shape. These anatomical data may support clinical decisions in hearing aid design, otologic surgery, and radiologic evaluation.

Keywords: external auditory canal, hearing aid design, morphological variation, otologic surgery, radiological anatomy

OP-061

Abstract no: 8254

Abstract group: Anatomy Education and Terminology / *Anatomy Education*

Comparison of the effects of flipped anatomy classroom and traditional education on dental students' perception of education method, satisfaction and anxiety level

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Objective: In the domain of anatomy education, both conventional teaching methods and flipped classroom model have demonstrated their efficacy. This study compares the effects of traditional and flipped classroom models on academic performance, perception, satisfaction, and state anxiety in anatomy education.

Methods: This study was conducted in 2024–2025 academic year with 186 first-year students of Ankara Medipol University Faculty of Dentistry with similar knowledge levels and grade point averages. Turkish program students received traditional education and English program students received flipped education. All students received education in their native language and were subjected to same exams. Data were collected between May 1 and June 1, 2025 with a questionnaire and State-Trait Anxiety Inventory-I (STAI-I).

Results: No significant difference was found between groups in total STAI-I or Student Perception and Satisfaction Survey scores ($p>0.05$). However, survey questions 2. (Presentation and examples supported my learning), 6. (The repetitions made me grasp the subject well), and 10. (I would like this method to be applied in future courses) showed significant differences

($p<0.05$). Pearson correlation revealed a strong, significant relationship between STAI-I and survey scores ($r=0.932$, $p<0.001$). Linear regression showed question 2 had a positive effect on flipped learning, while items 6 and 10 had negative effects.

Conclusion: This study revealed that traditional education and flipped classroom methods have similar effects on dental students' anxiety levels and satisfaction of the education process. Therefore, a balanced integration of both methods into education programs can meet both academic and psychological needs of students more effectively.

Keywords: anatomy, flipped classroom, learning, student performance

OP-062

Abstract no: 8778

Abstract group: Anatomy Education and Terminology / *Anatomy Education*

Quantitative analysis of academic staff in anatomy departments

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Objective: Anatomy is recognized as a cornerstone discipline of medicine. In this context, anatomy education plays an important role in medical training and is provided to students in their early years. The aim of this study was to collect information about the number and adequacy of teaching staff in anatomy departments at state and foundation universities.

Methods: Data for the study was obtained from the Academic Database System of the Higher Education Council (YÖK) and the official websites of universities. Faculty members who had added the scientific field of 'Anatomy' to YÖK System were included in the study via a search of the YÖK Academic Database. Those whose field of study was outside of medical anatomy were excluded from the study. Parameters were expressed as percentage intervals using descriptive statistical methods. The data were presented in comparative tables.

Results: The total number of faculty members at state and foundation universities was found to be 686. For the 24–25 academic year, the number of quotas for the first semester in medical faculties was found to be 15,689 at state universities and 2884 at foundation universities. A total of 37146 students were found to be taking anatomy courses as part of the medical

school curriculum (semesters 1 and 2). The ratio of students to faculty members in all universities for the 24–25 academic year was calculated to be 27.07.

Conclusion: We believe that our data will help to inform future decisions regarding academic staffing and diversity in anatomy departments.

Keywords: anatomy, education, teaching staff, number of students, medicine faculty

OP-063

Abstract no: 2059

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Morphometric analysis and clinical significance of lumbar arteries

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Objective: To determine the morphometric characteristics of the lumbar arteries (LAs) in adults and emphasize their importance in surgical and interventional procedures.

Methods: Abdominal computed tomography (CT) angiographic images of 110 patients over 18 years old, archived in the Department of Radiology, Faculty of Medicine, Necmettin Erbakan University, were retrospectively analyzed. LAs diameters, origin angles, and interarterial distances were measured in axial, sagittal, and coronal planes using 3D Slicer, based on reference points automatically identified by Python-coded algorithms. Data were statistically compared by sex, age, and side (right/left), with significance set at $p < 0.05$.

Results: A total of 857 arteries were examined. LA1–3 were bilateral in all cases, while LA4 was bilateral in 89%. Mean LAs diameter was 2.05 ± 0.64 mm, origin angle $23.95 \pm 12.16^\circ$, and interarterial distance 34.7 ± 3.79 mm. Diameters were larger on the left; origin angles were greater in lower right arteries (L3 and L4); LA1–2 distance was greater on the right, LA3–4 on the left ($p < 0.05$). Males had significantly larger diameters and distances ($p < 0.05$). No significant correlation was found with age. All parameters showed positive correlation between right and left sides.

Conclusion: Morphometric analysis of LAs is crucial for predicting anatomical variations during surgical and interventional procedures, reducing complication risks. Use of advanced

imaging techniques enhances understanding of individual anatomical differences.

Keywords: lumbar arteries, computed tomography, 3D Slicer, morphometric measurement, python

OP-064

Abstract no: 9372

Abstract group: Lifelong Anatomy /
Art and Anatomy

Application of nausea wristband pressing the P6 acupressure point in dental treatment patients with excessive gag reflex: a case series

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Objective: Excessive gag reflex during dental procedures is a significant issue that negatively affects patient compliance and may prevent treatment completion. There is a need for non-invasive, easily applicable solutions to manage this reflex. This study aims to evaluate the effect of a nausea wristband applying pressure to the P6 (Neiguan) acupressure point on the gag reflex.

Methods: This retrospective case series includes patients from various healthcare institutions who had previously discontinued or avoided dental treatment due to gag reflex, but were able to complete treatment using a self-obtained wristband applying pressure on the P6 point. Patient records were reviewed to assess the status of the gag reflex, treatment completion, and any side effects.

Results: Data from 30 patients were analyzed. All patients successfully completed their planned dental treatments. Subjective improvement in gag reflex was reported in all cases, and no side effects were observed. All patients evaluated the use of the wristband positively.

Conclusion: The nausea wristband applying pressure to the P6 point may be a simple and accessible method to support dental treatment in patients with excessive gag reflex. Further studies with larger samples are warranted.

Keywords: gag reflex, P6 acupressure point, dental treatment, nausea wristband

OP-065**Abstract no:** 1317**Abstract group:** Anatomy and Innovation /
*3D Printing in Anatomy***The comparative impact of cadaveric and 3D printed bone models on student learning and attitudes in anatomy education**Abdülkadir Bilir¹, Emre Atay¹, Ahmet Fatih Yuran², Tolga Ertekin¹¹*Department of Anatomy, Faculty of Medicine, Afyonkarahisar Health Sciences University, Afyonkarahisar, Türkiye;* ²*Department of Biomedical Engineering, Faculty of Engineering, Afyon Kocatepe University, Afyonkarahisar, Türkiye***Objective:** In anatomy education, using concrete materials is essential for developing students' conceptual and spatial skills. This study aims to analyse the comparative effect of cadaveric and 3D-generated bone models on student attitudes and levels of learning.**Methods:** Data on participants were collected at two time points: before and after the intervention. Participants were divided into two groups: bone and 3D model. Questionnaires for each group were evaluated using 5-point Likert-type scales. Both groups were also given a theoretical pre-test before the application and a practical post-test afterwards.**Results:** The findings revealed that the two types of material had different effects on students' learning levels and attitudes towards them. While the bone group had a positive impact on conceptual learning, there was a decrease in learning satisfaction and respect for educational materials. Conversely, 3D models increased knowledge levels, though difficulties with spatial thinking and care for the material were observed. Analysis of the pre- and post-test results showed that both types of learning material significantly improved learning outcomes.**Conclusion:** It is recommended that various materials are used together in a balanced way to support the cognitive and affective development of anatomy students. Additionally, educational strategies should be implemented to raise awareness of the importance of respecting and using materials responsibly.**Keywords:** anatomy education, 3D printer, student perceptions and attitudes**OP-066****Abstract no:** 7012**Abstract group:** Experimental Research and Neuroscience /
*Translational Research in Anatomy***Scientific publication trends on osteochondral lesions of talus between 2000 and 2024**Ümmühan Yağmurkaya, Burak Bilecenoğlu*Department of Anatomy, Faculty of Medicine, Ankara Medipol University, Ankara, Türkiye***Objective:** Talus osteochondral lesions have emerged as a significant clinical issue in foot and ankle surgery. This study aims to examine the trends and thematic distribution of publications related to these lesions using bibliometric methods.**Methods:** A total of 918 publications were identified in the Web of Science Core Collection using the keyword phrase “talus osteochondral lesion”. The data were analyzed using the R software (version 4.3.2), the bibliometrix package (version 4.2.0), and the biblioshiny interface. Co-occurrence network analysis, conceptual structure mapping, and annual publication trends were evaluated.**Results:** The most frequent keywords were “talus”, “osteochondral lesion”, “microfracture”, and “mosaicplasty”. Co-occurrence analysis revealed three main thematic clusters: diagnosis, surgery, and grafting. These clusters were clearly distinguished in the conceptual structure map. The distribution of publications by year showed a concentration on surgical topics between 2010 and 2015, while an increase in imaging and biomaterial-related studies was observed after 2020.**Conclusion:** Publications on talus osteochondral lesions have largely focused on surgical treatment and diagnostic approaches. To date, no bibliometric analysis specifically addressing this topic has been identified in the literature; this study provides a comprehensive perspective on current research trends in the field.**Keywords:** osteochondral lesion, talus, bibliometrics**OP-067****Abstract no:** 6733**Abstract group:** Experimental Research and Neuroscience /
*Translational Research in Anatomy***The relationship between anthropometric characteristics and physical fitness parameters in elite male basketball players**Aysun Güler Kanter¹, Yunus Gür¹, Mehmet Ferhat Karaoğlu²¹*Vocational School of Physical Education and Sports, Kilis 7 Aralık University, Kilis, Türkiye;* ²*Property Protection and Security Programme,, 7 Aralık University, Kilis, Türkiye***Objective:** This study aimed to examine the relationship between anthropometric characteristics (height, weight, arm and leg length, hand length, BMI) and physical fitness parameters (hand grip strength, sprint, flexibility, and vertical jump) in elite male basketball players.**Methods:** A total of 81 elite male basketball players (aged 18–30) from clubs affiliated with the Turkish Basketball Federation participated. Anthropometric data and physical fitness tests including grip strength, 10 m and 20 m sprints, flexibility, and vertical jump (VJ, CMJ) were assessed. Data were analyzed using SPSS 26.0. Correlation and regression analyses

were applied, and one-way ANOVA with Tukey post-hoc tests was used to compare playing positions.

Results: Hand length was significantly correlated with grip strength ($r=0.309$, $p=0.005$). The strongest correlation was observed between forearm length and grip strength ($r=0.406$, $p<0.001$). Regression analysis showed arm length as a significant predictor of grip strength ($R^2=0.165$, $p<0.001$). Significant positional differences were found in height, weight, limb lengths, grip strength, and vertical jump ($p<0.05$). No difference was found for CMJ between positions ($p=0.4643$).

Conclusion: Upper limb morphology, particularly arm length, significantly influences grip strength. Position-specific anthropometric differences affect performance. These results may assist in player selection and tailoring of training programs.

Keywords: anthropometry, grip strength, basketball, sprint, vertical jump

OP-068

Abstract no: 1707

Abstract group: Clinical Anatomy / Radiological and Cross-Sectional Anatomy

Evaluation of uncinate process variations and ethmoid roof morphology according to the Keros classification: implications for functional endoscopic sinus surgery

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Objective: Functional endoscopic sinus surgery (FESS) is widely used to treat sinonasal diseases but carries a risk of complications due to the proximity of critical structures like the anterior skull base and orbit. The lateral lamella of the cribriform plate and fovea ethmoidalis are particularly vulnerable. The uncinate process (UP), which is removed for surgical access, has variable superior attachments that may increase the risk of rhinorrhea when close to the skull base. These variations can also affect frontal sinus drainage, surgical outcomes. This study aims to evaluate the variations of the UP and the morphological characteristics of the ethmoid roof using the Keros classification.

Methods: One hundred adult patients was retrospectively evaluated using computed tomography images. The depth of the olfactory fossa was determined in each case by applying the Keros classification. Additionally, the superior attachment variations of the UP were analyzed in relation to the skull base, lamina papyracea, middle nasal concha, and cribriform plate.

Results: In the evaluation of 200 olfactory fossa, 47 were classified as Type 1, 99 as Type 2, and 54 as Type 3. In the Type 1,

the most common UP type observed was Type 2; in the Type 2 and 3 groups, most frequent UP types were Type 3 and Type 1.

Conclusion: Anatomical knowledge of the ethmoid roof and its variations is essential to avoid trauma during FESS. Identifying the most common UP variations associated with different Keros types is crucial for reducing complication risks and improving surgical outcomes.

Keywords: Keros classification, ethmoid roof, uncinate process, paranasal sinus CT

OP-069

Abstract no: 8020

Abstract group: Anatomy Techniques and Cadaver Management / Anatomy Museums and Collections

Morphometric analysis of mandible: sex differences and clinical significance

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Objective: The mandible is an important bone with fundamental functions in chewing, speech, and facial aesthetics. Accurate determination of its morphometric characteristics is essential for successful dental implant planning, orthognathic surgery, and mandibular reconstruction. This study aimed to measure basic morphometric parameters of the mandible in adults, assess sex-related differences, and provide data to support surgical and clinical applications.

Methods: The study included 32 adult human mandibles (17 males, 15 females) with preserved anatomical integrity from the Human Osteology Laboratory of Mardin Artuklu University. Bigonial width, bicondylar width, ramus height, ramus width, corpus length, corpus height, mental foramen–lower border distance, gnathion–condylion distance, and alveolar width, height, and depth at the premolar region were measured using digital calipers. Data normality was assessed using the Shapiro-Wilk test. Parametric data were analyzed with independent samples t-test, non-parametric data with Mann-Whitney U test. Statistical significance was accepted as $p<0.05$.

Results: Bigonial width (101.4 ± 4.2 mm), bicondylar width (118.7 ± 5.1 mm), ramus height (58.2 ± 3.8 mm), and corpus length (82.6 ± 3.9 mm) were significantly greater in males compared to females ($p<0.05$). Although corpus height, ramus width, and gnathion–condylion distance were higher in males, these differences were not statistically significant ($p>0.05$). No significant sex

differences were found in alveolar width, height, or depth at the premolar region ($p>0.05$).

Conclusion: This study determined that some basic morphometric parameters of the mandible differ according to sex. The data obtained can serve as valuable anatomical references for surgical planning, dental applications, and forensic evaluations.

Keywords: mandible, anthropometry, sex differences, anthropology

OP-070

Abstract no: 7440

Abstract group: Clinical Anatomy /
Anatomical Variations

A systematic review of complications following malar filler injections: focus on anatomical risk factors

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Objective: This systematic review aims to evaluate complications related to malar filler applications and emphasize the role of anatomical knowledge in reducing these complications.

Methods: The study was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 (PRISMA) guidelines. English-language articles published between 2008 and 2024 were searched in Springer, PubMed, Clinical Key, Scopus, and Google Scholar using the keywords “malar area filling,” “facial filling complication,” and “malar area complication.” After removing duplicates and screening titles and abstracts, 15 full-text studies were included.

Results: Included studies consisted of one randomized controlled trial, one cross-sectional study, nine case series, and four case reports. According to the Joanna Briggs Institute (JBI) assessment, the trial and cross-sectional study were of moderate quality, while seven case series and four case reports were of high quality. The most common complications were granuloma (64.6%) and swelling (57.4%); less frequent ones included subacute infection (1%), allergic reaction (1%), and fistula (1.9%). In one study, complications were linked to improper injections, ignored anatomical barriers, or infraorbital and transverse facial artery connections. One study suggested that skin patterns related to rami perforantes may serve as diagnostic indicators. Only one study described anatomical danger zones in the malar region.

Conclusion: The complex vascular and soft tissue anatomy of the malar region increases complication risk. Post-COVID-19 immune responses and non-biodegradable fillers may contribute to delayed complications. Further large-scale, long-term controlled studies are needed.

Keywords: facial filling complication, malar area complication, malar area filling

OP-071

Abstract no: 2804

Abstract group: Lifelong Anatomy /
Embryology and Developmental Anatomy

An investigation of the relationship between university students' 2D:4D finger ratio, their demographic characteristics, and exam success

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Objective: The aim this study is examine the effect biological, physical, cognitive, and spatial changes encountered throughout human lifespan from womb death academic success.

Methods: The study was conducted on 261 students. 2D and 4D finger ratios of the students were measured using digital caliper with 0.01 millimeter (mm) sensitivity. Measurements were taken separately for the right and left hands, and the 2D:4D (2D4D) values were calculated. For body composition analysis, TANITA BC 418MA body composition analyzer was used. Values including lean body mass, body fat percentage, trunk muscle mass, trunk fat mass, and body mass index were displayed on the digital screen and recorded.

Results: The study included 103 male and 158 female students. The number individuals with right-hand 2D/4D ratio less than 1 (indicating fetal exposure to testosterone) was 135, while those with ratio greater than 1 (indicating fetal exposure to estrogen) totaled 126. For the left hand, 133 individuals had ratio less than 1 and 128 had ratio greater than 1. A score of 55 was used threshold for academic success. 209 students were considered successful, while 52 were. However, significant difference was found between finger measurements academic success. Additionally, significant differences were found between finger lengths and gender-specific differences muscle and fat mass.

Conclusion: Although we attempted assess academic success affected by many factors using simple method measuring finger lengths, statistically significant difference was found. We believe that our study, which also considers demographic char-

acteristics along with academic success, will help fill important gap literature

Keywords: caliper, estrogen, finger length, tanita, testosterone

OP-072

Abstract no: 6921

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Intermediate branch of hepatic artery: radiological evaluation and its clinical importance in liver transplant surgery

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Objective: The intermediate branch of the hepatic artery is the main artery of segment 4 of the liver according to the Couinaud classification, and is also referred to as the middle hepatic artery (MHA) in the clinical literature. This study aimed to radiologically evaluate its anatomical variations, which are important for liver transplantation.

Methods: Retrospective analysis was performed on 440 abdominal CT angiography images. Origins of the intermediate branch were classified based on the recent CRL system (C, common hepatic artery; R, right branch; L, left branch; a, accessory; r, replaced) and its relationship to right and left hepatic branches was analyzed.

Results: MHA was identified in 272 (68.1%) images. It most commonly originated from the left branch (47.4%) and then from the right branch (32.7%). Other origins included proper hepatic artery (10.7%), common hepatic artery (7.7%), replaced R (0.7%), replaced L (0.4%) and gastroduodenal artery (0.4%). Distribution according to CRL types was: type 1 (CRL) 58.2%, type 2 (CRrL) 75.4%, type 3 (CRaL) 100%, type 4 (CRLr) 73.7%, type 5 (CRLa) 56.5%, type 6 (CRrLr) 30%, type 7 (CRrLa or CRaLr) 50%, and type 9 (C_RL) 78%.

Conclusion: In living donor and split liver transplantation, damage to or ligation of the MHA may result in ischemia of segment 4, potentially impairing the donor's remaining liver function. Given the central anatomical position and vascular connections of segment 4, postoperative ischemic events in this region can lead to considerable morbidity. Precise identification and documentation of MHA variations are essential for ensuring safe and effective surgical planning.

Keywords: intermediate branch, middle hepatic artery, segment 4 artery, CT angiography, liver transplantation surgery

OP-073

Abstract no: 6394

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Investigation of the change of radial bow depending on age and gender

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Objective: The forearm is an important part of the upper extremity and allows the positioning of our hand. The rotation movements of the forearm occur between radius, ulna and the interosseous membrane. Radius rotates around fixed ulna due to its bow. Fractures on forearm bones restrict this rotation. Our aim in this study is to examine the changes of radial bow in healthy people according to age and gender.

Methods: AP radiographic images with sufficient clarity for measurements of 248 patients over the age of 16, with no history of fracture or surgery in forearm were used.

Results: Of the patients, 97 (39.1%) were male and 151 (60.9%) were female. Age was 40±14 (min: 16–max: 68) in males and 46±15 (min: 16–max: 73) in females. Radial bow was 11±2.2 mm. (min: 4–max: 17) for all patients, 11.7±2.1 mm. (min: 5.9–max: 17) in males and 10.6±2.2 mm (min: 4–max: 16) in females. The difference between males and females in terms of radial bow was statistically significant. A weak negative correlation was found between radial bow and age for all patients. While a weak negative correlation was found between age and radial bow in males, no correlation was found between radial bow and age in females.

Conclusion: Knowing the degree of radial bow is important in preoperative planning for the closest anatomical fixation to normal in forearm fractures.

Keywords: radial bow, forearm, rotation, age, gender

OP-074

Abstract no: 1257

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Evaluation of hippocampus and cerebellum volumes in patients with type 2 diabetes mellitus

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Objective: Type 2 diabetes mellitus is a metabolic disorder resulting from insufficient insulin secretion by the pancreas or inadequate utilization of the insulin secreted. This study aimed to determine volumetric changes in the hippocampus and cerebellum regions, where insulin receptors are found in the brain, in patients with type 2 diabetes mellitus.

Methods: A total of 102 participants were included. Subjects were divided into two groups: type 2 diabetes mellitus (52) and healthy controls (50). T1-weighted MRI scans of all subjects were evaluated volumetrically using the AI-based application volBrain.

Results: The total volume of cerebellar lobule III, as well as the right and left lobule III volumes, were significantly higher in the control group compared to the T2DM group ($p<0.05$). In contrast, the volume of the right cerebellar lobule IX was significantly larger in the T2DM group ($p<0.05$). Subcortical, cortical, and cerebellar gray matter volumes were also higher in the T2DM group ($p<0.05$). No statistically significant differences were found between the groups in terms of total hippocampus, right and left hippocampus, CA1–3, CA4–DG, and subiculum volumes ($p>0.05$).

Conclusion: Volumetric differences were detected in the cerebellum in T2DM patients. It is thought that lobule III atrophy may be related to the decrease in motor functions. The increase in the volume of the right lobule IX may be an indicator of compensatory mechanisms. These findings need to be supported by more comprehensive clinical and functional studies.

Keywords: type 2 diabetes mellitus, volbrain, cerebellum, hippocampus, volumetric analysis

OP-075

Abstract no: 7386

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

Investigation of variations in the innervation of the thenar muscles by the median nerve

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Objective: This study aims to investigate anatomical variations in median nerve and its branches, specifically focusing on their distribution to muscles and points at which they enter muscles. In addition, branching level of ramus muscularis of median nerve supplying thenar muscles was examined to explore potential correlations with CTS. Understanding these variations is crucial for

minimizing iatrogenic nerve damage during surgical procedures in CT region.

Methods: Dissections were conducted on 15 forearm and wrist specimens, including 8 right-sided and 7 left-sided cadavers. Muscle branch entry levels into the thenar region were measured, nerve was classified according to Lanz's classification system during the opening of the flexor retinaculum. such as the height of first branch of median nerve relative to z-line (interstyloid line), relationship of nerve's muscular branch to flexor retinaculum, level of entry of muscle branch into the muscle (relative to the z-line), muscle length, and the ratio of the entry level of first branch to muscle length were examined.

Results: Four types of median nerve branching were observed according to Lanz's classification. Extraligamentous type was the most common, found in 53% of the specimens. In preligamentous types, branches emerged on average 13.37 ± 5.69 mm inferiorly, except for those relative to z-line. The entry level of the muscle branch into muscle was most frequently located in the upper third of thenar region. The average length of thenar region was measured to be 11.40 ± 1.02 mm. The discovery of an additional preligamentous accessory motor branch in 46% of cases is a noteworthy observation, highlighting a higher rate than previously documented.

Conclusion: These branching patterns suggest need for careful consideration of accessory branches during surgical procedures in CT region. In particular, during CT surgeries, it is recommended to assess the relationship between motor branch of median nerve and flexor retinaculum, before releasing it, as variations in branching could have implications for surgical outcomes.

Keywords: median nerve, carpal tunnel syndrome, thenar muscle

OP-076

Abstract no: 2106

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Frequency, dimension and location of the foramen venosum in children

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Objective: The aim of this work was to determine age-related changes in the frequency, dimension and location of foramen venosum (FV) in children aged 1–18 years.

Methods: Study population consisted of computed tomography views of 360 children (180 males and 180 females) aged 9.52 ± 5.17 years. The presence or absence of FV was noted. If present, its shape was detected. The long diameter of FV (FVD) was measured. Moreover, distances from FV to the foramen ovale (FV–FO), foramen spinosum (FV–FS) and midline (FV–ML) were measured. The diameter of FV was divided into five groups: type 1 ($FVD < 0.5$ mm), type 2 ($0.5 \text{ mm} < FVD < 1$ mm), type 3 ($1 \text{ mm} < FVD < 1.5$ mm), type 4 ($1.5 \text{ mm} < FVD < 2$ mm) and type 5 ($2 \text{ mm} < FVD$).

Results: FV was observed in 130 (36.1%) out of 360 children. In total, 186 FVs were found. FVD was measured as 1.39 ± 0.59 mm. FOV–FO, FV–FS and FV–ML were measured as 2.24 ± 0.95 mm, 10.95 ± 2.21 mm and 17.95 ± 2.16 mm, respectively. FV–FS increased with age ($p=0.001$), but the other were not affected by age. FVs were observed as oval (41.4%), round (17.8%), irregular (10.2%) and pinhole (30.6%). FVD was identified as type 1 in one side (0.5%), type 2 in 58 sides (31.2%), type 3 in 58 sides (31.2%), type 4 in 39 sides (21%), and type 5 in 30 sides (16.1%).

Conclusion: This study provides useful information for planning surgical procedures as well as anatomical information about FV.

Keywords: children, computed tomography, foramen venosum, foramen Vesalius

OP-077

Abstract no: 4774

Abstract group: Anatomy Education And Terminology / *Anatomy Education*

Development of an academic achievement test for neck anatomy: validity and reliability analysis

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Objective: The aim of this study was to develop a valid and reliable test to assess knowledge and comprehension of neck anatomy.

Methods: A quantitative research design, specifically a cross-sectional survey model with criterion-based sampling, was employed. The test development process included defining the test's purpose and scope, item construction, expert review, pilot testing, and analyses of validity and reliability.

Results: The test consists of two parts: two-stage true/false diagnostic items and scenario-based interpretation questions. The initial version (pre-test) included 53 items—51 objective (two-stage true/false) and 2 subjective (scenario-based)—evaluated by five subject matter experts and one language editor. The content validity ratio (CVR) and content validity index (CVI) for the objective section were calculated as 0.938 and 0.923, respectively, indicating strong content validity. Following expert feedback, the pilot version included 37 objective and 2 subjective items. The study involved 347 students: 224 from the Faculty of Dentistry and 123 from the Faculty of Medicine. Item analysis reduced the number of valid objective items to 19. Reliability was confirmed using KR-20 (0.795) and Cronbach's alpha (0.846). Split-half reliability showed $\alpha=0.726$ and $\alpha=0.799$ for the two halves, confirming internal consistency. Item-total correlations ranged from 0.01 to 0.58. The reliability of the two subjective items, based on inter-rater agreement, was calculated as 0.833. Exploratory factor analysis was performed for the subjective section.

Conclusion: As a result, a valid and reliable academic achievement test was developed, consisting of 19 items, two scenario-based questions, and five underlying factors.

Keywords: neck anatomy, reproducibility of results, simulation training, validation study

OP-078

Abstract no: 6991

Abstract group: Clinical Anatomy / *Radiological and Cross-Sectional Anatomy*

Comparison of lumbar intervertebral disc heights by sex in adults using computed tomography images

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Objective: Findings from studies examining sex differences in lumbar vertebra (LV) and disc height (DH) vary considerably. This study aims to compare LV, DH, and the disc-to-segment height ratio (DSR) between sexes in adults using computed tomography (CT) images.

Methods: Following ethical approval (16/2024-618), 128 CT scans from 64 males and 64 females without lumbar pathology were obtained from the Radiology Department archive. Sagittal DICOM images were aligned to the orthogonal plane and measured using ImageJ. The heights of each LV and the heights of the last five discs were recorded. DH was calculated as a proportion of the combined vertebra +

disc height. Results were compared between sexes at vertebral and segmental levels.

Results: LV heights at L1, L2, and the total lumbar region were greater in males (2.52–2.50–12.30 cm) than in females (2.38–2.40–11.94 cm) ($p<0.05$). DH values at L1–L2, L2–L3, L3–L4, and L4–L5 were higher in males (0.93–1.15–1.24–1.26–5.71 cm) than in females (0.88–1.03–1.11–1.16–5.26 cm) ($p<0.05$). The L3–L4 DSR was 33.56% in males and 31.35% in females ($p<0.05$). In total LV height, the proportional contributions of L1 and L4 were 20.5% and 19.8% in males, compared to 20% and 20.1% in females; the L3 proportion was 20.3% in females and 20% in males ($p<0.05$).

Conclusion: LV and DH measurements show significant sex-related differences, with most values higher in males. These differences are likely related to sex-specific anatomical characteristics and load-bearing dynamics.

Keywords: lumbar vertebra, disc height, computed tomography, sex differences, anatomy

OP-079

Abstract no: 8662

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Evaluation of optical biometric measurements of the eye and measurements of tissues in the iris and iridocorneal angle with anterior segment optical coherence tomography in healthy individuals

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Optical coherence tomography (OCT) is a widely accepted, non-invasive imaging technique used in ophthalmology for assessing anterior segment structures of the eye *in vivo*. Unlike histological studies on cadaveric tissues, which may present distorted measurements due to fixation effects, OCT allows for precise, real-time anatomical evaluation without contact. This study aimed to establish normative reference values for anterior segment parameters in a healthy Turkish population using anterior segment OCT (AS-OCT). A total of 224 right eyes from healthy volunteers aged 18–80 years (mean age: 35.91±11.71 years) were evaluated. The cohort consisted of 100 females (44.64%) and 124 males (55.36%). Parameters measured included central corneal thickness (CCT), iridocorneal angle (ICA), angle aperture distance at 750 µm (AAD 750), trabecular iris space area at 750 µm (TISA 750),

Schlemm's canal area (SCA), and iris stroma thickness (IST), with measurements taken in both temporal and nasal directions. The average CCT was 554.34±46.9 µm. Nasal measurements were generally larger than temporal ones, with nasal ICA (32.01°) and temporal ICA (29.79°), nasal IST (402.99 µm) and temporal IST (369.11 µm), and nasal SCA (16,965.84 µm²) exceeding temporal SCA (10,297.28 µm²). A weak negative correlation was observed between IST and angle measurements. Age-related changes included increased lens thickness and reduced anterior chamber depth, ICA, AAD, and TISA. This study provides essential reference values for anterior segment structures in the Turkish population, which can aid in early diagnosis and risk assessment of anterior segment-related eye diseases.

Keywords: iridocorneal angle, iris thickness, corneal thickness, optical coherence tomography, Schlemm's canal area

OP-080

Abstract no: 9067

Abstract group: Clinical Anatomy /
Anatomical Variations

An anatomical and clinical assessment of lipoma arborescens: a rare lesion of the knee joint

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Objective: Lipoma arborescens was first described in 1904 by the German surgeon Albert Hoffa. It is a rare intra-articular lesion characterized by the proliferation of mature fat cells within the synovial membrane of joints, exhibiting a chronic course and slow progression.

Case: A 59-year-old female patient with complaints of swelling and pain in her right knee presented to the orthopedics outpatient clinic due to worsening movement restriction associated with these symptoms. In the anamnesis, there was no report of trauma, degenerative disease, or previously diagnosed autoimmune disorder. On MRI of the right knee, a mass measuring approximately 5.5×5×3.5 cm was detected, originating at the level of the infrapatellar fat pad, partially surrounding the patellar tendon, and extending toward the subcutaneous tissue. The lesion had smooth contours, exhibited signal characteristics similar to adipose tissue in all sequences, contained

hypointense areas suggestive of internal calcification, and showed no contrast enhancement. Based on these findings, a diagnosis of lipoma arborescens was made, and the patient underwent synovectomy.

Conclusion: This study presents the anatomical, clinical, and radiological features of lipoma arborescens, a rare condition observed in the knee joint, through a representative case, emphasizing the distinctive diagnostic role of MRI. Early differentiation of this lesion from other intra-articular pathologies not only helps avoid unnecessary invasive procedures but also facilitates timely diagnosis and appropriate treatment planning. In this respect, we believe that the findings can enhance diagnostic awareness through anatomy- and imaging-based approaches and support the differential diagnosis process

Keywords: lipoma arborescens, synovial lipomatous proliferation, magnetic resonance imaging, chronic synovitis

OP-081

Abstract no: 7438

Abstract group: Lifelong Anatomy /
Embryology and Developmental Anatomy

Examining the relationship between 2D:4D finger ratio and motor and cognitive performance in young individuals

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Objective: This study aimed to investigate the relationship between 2D:4D finger ratio and motor and cognitive performance in young individuals.

Methods: Fifty-six volunteers (35 females, 62.5%) aged 18–25 years participated in this study. Cognitive performance was assessed using the Stroop and Digit Span Tests, and upper extremity motor function was evaluated using the Nine Hole Peg Test and Minnesota Manual Dexterity Test. In addition, 2D:4D finger ratio was measured with a digital caliper and right-left 2D:4D difference (Dr-l), 2D:4D ratio (Dr/l) and 2D:4D asymmetry index (Dr-ai) were calculated. Gender comparisons were performed using the Mann–Whitney U test, and correlations were examined using Spearman's test.

Results: The 2D:4D ratios in the right and left hands of female participants were 1.00 ± 0.03 and 0.99 ± 0.06 , and 0.98 ± 0.04 and 0.99 ± 0.03 , respectively. There was a significant difference

between genders in the right 2D:4D, Dr-l, Dr/l, and Dr-ai values ($p=0.023$, $p=0.027$, $p=0.029$, and $p=0.029$, respectively). There was no significant correlation between the right and left 2D:4D ratios and both the cognitive and motor performance tests in both genders ($p>0.05$). However, significant correlations were found between Dr-l, Dr/l and Dr-ai measurements and Stroop A, Stroop B and Stroop C test scores ($p<0.05$).

Conclusion: No significant relationship was found between the 2D:4D finger ratio and cognitive or motor performance in young individuals. However, some 2D:4D-related parameters were associated with cognitive function in females. Future studies with larger samples and varied cognitive tests may clarify the relationship between the 2D:4D ratio, cognitive functions, and prenatal hormonal influences.

Keywords: cognitive performance, motor performance, 2D:4D finger ratio

OP-082

Abstract no: 9192

Abstract group: Clinical Anatomy /
Biomechanics and Musculoskeletal System Anatomy

Variation of phonation time by gender and smoking status

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Objective: Maximum phonation time reflects vocal-respiratory coordination and may be affected by smoking and gender-related anatomical factors. This study examined their impact.

Methods: The study was conducted in 2025 with 400 volunteers from diverse age and occupational groups. Inclusion criteria were age ≥ 18 and fluency in Turkish. Age, gender, and smoking data were collected via questionnaire. In a quiet setting, seated participants were asked to sustain the “A” sound in one breath; duration was measured using a stopwatch. Data were analyzed with SPSS v27. Normality was assessed by Shapiro-Wilk test; group comparisons used t-test and Mann-Whitney U, and correlations were evaluated with Pearson and Spearman tests.

Results: Of the participants, 56.3% were male and 43.7% female; most were aged 18–25 and were university graduates (72%). Students were the largest group (55.8%). Mean phona-

tion time was significantly longer in males (22.21 ± 5.75 sec) than in females (18.96 ± 5.76 sec) ($p < 0.001$). Smokers had shorter phonation times (17.89 ± 6.06 sec) than non-smokers (21.74 ± 5.63 sec) ($p < 0.001$). A significant negative correlation was found between phonation time and smoking duration ($r = -0.30$, $p = 0.003$), while daily cigarette amount showed a weak, non-significant correlation ($r = -0.12$, $p = 0.24$).

Conclusion: Phonation time differed significantly by gender and smoking. It was longer in males and shorter in smokers. These findings underscore the importance of considering individual risk factors in vocal health evaluation.

Keywords: anatomy of phonation, phonation time, smoking, vocal health

OP-083

Abstract no: 8224

Abstract group: Anatomy Education and Terminology / *Anatomy Education*

From tradition to the future of anatomy education: the effectiveness of digital tools

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Objective: Traditional methods in anatomy education face challenges in meeting the evolving needs of learners. This study aims to evaluate the effectiveness of innovative educational tools—including digital platforms, 3D-printed models, and virtual reality (VR)—in supporting anatomy teaching, with a focus on student performance and learning experiences.

Methods: First-year medical students were randomly assigned to one of three instructional groups: a 3D-printed physical model, a virtual reality simulation, and a digital anatomy application (Complete Anatomy). Each group received a single-session lesson on a specific anatomical region, followed by a multiple-choice test and a learning experience survey. Data were analyzed using ANOVA ($p < 0.05$).

Results: No significant differences were observed in academic performance among groups ($p > 0.05$). However, 3D printed models received positive feedback for enhancing tactile interaction and spatial understanding. The digital anatomy application was effective in detailed and layered visualization of complex structures. Virtual reality increased interaction and motivation but was limited by technical issues and accessibility

problems for some students. All methods were positively evaluated in surveys, with the digital application being preferred for its ease of use.

Conclusion: Different technological approaches offer complementary advantages in anatomy education. Combining the tactile benefits of physical 3D models with the rich visuals of digital platforms enhances learning quality. These hybrid methods improve students' spatial and structural understanding. In the future, multimedia-based and technology-supported approaches will gain prominence in anatomy teaching, making education more effective and interactive through innovative models.

Keywords: anatomy education, 3D model, virtual reality, digital tools, medical education, student feedback

OP-084

Abstract no: 6822

Abstract group: Anatomy Education and Terminology / *Anatomy Education*

Active learning in anatomy: the impact of flipped teaching and digital resources on medical students

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Objective: This study explores how the flipped learning approach influences the learning experience of medical students in anatomy education. The aim is to examine its role in promoting engagement, motivation, and the effective use of digital resources.

Methods: Second- and third-year students participated in the study during the 2024–2025 academic year. Educational content such as videos, presentations, and reading materials was shared on a digital platform in advance. In-class sessions involved quiz, interactive discussions and practical activities. Academic performance was measured through quiz and assessments, and student opinions were gathered using questionnaires. Non-parametric statistical tests were applied.

Results: According to the findings, the majority of students responded positively to the flipped classroom model. Pre-class digital materials were found helpful for conceptual preparation and acquiring foundational knowledge. During in-class ses-

sions, students came better prepared, making lessons more efficient, interactive, and clear. Active participation increased, and group discussions became more dynamic. Quiz and exam results showed improved knowledge retention with the model. Students developed independent study habits and took greater responsibility for their learning. Surveys indicated that over 75% found this method more motivating than traditional teaching. The accessibility and replayability of digital materials were considered significant advantages, especially before exams.

Conclusion: The flipped learning model stands out as an effective alternative to traditional instruction in anatomy, encouraging active student involvement and the integration of digital tools. It offers valuable insights into learner-centered practices in medical education.

Keywords: medical education, anatomy instruction, flipped learning, digital tools, interactive learning

OP-085

Abstract no: 1395

Abstract group: Lifelong Anatomy /
Physical Anthropology and Paleoanthropology

Comparison of methods used in the measurement of 2D:4D digit ratios

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Objective: The main difference among methods used to measure digit length is whether the measurement is taken from the dorsal or ventral surface of the hand. In the literature, it remains unclear which method best reflects the true 2D:4D ratio. This study compared 2D:4D ratios calculated using different methods and evaluated their reliability and statistical differences across the methods.

Methods: Four methods were applied to measure digit length in 231 university students: direct caliper measurements from the dorsal and ventral surfaces, and indirect measurements using photocopies and photographs. The 2D:4D ratio was calculated by dividing second digit length by fourth digit length. The right and left hands were evaluated separately; differences by method, sex, and side were analyzed.

Results: Except for the left-hand dorsal method, males had lower 2D:4D ratios than females in all methods. In males, significant differences between hands were found in the photo-

copy and photograph methods; in females, such differences were observed in the dorsal and photograph methods. The lowest ratios were found using the dorsal method, and the highest with the ventral method. In the right hand, the photograph and ventral methods yielded similar results, while the photocopy and ventral methods differed. All methods applied to the left hand showed statistically significant differences.

Conclusion: Measurement from the dorsal surface may more accurately reflect true digit length. This may reduce measurement errors and provide more reliable results.

Keywords: 2D:4D ratio, digit length, measurement method, dorsal surface, ventral surface

OP-086

Abstract no: 4491

Abstract group: Clinical Anatomy /
Anatomical Variations

Anatomical evaluation of the morphometric characteristics of the calcaneus bone

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Objective: The calcaneus, the largest and strongest of the seven tarsal bones, forms the heel and is located in the posterior foot. It plays a crucial role in the ankle-foot structure and bears a significant portion of body weight. This study aims to classify the articular surfaces of the calcaneus and perform a morphometric analysis to support surgical planning and guide future anatomical research.

Methods: A total of 41 dry calcanei (19 right, 22 left) with unknown age and sex were analyzed from the anatomy laboratories of Yozgat Bozok and Erciyes University. Based on Boyan parameters, articular surfaces were categorized into Type 1, 2, 3, and 4. Five morphometric measurements were taken. Data were analyzed using GraphPad Prism 9, with right-left comparisons made using Student's t-test ($p < 0.05$).

Results: Of the specimens, 71% were Type 1 (Type 1A: 51%, Type 1B: 20%) and 29% were Type 2 (Type 2A: 10%, Type 2B: 14%, Type 2C: 5%). No Type 2D, 3, or 4 were found. Right vs. left values were as follows: maximum length (76.12 ± 6.01 mm vs. 75.28 ± 3.27 mm), body height (49.68 ± 5.48 mm vs. 47.90 ± 3.21 mm), minimum width (27.54 ± 3.45 mm vs. $26.25 \pm$

2.76 mm), lever arm length (47.35 ± 3.81 mm vs. 45.00 ± 3.22 mm), and lever arm width (39.80 ± 3.17 mm vs. 38.34 ± 2.38 mm). All differences were statistically significant ($p < 0.05$).

Conclusion: This study demonstrated right-left asymmetries and articular surface variations in calcaneal morphometry. The findings may serve as a reference for related fields and aid clinicians in surgical planning by helping prevent complications. These measurements are expected to contribute to the literature.

Keywords: anatomy, calcaneus, morphometry

OP-087

Abstract no: 4750

Abstract group: Anatomy Techniques and Cadaver Management / *Cadaver Embalming Techniques*

Preparation of an upper extremity cadaver using the alkyd resin method

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Objective: This study aimed to prepare a human upper extremity as a research and learning material using the alkyd resin technique for the first time.

Methods: In this study, the upper extremity of cadaver used in anatomy practical courses was utilized. Dehydration, embedding, pre-drying, impregnation, and hardening processes were applied to the upper extremity. The material, fixed in a 10% formaldehyde solution, was washed in running water for 24 hours and then passed through a series of alcohols and acetone for dehydration. This was done to reduce the oil and water content of the material to the lowest possible level. The sample was then embedded in glycerol under vacuum. The material was then placed on drying paper to remove excess glycerol, and the pre-drying phase was completed in 20 days. Finally, the material was placed in a solution containing alkyd resin for the impregnation process. After this process, the material was hardened by resting it under normal room conditions, and the process was completed.

Results: It was determined that the upper extremity, including muscles, blood vessels, and nerves, could be prepared using the

indicated technique. It was observed that the material used in student applications since 2023 has been stored under room conditions for approximately two years without any problems such as mould or odour.

Conclusion: It was concluded that the upper extremity prepared using this method can be stored without requiring special storage conditions and can be used in both research and anatomy practical courses.

Keywords: alkyd resin, anatomy, upper extremity, dry cadaver.

OP-088

Abstract no: 4726

Abstract group: Clinical Anatomy / *Anatomical Variations*

"A difficult airway in a prematurely aging face": anesthetic management for dental surgery in a child with Hutchinson-Gilford progeria syndrome

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Objective: Hutchinson-Gilford progeria syndrome (HGPS) is an extremely rare genetic disorder characterized by accelerated aging. In affected individuals, cardiovascular abnormalities, skeletal deformities, and skin changes pose significant challenges to anesthetic management. This case report presents the anesthetic approach and anticipated difficult airway management in a child with HGPS undergoing dental surgery.

Case: A 13-year-old male patient with a diagnosis of HGPS, weighing 50 kg, was scheduled for tooth extraction under general anesthesia. Physical examination revealed mandibular hypoplasia, narrow nasopharynx, decreased skin elasticity, limited neck extension, and significant dental abnormalities, all indicating a potentially difficult airway. Preoperative cardiac evaluation showed early atherosclerotic changes. The patient was brought to the operating room without premedication. Spontaneous ventilation was maintained under nasal oxygen support. Endotracheal intubation was successfully performed using video laryngoscopy. Hemodynamic parameters remained stable throughout the procedure. The patient was extubated carefully at the end of surgery and transferred to postoperative care without complications.

Conclusion: In patients with HGPS, anatomical abnormalities and systemic involvement can complicate anesthetic management. Thorough preparation for difficult airway, evaluation of cardiovascular risks, and the use of minimally invasive techniques are critical. This case highlights the importance of multidisciplinary planning and careful anesthetic strategies in patients with rare syndromes.

Keywords: anatomical considerations, anesthetic management, difficult airway, hutchinson-gilford progeria syndrome

OP-089

Abstract no: 5180

Abstract group: Clinical Anatomy /
Anatomical Variations

Morphometric features of the carotid canal

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Objective: The carotid canal (CC) not only transmits the internal carotid artery (ICA) that supplies the brain, but also acts as an emissary foramen by transmitting a venous network that connects the cavernous sinus and the internal jugular vein. This study aimed to assert the morphometric features of the CC.

Methods: After obtaining ethical approval, a total of 45 dry skulls were examined bilaterally in the Department of Anatomy at the Istanbul Faculty of Medicine. The diameter of the CC and distances to certain landmarks were measured with a digital caliper. The SPSS 21.0 program was utilized for statistical analysis.

Results: The mean medio-lateral and antero-posterior diameters of the external openings of carotid canal (EOCC) were 7.72 ± 0.96 mm and 5.94 ± 0.71 mm, respectively. The mean perpendicular distance between the medial edges of the EOCC on both sides was 50.81 ± 3.35 mm, and the mean perpendicular distance between the lateral edges was obtained as 64.69 ± 3.87 mm. The perpendicular distance of the EOCC to the mastoid process was 15.63 ± 3.71 mm. Lastly, the perpendicular distances of the EOCC to the foramen ovale, foramen spinosum, and foramen jugulare were calculated as 12.48 ± 2.06 mm, 8.57 ± 1.94 mm, and 15.77 ± 2.26 mm, respectively.

Conclusion: The morphometric findings of this study may have clinical significance, as they may aid in avoiding injury to the critical vessels, such as the ICA traversing the carotid canal, as well as to the adjacent vascular and neural structures, during

microsurgical procedures, and assist in the precise localization of anatomical landmarks during invasive interventions.

Keywords: anatomy, carotid canal, diameter, foramen, morphometry

OP-090

Abstract no: 2594

Abstract group: Clinical Anatomy /
Anatomical Variations

Three-dimensional examination of spleen anatomy in individuals with accessory spleen and healthy individuals: preliminary study

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Objective: This preliminary study aimed to determine the incidence of accessory spleens by scanning computerized tomography (CT) reports, to determine the number of healthy spleens as many as the number of people with accessory spleens, and to evaluate the splenic anatomy in both groups.

Methods: In the study, 650 abdominal CT reports in the archives of the Department of Radiodiagnostics, Faculty of Medicine, Necmettin Erbakan University were retrospectively scanned and patients with accessory spleens were identified. Then, as many healthy normal spleens as the number of people with accessory spleens were identified, spleen volume (dh), maximum height (dmaxy) and vertical height (ddy) of the spleen in coronal section were measured using the 3D Slicer program in both groups, spleen shapes were classified, and the location of accessory spleens was determined. The obtained data were analyzed in the SPSS 21 program.

Results: The incidence of accessory spleens in the study was 6.15%. The dh, dmaxy and ddy values of the normal spleen tissue other than the accessory spleen in 40 patients with accessory spleens were found to be statistically significantly higher than in 40 patients with healthy spleens ($p < 0.05$). Wedge-shaped spleen was the most common in both groups. Most of the detected accessory spleens (77.5%) were located medially to the spleen.

Conclusion: Since different spleen shapes and variations may lead to misdiagnosis and complications in patients, the diversity of spleen shapes, surfaces and dimensions should be known.

Keywords: accessory spleen, spleen volume, spleen shape

OP-091

Abstract no: 8768

Abstract group: Anatomy Techniques and Cadaver Management / *Cadaver and Infection Risks*

The relationship between formaldehyde exposure and reproductive problems in anatomists: a preliminary study from Türkiye

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Objective: This study aims to evaluate the frequency of reproductive problems following formaldehyde exposure among female anatomists and spouses of male anatomists. It also seeks to identify preventive measures to reduce exposure, assess awareness levels, and propose potential solutions.

Methods: Ethical approval for this cross-sectional cohort study was obtained from Koç University Ethics Committee for Biomedical Research (2024.266.IRB2.116). Data were collected through an online survey comprising 63 questions organised into four sections. As this is a preliminary report, detailed statistical analysis has not yet been performed.

Results: As of July 2025, a total of 157 individuals (98 women, 59 men) had completed the survey. Among respondents, 95% reported working with cadavers, and 72% stated that formaldehyde levels were not monitored in their departments. A history of miscarriage and stillbirth was reported by 10% and 2.5% of participants, respectively. Among those with miscarriage histories, 75% reported formaldehyde exposure during pregnancy; all stillbirth cases involved such exposure. Additionally, 61.2% had at least one living child, and 10.9% of these children were born prematurely.

Conclusion: Although direct comparison with national data from the Turkish Demographic and Health Surveys is limited due to the methodological differences, stillbirth prevalence appears notably elevated, approximately 2.5 times higher, than

estimates for the general population. As the first study specifically addressing formaldehyde exposure among anatomists, these findings highlight the need for preventive institutional measures, routine exposure monitoring, policy development, and improvements in occupational protections.

Keywords: occupational exposure, workplace health, reproductive health, infertility

OP-092

Abstract no: 1755

Abstract group: Anatomy Techniques and Cadaver Management / *Body Donation*

Factors affecting the decision for body donation: a survey study on donors

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Objective: This study aimed to identify and evaluate the primary motivations and the attitudes shaping the decision-making process of individuals who have bequeathed their bodies.

Methods: In this descriptive cross-sectional study, a survey was conducted with 28 individuals who had donated their bodies to the Akdeniz University Anatomy Department. Data obtained from the questionnaire, which included questions measuring demographic information, attitudes, and motivations, were evaluated using descriptive statistics and Cronbach's Alpha reliability analysis.

Results: The mean age of the participants was 64.3±14.4 years, and 64% were male. 71.42% of the individuals had an associate degree or higher level of education. The strongest attitudes identified were the idea of the body serving science post-mortem and the indispensability of cadavers for medical education (mean=4.93). The most significant motivation was gratitude towards medical science (mean=4.82). Conversely, pragmatic reasons such as avoiding funeral costs had the lowest importance (mean=1.39). The overall internal consistency of the survey was acceptable (std. α =0.72), while the internal consistency of the Positive Factors Subscale, containing altruistic motivations, was found to be excellent (std. α =0.89). In contrast, the internal consistency of the Pragmatic Factors Subscale was low (α =0.35).

Conclusion: The decision for body donation is primarily driven by consistent and strong altruistic motivations. Pragmatic reasons, however, are secondary and person-specific factors stemming from different concerns. This indicates that the donors' decision is not an escape from negative anxieties but a conscious act of con-

tribution based on idealistic values. The promotion of body donation can be achieved by highlighting these positive motivations.

Keywords: altruistic, body donation, motivation, reliability analysis, survey

OP-093

Abstract no: 4130

Abstract group: Experimental Research and Neuroscience/
Neuroanatomy and Neuroscience

Glandula pinealis volume in taekwondo athletes: a cross-sectional study

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Objective: The pineal gland, which regulates the sleep-wake (circadian) rhythm through melatonin secretion throughout life, is a chronopharmacologically significant structure. Previous autopsy and *in vivo* studies have shown that pineal gland volume varies among individuals. Additionally, studies in the literature suggest that melatonin levels are directly proportional to pineal gland volume. This study aims to investigate the effect of exercise on pineal gland volume in taekwondo athletes, based on the assumption that physical activity increases melatonin levels.

Methods: The study included 25 taekwondo athletes with at least 3 years of experience and 15 healthy controls with no history of taekwondo training. Participants underwent T1-weighted Magnetic Resonance Imaging (MRI) using the 3T Magnetization Prepared Rapid Gradient Echo (MPRAGE) sequence with 1 mm slice thickness. The images were analyzed using the open-source software 3D Slicer. Pineal gland boundaries were manually segmented, and volume was automatically calculated by the software.

Results: An independent samples t-test was conducted to assess differences in pineal gland volume between the two groups. Levene's test showed equal variances ($p=0.116>0.05$), so the t-test was evaluated under the assumption of equal variance. A statistically significant difference was found between the groups ($p=0.002<0.05$).

Conclusion: The significantly larger pineal gland volume in taekwondo athletes suggests that exercise may enhance melatonin secretion. This study provides a foundation for future research exploring the role of the pineal gland and melatonin in conditions such as insomnia, depression, and postural disorders.

Keywords: glandulae pinealis, volume estimation, taekwondo, 3D Slicer, melatonin

OP-094

Abstract no: 1639

Abstract group: Anatomy Techniques and Cadaver Management /
Body Donation

Body donation awareness among individuals receiving education in health and non-health fields: a descriptive survey study

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Objective: Our study aims to compare the knowledge levels, attitudes, and awareness of individuals educated in the field of health with those educated in non-health fields regarding body donation.

Methods: An online questionnaire form prepared as a result of a literature review appropriate to the purpose was used. Participants were categorized based on whether they received health-related education or not. A total of 391 participants contributed to our study, 285 (72.9%) of whom were women and 106 (27.1%) of whom were men.

Results: Of the participants, 258 (66%) were from Health Sciences, and 133 (33%) were from other programs. All participants studying health sciences ($n=258$) stated that they were familiar with the term "organ donation," while 27.9% ($n=72$) stated that they did not know the meaning of the term "body donation." The percentage of Health Department students who emphasized the importance of using cadavers in anatomy education in the health field was 84.5% ($n=218$), and only 10.1% ($n=22$) of these students stated that they had considered body donation, while half ($n=109$) stated that they had not considered it. When asked about the motivations of those willing to donate their bodies, the response "To support the education of future doctors and healthcare professionals" received the highest value at 36% ($n=18$).

Conclusion: In conclusion, it is believed that field-specific education may have a direct impact on awareness and willingness to donate one's body, while attitudes toward body donation may also be influenced by religious beliefs and sociocultural factors.

Keywords: body donation, cadaver, education, health sciences

OP-095

Abstract no: 8894

Abstract group: Anatomy Techniques and Cadaver Management / Ethics and Anatomy

Being a woman in anatomy: rising charts, unreachable summits

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Objective: Gender equality is a human rights principle based on equal participation in all areas of life. However, literature shows that women remain underrepresented in many academic fields. This study examines changes in women's representation in the field of anatomy in Türkiye over time.

Methods: Data were obtained from three public sources: (1) anatomy theses published between 1969 and 2025 (National Thesis Center), (2) number of graduate students for 2016–2025 period, and (3) March 2025 data for academic staff (Higher Education Information Management System). Categorical variables were compared using the Kruskal-Wallis test; gender trends were analyzed with Chi-square and linear regression. Ethical approval was not required due to the exclusive use of open-access data.

Results: A total of 1,657 theses were reviewed. Of the authors, 42.8% were men and 57.2% women. Over the 56-year period, the proportion of women authors increased from 42.9% to 64.8% ($p < 0.001$). Between 2016 and 2025, the proportion of women master's and doctoral students rose from 58.2% to 69.7% and from 40.1% to 54.7%, respectively. As of March 2025, women constituted 74.4% of Research Assistants, 69.6% of Lecturers, 52.7% of Assistant Professors, 51.4% of Associate Professors, and only 31% of Professors. The proportion of women academics declined significantly with higher academic rank ($p < 0.001$).

Conclusion: Women's representation in anatomy is growing, but early-stage representation of women in thesis authorship is not similarly reflected in current high-level academic positions.

Keywords: gender equity, Türkiye, women anatomists, women in academia, women in anatomy

OP-096

Abstract no: 3895

Abstract group: Anatomy Techniques and Cadaver Management / Body Donation

The perspectives of donor families on the whole-body donation process: a qualitative study from Türkiye

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Objective: Family perspectives in whole body donation remain underexplored in Türkiye, where donation rates are low and institutional engagement is limited. This qualitative study aimed to examine the experiences and perceptions of surviving family members of body donors to better understand the relational, emotional, and procedural dynamics of donation.

Methods: In-depth interviews were conducted with 21 family members of donors whose bodies were donated to the anatomy departments of Ege University and Koç University between 2020 and 2023. Interviews were transcribed and thematically analyzed.

Results: Three core themes were identified: the institution, the family, and closure. Findings reveal that early family involvement, transparent institutional communication, and symbolic rituals such as commemoration ceremonies significantly shaped participants' experiences. Institutions that offered logistical support and ongoing contact contributed to smoother donation processes and helped alleviate emotional burdens. Many families redefined their loss through the donation, often expressing pride, advocacy, or symbolic connection in the absence of traditional burials. Religious considerations were more often framed as a contrast to secular values than as active deterrents.

Conclusion: Our study highlights that institutions bear ethical responsibilities beyond donor consent. Trust, family involvement, symbolic closure, and secular values are central. Recognizing families as active stakeholders and adopting sensitive policies, can help honor donors while supporting surviving families.

Keywords: body donation, cadaver, family involvement, anatomy department, Türkiye

OP-097**Abstract no:** 9742**Abstract group:** Clinical Anatomy /
*Radiological and Cross-Sectional Anatomy***Examination of the relationship between the anteversion angle of the femur, lumbar lordosis and sacral slope angle according to gender**Gökçe Bağcı Uzun¹, Mehtap Nisari², Emre Demirel²,
Mehmet Akçiçek³, İpek Balıkcı Çiçek⁴, Nihal Sümeyye Ulutaş¹,
Muhammed Furkan Arpacı¹, Anıl Kaya¹, Ayla Arslan⁵¹Department of Anatomy, Faculty of Medicine, Malatya Turgut Özal University, Malatya, Türkiye; ²Department of Anatomy, Faculty of Medicine, Erciyes University, Kayseri, Türkiye; ³Department of Radiology, Faculty of Medicine, Malatya Turgut Özal University, Malatya, Türkiye; ⁴Department of Biostatistics and Medical Informatics, Faculty of Medicine, İnönü University, Malatya, Türkiye; ⁵Department of Anatomy, Faculty of Medicine, Ağrı İbrahim Çeçen, Ağrı, Türkiye**Objective:** Sacral slope and femoral insertion pain determine the mechanical status of the patient and have an important role in deciding on surgery. Aim in our study was to calculate the sacral slope and femoral anteversion according to gender by taking radiologic measurements on the sacrum and femur. We believe that our study will contribute to clinicians, anatomists and the literature.**Methods:** Permission was obtained from the Non-Interventional Ethics Committee for our study (2024:51) and CT2, CT, Abdomen, non-contrast images from Malatya Training and Research Hospital, which were previously taken in the radiology department, were used. RadiAnt DICOM viewer program was used for morphometric measurements of the femur and sacrum. IBM SPSS Statistics 26.0 for Windows software was used for all analyses.**Results:** In terms of sacral slope angle, women (40.38±5.38) had significantly higher values compared to men (35.87±3.68) (p<0.001). According to correlation analysis, there was a moderate and strong relationship between lumbar lordosis and sacral slope (r=0.643, p<0.001). Furthermore, a positive and moderate correlation was found between lumbar lordosis and right femoral inclination angle (r=0.305, p=0.009). However, the correlations of lumbar lordosis with other variables were not statistically significant (p>0.05). Positive and statistically significant relationships were observed between sacral tilt and right femoral inclination angle (r=0.371, p=0.001) and left femoral inclination angle (r=0.265, p=0.025).**Conclusion:** Significant relationships were found between lumbar lordosis and sacral tilt and femoral inclination angles,

while no significant relationship was found between acetabular anteversion angles and other variables.

Keywords: sacral slope and femoral anteversion angle, lumbar lordosis, sacral Tilt**OP-098****Abstract no:** 5096**Abstract group:** Anatomy Education and Terminology /
*Anatomy Education***The link between fear of failing anatomy and solution-focused thinking: evidence from health sciences students**Hatice Güler¹, Halil Yılmaz², Gökçe Bağcı Uzun³¹Department of Anatomy, Faculty of Medicine, Erciyes University, Kayseri, Türkiye; ²Department of Anatomy, Faculty of Medicine, Ordu University, Ordu, Türkiye; ³Department of Anatomy, Faculty of Medicine, Malatya Turgut Özal University, Malatya, Türkiye**Objective:** The solution-focused approach is a goal- and future-oriented model that emphasizes creating solutions rather than deeply analyzing problems. This study aimed to evaluate solution-focused thinking skills among health sciences students and examine their fear of failing the anatomy course.**Methods:** Participants included 262 students from five provinces in Türkiye, mainly medical students. Data were collected using the Fear of Failure Scale and the Solution-Focused Thinking Scale. The relationship between fear of failure and three sub-dimensions of solution-focused thinking—goal orientation, resource mobilization, and problem separation—was analyzed.**Results:** There was no significant correlation between fear of failure and the sub-dimensions of resource mobilization and problem separation (r<0.3). However, a low positive correlation was found between resource mobilization and problem separation themselves (0.3<r<0.5, p<0.001). Female students reported a higher fear of failure than male students (p<0.01). Students who considered anatomy important showed significantly higher solution-focused thinking scores than those who did not (p<0.05). Similarly, students who liked their department scored higher on solution-focused thinking than those who did not (p<0.05). These findings suggest that recognizing the clinical importance of anatomy may enhance students' solution-focused thinking skills and reduce their fear of failing. Supporting students to see the relevance of anatomy in medical practice could improve both their mindset and performance.

Conclusion: Overall, the results may inform guidance and counselling strategies for medical students, helping them manage academic stress more effectively and develop resilience when facing challenging courses like anatomy.

Keywords: anatomy, health occupations, fear, problem solving, psychometrics

OP-099

Abstract no: 9538

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Investigation of the morphometric relationship between Haller index and costovertebral joint angle using CT imaging

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Objective: The Haller index (HI) is a mathematical value measured on axial computed tomography (CT) images to define the internal dimensions of the thorax and is widely used in diagnosing thoracic deformities. For example, HI increases in pectus excavatum. However, HI elevation may not always result from sternal deformity. This study aimed to investigate whether the costovertebral joint angle (CJA), considered a posterior reference, could influence HI and affect thoracic deformity diagnosis.

Methods: This retrospective study analyzed thorax CT images of 145 individuals aged 18–65 (mean age: 46.79 years) without prior thoracic surgery, sternal deformity, fracture, or scoliosis. HI was calculated at the most depressed level of the corpus sterni, and right and left CJA were measured. Statistical analyses were performed using SPSS v26.

Results: The mean HI was 2.15 ± 0.31 , right CJA 46.82 ± 5.51 , and left CJA 45.16 ± 5.22 . A significant difference was found between right and left CJA ($p=0.000$). HI correlated negatively with right CJA ($r=-0.224$, $p=0.007$) but not significantly with left CJA ($r=-0.150$, $p=0.072$).

Conclusion: The finding that the right CJA was significantly larger than the left CJA suggests asymmetry in the posterior thorax. This asymmetry may be due to the left positioning of the apex of the heart and mediastinal structures such as the aorta thoracica. In conclusion, it is suggested that sternal deformity is not the only factor that increases HI and CJA, which is a potential interaction in the posterior thorax, should be taken into consideration.

Keywords: Haller index, costovertebral joint angle, thorax CT

OP-100

Abstract no: 9842

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Defining the interlaminar window metrics with ultrasonography: a cadaveric study

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Objective: The interlaminar window is an anatomical area of considerable importance in the clinic when performing endoscopic spinal surgery, algological procedures, and oncological intrathecal applications. The height of the interlaminar window can be defined as the distance between the laminae of adjacent vertebrae in the midline. The width of the interlaminar window can be defined as the distance between the most medial surfaces of the right and left pedicles and is commonly referred to as the interpedicular distance. In this study, the aim was to perform measurements of the interlaminar area at three different levels of the lumbar region where interventions are most commonly performed, using ultrasound guidance on formalin-fixed cadavers in an appropriate position.

Methods: Measurements were performed at the L3–4, L4–5, and L5–S1 levels in three formalin-fixed cadavers using ultrasound to determine interlaminar height and interpedicular distance.

Results: Three cadavers (2 males aged 69 and 74, and 1 female aged 60) were included. At L3–4, interlaminar heights were 7.5 mm, 5.7 mm, and 5.4 mm. At L4–5, they were 5.0 mm, 6.1 mm, and 8.0 mm. At L5–S1, they were 7.2 mm, 8.2 mm, and 2.1 mm. Interpedicular distances at L3–4 were 24.7 mm, 16.2 mm, and 13.6 mm; at L4–5, 31.2 mm, 23.7 mm, and 19.4 mm; and at L5–S1, 33.8 mm, 25.7 mm, and 28.8 mm.

Conclusion: This study supports the use of ultrasound in clinical interventions targeting the lumbar spine by offering safer

and more precise access strategies. However, further cadaveric studies with larger sample sizes are needed.

Keywords: interlaminar, epidural, intrathecal, ultrasonography, cadaver

OP-101

Abstract no: 8609

Abstract group: Experimental Research and Neuroscience / *Neuroanatomy and Neuroscience*

Determination of normative brainstem volume values in healthy individuals: a study using 3D segmentation method

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Objective: This study aimed to determine the volumetric characteristics and relative proportions of the brainstem subdivisions—mesencephalon, pons, and medulla oblongata—in order to establish normative reference values in healthy individuals. These data are intended to serve as a comparative reference in neuroscientific research and neuroimaging-based clinical applications.

Methods: In this retrospective study, magnetic resonance images of 191 healthy individuals aged 18 to 65, without any neurological pathology, were obtained from the archive of Bolu Abant İzzet Baysal University Education and Research Hospital. The volumes of the mesencephalon, pons, and medulla oblongata were individually measured using three-dimensional manual segmentation with ITK-SNAP software. Each structure's volume was calculated, and their proportions within the total brainstem volume were analyzed.

Results: The mean volumes were 2,874 mm³ for the pons, 1,700 mm³ for the mesencephalon, and 1,956 mm³ for the medulla oblongata. The pons volume was significantly larger than both the mesencephalon and medulla oblongata ($p < .001$). According to the Shapiro–Wilk test, the volumes of the mesencephalon and pons deviated from normal distribution, while the medulla oblongata conformed to normality. No statistically significant differences were observed between sexes for any of the structures ($p > .05$).

Conclusion: The findings revealed significant volumetric differences between brainstem subdivisions in healthy individuals, independent of gender. The normative volume data obtained provide a structural reference framework for brainstem mor-

phology and a valuable resource for early diagnosis and monitoring of neurological disorders.

Keywords: mesencephalon, pons, medulla oblongata, brainstem.

OP-102

Abstract no: 7044

Abstract group: Clinical Anatomy / *Radiological and Cross-Sectional Anatomy*

Comparison of morphometric features of nasolacrimal duct and surrounding anatomical structures in individuals with and without nasolacrimal duct obstruction

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Objective: For effective treatment of primary acquired nasolacrimal duct obstruction (PANDO), a tear drainage disorder seen in adults, with dacryocystorhinostomy method, it is very important to know the anatomy of the duct and surrounding structures well. The aim of this study is to compare the two-dimensional morphometric features of nasolacrimal duct and surrounding structures in individuals with and without duct obstruction.

Methods: Computed tomography images (CT) of 22 PANDO (female: 14; male: 8; mean age: 38.18±15.11) and 44 healthy individuals (female: 21; male: 23; mean age: 31.57±9.43) were included in the study. In this retrospective study, morphological features of the canal and surrounding structures, angle, length, and area measurements were performed on CT images. For statistical evaluation, $p < 0.05$ was considered significant.

Results: When the individuals with PANDO and healthy individuals were compared, a significant difference was found only in the proximal and distal areas of the left nasolacrimal duct ($p < 0.05$). When the morphometric features of the nasolacrimal duct and surrounding structures were evaluated according to gender, a significant difference was found in the canal length on both sides, the angle of the canal on the left side, the height of the nose, and the septum deviation angle in the axial plane ($p < 0.05$).

Conclusion: We believe that by defining the morphometry of the nasolacrimal duct with the data obtained from this study, the findings obtained will contribute to the literature and guide

clinicians in the diagnosis and treatment of lacrimal drainage system obstructions.

Keywords: computed tomography, morphometry, naso-lacrimal duct

OP-103

Abstract no: 9387

Abstract group: Clinical Anatomy / Radiological and Cross-Sectional Anatomy

Investigation of knee joint morphology in patients with meniscus tear in terms of side and gender using semi-automatic segmentation method

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Objective: In this study, the morphology of femoral condyle cartilage and patellar condyle cartilage was evaluated in meniscus tear disease, which is one of the most common diseases that restricts daily life activities. The aim was to determine the relationship between femoral condyle cartilage and patellar condyle cartilage and meniscus tear disease by performing morphometric measurements of the knee joint and the effect of side and gender.

Methods: In the study, 9 out of 90 people who underwent magnetic resonance imaging (MRI) and were diagnosed with meniscal tear were excluded from the study and 81 people (gender: 33 male; 48 female; side: 39 right side, 42 left side) were included in this study. Data were obtained from “HOROS” software. Semi-automatic segmentation was performed with 3D modeling technique of 3D slicer software and measurements were made on the images. IBM SPSS V23 was used for statistical analysis and “ $p<0.05$ ” was accepted as significant.

Results: It was found that there were statistically significant differences in the volume of total femoral condylar cartilage (VTFCC), surface area of total femoral condylar cartilage (SATFCC), volume of patellar condylar cartilage (VPCC), surface area of patellar condylar cartilage (SAPCC) and Femur-Tibia shortest distance parameters in terms of gender and side in patients with meniscal tear ($p<0.05$).

Conclusion: Cartilage volumes, surface areas and Femur-Tibia shortest distances of men are larger than women in meniscus tear patients ($p<0.05$). VPCC of left-sided meniscus

tear patients is larger than right-sided meniscus tear patients ($p=0.038$).

Keywords: 3D slicer, knee joint, magnetic resonance imaging, meniscus tear, morphology

OP-104

Abstract no: 7093

Abstract group: Anatomy and Innovation / The Relationship between Anatomy and Technology

Comparison of the abilities of Gemini and ChatGPT-4 to identify vascular anatomical structures in DSA images

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Objective: While artificial intelligence (AI) shows promise in analyzing radiological images, its accuracy with digital subtraction angiography (DSA) is not well-established. This study aims to compare the capabilities of ChatGPT-4 and Gemini in evaluating vascular structures in DSA images obtained from various body regions.

Methods: To evaluate the performance of Gemini and ChatGPT-4, we utilized 50 DSA images in various projections. In DSA images from cerebral, coronary, thoracic, abdominal, upper, and lower extremity regions, various vascular structures were highlighted with arrows and presented to the AI applications twice, with a 24-hour interval between tests. Overall accuracy, the two-proportion z-test, and Fisher’s exact test were used to determine significant differences in the results.

Results: Gemini achieved a net accuracy of 48% (24/50) in the first test and 60% (30/50) in the second, demonstrating significantly better performance than ChatGPT-4 (18%) ($p<0.05$). In identifying the anatomical region to which the vascular structure belonged, Gemini had an accuracy of 89.50% and ChatGPT-4 had 63.20% in the first test; in the second test, Gemini’s accuracy was 94.70%, and ChatGPT-4’s was 79%. Although we detected a statistically significant difference in the first test ($p=0.034$), there was no significant difference in the second test ($p>0.05$).

Conclusion: This study demonstrates that Gemini has promising potential as an adjunctive tool in DSA image analysis. However, we believe that for such AI models to be used effectively in clinical decision support systems, further development of both their specific structure recognition and contextual anatomical understanding capabilities is required.

Keywords: anatomy, ChatGPT-4, Gemini, DSA, artificial intelligence

OP-105

Abstract no: 9093

Abstract group: Anatomy and Innovation /
The Relationship between Anatomy and Technology

Development of a 3D anatomical model of the skeletal system integrated with a horizontal touchscreen table and an android market application

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Objective: Anatomy education is a cornerstone of health sciences, and visual and 3D approaches significantly enhance learning. However, challenges in cadaver availability and the limitations of current models hinder effective education. This project aims to present skeletal system structures in a 3D digital format using Latin terminology, supported with Turkish explanations. The model will be integrated with touch table technology and made accessible to students via an Android-based mobile application. This will enable students to benefit from both international terminology and comprehensible Turkish content, improving the efficiency of the learning process.

Methods: The project was carried out in five stages: selection of software and design planning; 3D modeling, rigging, and texturing using Blender; exporting models in FBX format; integration into Unity; and software development with C# to ensure compatibility with Android and Windows devices.

Results: The skeletal system was modeled under three main subcategories: head-trunk, upper extremity, and lower extremity. High-resolution textures and advanced lighting techniques were applied to create realistic models. Performance optimization, user interface design, and hardware access tailored to platforms were achieved in the Unity environment.

Conclusion: This project has developed an accessible and effective digital tool to support both theoretical and practical anatomy education. The user-friendly, scientifically based 3D software has become a lasting resource for both students and educators. With local language support, scientific accuracy, and advanced technology, it offers an innovative educational platform for a wide audience.

Keywords: 3D anatomical model, android, skeletal system

OP-106

Abstract no: 8961

Abstract group: Clinical Anatomy /
Anatomical Variations

Investigation of accessory spleen incidence, localization, and morphometric features in autopsy cases

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Objective: The accessory spleen (AS) is a splenic tissue mostly asymptomatic and in ectopic sites. This study aims to investigate AS's incidence, number, anatomical localizations, and morphometric characteristics during routine forensic autopsies and to examine its possible relationship with the normal spleen.

Methods: This study prospectively analyzed adult autopsy cases performed at the Tokat Forensic Medicine Institution between 2024 and 2025. Only individuals aged 18 years and older were included. Cases with compromised tissue integrity for any reason were excluded. In cases where AS was identified, localization, number, weight, and volume measurements were performed. Weight was measured using a precision scale, and volume was determined using the water displacement method based on Archimedes' principle.

Results: A total of 177 cases were examined. The prevalence of AS was found to be 29.4%. There was no statistically significant difference in AS presence according to sex. The mean weight of the normal spleen was significantly lower in cases with AS (133.9±34.3 g) compared to those without AS (144.7±22.7 g) (p=0.041). The mean weight of AS was measured as 21.4±10.6 g, and the mean volume as 20.1±10 mm³. The most common localizations of AS were the splenic hilum (n=27), pancreatic surface (n=17), greater omentum (n=13) and pelvis (n=2).

Conclusion: AS is a frequently encountered anatomical variation. We believe its presence should be considered, especially during imaging and surgical procedures, to prevent potential complications.

Keywords: weight, accessory spleen, spleen, volume, incidence

OP-107**Abstract no:** 5573**Abstract group:** Anatomy and Innovation /
*Digital Anatomy and Virtual Reality in Anatomy***Evaluation of artificial intelligence-supported models in terms of anatomical accuracy**Rabia Solak Döner¹, Sevdener Bekam^{1,2}, Burak Karip²,
Papatya Keleş²¹Department of Anatomy, Faculty of Medicine, Istanbul Aydın University, Istanbul, Türkiye; ²Department of Anatomy, International Faculty of Medicine, University of Health Sciences, Istanbul, Türkiye**Objective:** The aim of this study was to evaluate the anatomical accuracy of AI-based text-to-image models in medical illustration and to assess their effectiveness in producing detailed drawings of the human heart.**Methods:** Five freely available applications (Adobe Firefly Ai, ChatGPT Ai, Chat & Ask Ai, Craiyon Ai, Leonardo Ai) were used. Each model received the prompt “Can you draw the human heart anatomically and scientifically?” The 19 resulting images were evaluated against Gray’s Anatomy reference. Each image was scored 0–5 for overall structure, chamber placement, auricle visibility, number of arcus aortae branches, and truncus brachiocephalicus anatomy.**Results:** The models produced scores of 4.5 and 3 for Chat & Ask Ai; 4 for Craiyon Ai; 3.5, 4, 4, and 4.5 for Leonardo Ai; 3.5, 4.5, 4, and 2.5 for Adobe Firefly Ai without reference; 3, 4.5, 4.5, and 3 for Adobe Firefly Ai with reference; 3 and 2.5 for ChatGPT Ai (GPT-4o); and 3 and 4.5 for ChatGPT Ai (o4-mini-DALL-E), yielding a mean score of 3.68. Six images (32 %) achieved the maximum score of 4.5, two images received the minimum score of 2.5, and ten images (53 %) reached at least 80 % accuracy.**Conclusion:** While the models reliably reproduce basic cardiac anatomy, chamber placement, and auricle visibility, manual revision and expert oversight remain necessary for arcus aortae branching and truncus brachiocephalicus details. In medical education and publishing, use of these models should be supported by quality control and reference matching to ensure reliability.**Keywords:** heart, illustration, artificial intelligence**OP-108****Abstract no:** 6930**Abstract group:** Lifelong Anatomy /
*Embryology and Developmental Anatomy***Development of temporomandibular joint in fetal period**

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Objective: We aimed to examine the development of the temporomandibular joint and its localization on the cranium during the fetal period in human fetuses.**Methods:** Our study was conducted on 21 dead human fetuses aged between 13 and 40 weeks of gestation. After dissection of the joint area and mandible on both sides, the localization of the joint on the cranium was determined by measuring the distance from the nasion, glabella, vertex and inion. In addition, measurements were obtained from the body, ramus and angle of the mandible.**Results:** In our study, data on the localization of the temporomandibular joint on the cranium were obtained. The mean values of the data were determined according to gestational age. There were no significant differences in the macroscopic measurements between male and female fetuses or between the right and left sides ($p>0.05$). There were significant correlations between all macroscopic parameters and gestational age. It was observed that during the fetal period, the localization of the joint did not move toward the inion, vertex or nasion; moreover, the distances to these landmarks showed a similar increasing pattern as gestational age increased.**Conclusion:** We believe that our findings will be useful to clinicians and researchers in evaluating the development of the temporomandibular joint, in clinical practice and research. *This study is supported by Izmir Kâtip Çelebi University Scientific Research Projects Coordinator Unit (Project Number: 2025-TDU-TIPF-0003).**Keywords:** temporomandibular joint, human fetus, fetal development, mandible, anatomy**OP-109****Abstract no:** 8689**Abstract group:** Lifelong Anatomy /
*Embryology and Developmental Anatomy***Evaluation of ear morphological characteristics of individuals from eleven different countries**Rukiye Sümeyye Bakıcı¹, Necati Emre Şahin¹, Şeyma Toy¹,
Zülal Öner²¹Department of Anatomy, Faculty of Medicine, Karabük University, Karabük, Türkiye; ²Department of Anatomy, Faculty of Medicine, Izmir Bakırçay University, Izmir, Türkiye**Objective:** In this study, the aim was to make an inter-country comparison by classifying the ear morphology of citizens from eleven different countries.**Methods:** Approval for this prospective study was obtained from the Local Non-Interventional Ethics Committee

(Reference No: 726/2022). A total of 1351 ear photographs of volunteer individuals (367 M, 309 F) who are students at Karabük University from Türkiye, Chad, Morocco, Palestine, Gabon, Iran, Kazakhstan, Uzbekistan, Senegal, Syria and Jordan were included in the study. Parameters: External ear, helix, antihelix, fossa triangularis, anti-tragus, incisura intertragica, tragus, auricular lobulus shapes, ear-cheek adhesion, Darwin's tubercle.

Results: Volunteer individuals are between the ages of 16–30, with an average age of 20.9 ± 3.3 . When gender and direction were evaluated, it was found that there was no significant difference in right-left ear shapes ($p > 0.05$). The external ear shape was found to be round in the Chad population; triangular in the Moroccan and Kazakhstan populations; bagel in the Gabon and Senegal populations; and oval in the Turkish, Uzbekistan and Syrian populations ($\chi^2 = 185.764$; 54; $p < 0.001$). The helix shape was found to be normal rolled and expanding scapha in the Chad population; concave margin in the Turkish and Moroccan populations; expanding scapha in the Senegal, Gabon and Iranian populations; and folded top in the Syrian population ($\chi^2 = 178.928$; 63; $p < 0.001$).

Conclusion: In this study, we created a database of external ear morphology by country. We believe it can be used as a guide in forensic and anthropological studies, as well as in ear reconstruction.

Keywords: external ear shape, helix shape, incisura tragica shape, lobulus auricularis shape, tragus shape

OP-110

Abstract no: 9336

Abstract group: Lifelong Anatomy /
Physical Anthropology and Paleoanthropology

Evaluation of eating attitudes and healthy eating tendencies of medical faculty students

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Objective: The aim of this study was to determine eating attitudes (Eating Attitude Test EAT-26) in medical students and to examine the relationship between these attitudes and waist circumference, abdominal circumference and skinfold thickness.

Methods: A total of 208 students participated in this cross-sectional study conducted on Başkent University Faculty of Medicine students. The students completed the Eating Attitude Test, which was prepared through Google questionnaires, and then anthropometric measurements were taken. These anthropometric measurements included waist circumference, abdominal circumference and skinfold thickness (biceps, abdomen and subscapular region). Waist circumference and abdominal circumference were measured with a tape measure and skinfold thickness was measured with a skinfold caliper. Statistical analyses were performed using Statistical Package of Social Science (SPSS) version 25.0 (IBM Corp., Armonk, NY, USA).

Results: The mean age of the participants was 19.52 ± 1.50 years and 54.3% were female. When the relationships between the anthropometric measurements of the participants and their eating attitudes were examined, statistically significant and weak negative relationships were found between the total score of the Eating Attitude Test (EAT-26) and waist circumference ($r = -0.211$, $p = 0.002$), abdominal circumference ($r = -0.193$, $p = 0.005$), subscapular skinfold ($r = -0.181$, $p = 0.009$) and abdominal circumference ($r = -0.191$, $p = 0.006$). The rate of those who experienced binge eating episodes once a week or more frequently was found to be 9.14%.

Conclusion: Significant relationships were detected between eating attitudes of medical students and some anthropometric measurements. These findings reveal that students' eating habits are related not only to psychological but also to physical health indicators.

Keywords: anthropometry, eating attitude, medical faculty

OP-111

Abstract no: 9390

Abstract group: Experimental Research and Neuroscience /
Cellular and Molecular Anatomy

Investigation of the effect of red radish {Raphanus sativus} extract on MDA-MB 231 human breast cancer

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Objective: Today, survival rates have increased in breast cancer patients, but the symptoms of the disease are high. Patients use various complementary practices to relieve these symptoms and improve their quality of life. Studies have shown that radish prevents DNA damage in cells and has anticarcinogenic, antiviral and antibacterial properties. The aim of this study is

to investigate the effects of red radish extract on MDA-MB 231 human breast cancer at different doses and durations.

Methods: MDA-MB 231 human breast cancer cells were incubated under standard conditions. The experiment was established with radish extract at doses of 0, 100, 200 and 300 µg/mL for 24 and 48 hours. The amount of AgNOR proteins, an indicator of cell proliferation, was calculated. Analyses were performed using the ImageJ program.

Results: After 24 and 48 hours of application, AgNOR count were evaluated with One-way ANOVA and Tukey post-hoc tests. While no significant difference was observed between the groups in AgNOR count at 24 hours ($p>0.05$), at the end of 48 hours, a decrease was found compared to the control group at a dose of 300 µg/ml and this decrease was found to be statistically significant ($p<0.05$).

Conclusion: It was observed that red radish extract at a dose of 300 µg/ml had an effect on MDA-MB 231 cells by stopping cell proliferation after 48 hours. It is thought that radish, defined as a functional food, may have a potential effect in the prevention and treatment of breast cancer.

Keywords: MDA-MB 231, cell culture, raphanus sativus, cell proliferation, AgNOR staining

OP-112

Abstract no: 9253

Abstract group: Experimental Research and Neuroscience / Comparative Anatomy

Comparison of lower extremity performance in sedentary African and Turkish individuals

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Objective: The aim of this study was to evaluate and compare lower extremity performance between sedentary African and Turkish individuals. This comparison, based on single-leg standing long jump performance, seeks to explore the impact of ethnic differences on functional performance.

Methods: A total of 84 sedentary male volunteers were included in the study (African: $n=42$, Turkish: $n=42$). Participants' age, height, and body weight were recorded. Age ranged from 17 to 26 years in the African group (mean= 21.43 ± 2.39 years) and from 20 to 23 years in the Turkish group (mean= $21.00\pm$

0.80 years). The single-leg standing long jump test was performed under standardized conditions. Data were analyzed using SPSS 25.0. Assumptions of normality (Shapiro–Wilk test) and homogeneity of variances (Levene's test) were tested prior to group comparisons. An independent samples t-test was used for statistical analysis.

Results: The mean standing long jump performance of the African participants was 224.12 ± 20.16 cm, whereas that of the Turkish participants was 167.83 ± 15.04 cm. An independent samples t-test revealed a statistically significant difference between the groups, $t(82)=14.50$, $p<0.001$. The effect size was calculated as Cohen's $d=3.17$, indicating a very large effect.

Conclusion: Lower extremity performance, as measured by the single-leg standing long jump test, was significantly higher in African individuals compared to their Turkish counterparts. These findings suggest that ethnic background may influence musculoskeletal function and motor performance. The results highlight the importance of considering anthropometric differences not only structurally but also functionally.

Keywords: anthropometry, ethnic differences, lower extremity, motor performance, standing long jump

OP-113

Abstract no: 2313

Abstract group: Clinical Anatomy / Macroscopic and Surgical Anatomy

Anatomical evaluation of the juncturae tendinum in human fetuses with anencephaly

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Objective: Juncturae tendinum (Connexus intertendinei) are connective bands between the extensor tendons that coordinate finger movement, distribute force, and stabilize the metacarpophalangeal joint. The aim of this study is to support clinicians and surgeons (prenatally and postnatally) in improving outcomes and treatment protocols by examining the morphometric anatomy of the juncturae tendinum in anencephalic pathology.

Methods: In the study, the dorsal surfaces of twenty hand regions were dissected on fetal cadavers (gestational ages 24–35 weeks). Morphometric (length, width, and areas) measurements of the juncturae tendineum were examined. Evaluations were made in terms of the regions between the extensor tendons (second, third, fourth intermetacarpal). Statistical com-

parisons were made according to the right and left hand regions and gender.

Results: When evaluated in terms of gender, it was seen that the juncturae tendinum area measurement data on the right hand were wider in female fetuses than in males ($p=0.034$). No significant difference was observed in terms of morphometric measurements in the comparison of right and left hand data ($p=0.142$).

Conclusion: In this study, the presence of any anatomical effect of anencephaly on the juncturae tendinum tendon tissue was investigated. The results of our study are similar to the studies conducted with normal fetuses in the literature. We believe that this anatomical information will provide a broad perspective to physicians, especially hand surgeons, in terms of making appropriate diagnosis and treatment planning, and also determining possible donor opportunities for treatment.

Keywords: donor tissue, extensor tendon, intertendinous connection, juncturae tendinum, tendon repair

OP-114

Abstract no: 4981

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Morphometric analysis of paranasal sinuses in adults: the impact of age and sex on sinus dimensions and volumes: a preliminary study

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Objective: This study aimed to evaluate the morphometric measurements of paranasal sinuses in adults, establish a degree of standardization, and investigate their relationship with age and sex.

Methods: Following ethics committee approval, a retrospective study was conducted between June 2024 and June 2025 using Paranasal Sinus Computed Tomography (CT) scans with 1.5 mm slice thickness. For each included case, transverse, anteroposterior, and craniocaudal dimensions of all paranasal sinuses were measured, and sinus volumes were calculated using ImageJ software. The morphometric data were analyzed according to age and sex. Statistical analyses were performed using IBM SPSS Statistics 25.0 (IBM Corp., Armonk, NY, USA), with statistical significance set at $p<0.05$.

Results: Twenty patients (13 females; 7 males; mean age: 37 ± 11.54 years) were included in the study. Males exhibited significantly greater frontal sinus craniocaudal diameter (29.14 ± 6.32 mm; $p=0.006$), ethmoid sinus craniocaudal diameter (20.83 ± 1.98 mm; $p=0.008$), and volume ($21,761.4\pm3,509.92$ mm³; $p=0.043$). All dimensional parameters and volume of the sphenoid sinus were also significantly larger in males ($p<0.05$). A positive correlation was observed between age and the anteroposterior diameter of the ethmoid sinus ($r=0.58$; $p=0.008$), while a negative correlation was found between age and the craniocaudal diameter of the sphenoid sinus ($r=-0.53$; $p=0.017$). Additionally, significant positive correlations were identified among the volumes of the ethmoid, sphenoid, and maxillary sinuses ($r=0.62-0.67$; $p<0.005$).

Conclusion: This preliminary study demonstrates that the morphometric characteristics of paranasal sinuses significantly vary with age and sex, highlighting anatomical differences that may aid clinicians in surgical planning and radiological interpretation.

Keywords: paranasal sinus, morphometry, computed tomography, age and sex differences, sinus volume

OP-115

Abstract no: 4993

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Morphological evaluation of the basilar artery in multiple sclerosis patients

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Objective: Multiple Sclerosis (MS) is a chronic demyelinating disease affecting the central nervous system, primarily impacting individuals aged 20–40. MS patients exhibit blood-brain barrier disruptions, microbleeds, and reduced cerebral blood flow. Recent evidence suggests cerebrovascular pathology involvement in MS pathophysiology. The brainstem, particularly areas with pontine lesions comprising 46% of infratentorial lesions, is frequently affected. The basilar artery (BA), supplying the pons, demonstrates early severe atherosclerotic changes in intracranial arteries. This study investigates potential morphometric differences in BA between MS patients and healthy controls.

Methods: MR angiography images from patients visiting Biruni University Medical Faculty Hospital's Neurology Department (2016–2025) were retrospectively analyzed. The study included 60 MS patients and 60 healthy controls over 18

years old. Measurements utilized RadiAnt DICOM Viewer software.

Results: BA length, diameter, and age normality analyses employed Kolmogorov-Smirnov testing. BA diameter followed normal distribution in both groups. Independent T-test and Mann-Whitney U test performed comparisons. Statistically significant BA diameter differences existed between MS patients and healthy individuals. Additionally, BA length was significantly higher in males versus females in both general and control groups.

Conclusion: Findings suggest MS affects BA morphometry, supporting vascular factors' role in disease processes. Observed BA changes highlight MS's vascular component, contributing to "vascular MS" concepts and establishing groundwork for developing radiological biomarkers for MS subtypes.

Keywords: basilar artery, MR angiography, multiple sclerosis

OP-116

Abstract no: 5111

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Examining the effects of urinary system stones on urinary system morphometry and volume value: a 3D model study

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Objective: Urinary System stones may be alter kidney volume and may produce clinically deleterious effects. The purpose of the present study was to detect stones and their locations in the urinary system by using Computerized Tomography (CT) and to investigate the volumes of the kidney by using computer software and the effect of the stone on it by using 3D volume measurement techniques. Radiological images (CT) of 35 women and 35 men were retrospectively reviewed.

Methods: Three different methods were employed to compare the volume of individuals kindeys (SNAP-V, Manuel-V, and Ellipsoid Method). The SPSS (Statistical Program in Social Sciences) 25 software was used to analyze the study data.

Results: Stones were detected in 13 men (right) (5 proximal-2 medial-6 distal), 20 men (left) (9 proximal, 1 medial, 10 distal), in 7 female (right) ureters (4 proximal, 1 middle, 2 distal), 8 female

(left) ureters (3 proximal, 1 middle, 5 distal). The kidney volume measurement values (mL) were as follows in three different programs. SNAP-V (right-left), 200.99±57.091–193.82±83.87 and Manuel-V (right-left), 186.05±46.81–159.13±47.95, (Ellipsoid Method) (right-left) 169.08±44.38–161.8±66.47.

Conclusion: Ellipsoid method was found to be the fastest method for kidney volume calculation. In the same kidney, the volume measurement value in the SNAP-V program was higher than the other methods. Ureteral stones were mostly found on the proximal side of the ureter.

Keywords: urinary system stones, kidney volume measurement, ITK-SNAP, RadiAnt DICOM view

OP-117

Abstract no: 8071

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

A case of petrous apicitis with paresthesia symptoms in the facial region: a case report

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Objective: Petrous apicitis is a clinical condition that occurs when suppurative infections of middle ear or mastoid cells extend to apex of petrous part. Clinically, pain may be seen in eye, ear or around the ear on the side affected by disease, as well as paresthesia due to trigeminal nerve or lateral rectus paralysis due to abducens nerve. The aim of this study is to define importance of radiological and clinical evaluation in directing patients with neurological symptoms to appropriate clinic for treatment.

Case: A 38-year-old male who applied to neurology clinic reported complaints of numbness and tingling in his face, lip and right eye for 2 years. In the patient's anamnesis, it was noted that no similar condition was seen in family members, he had not undergone any surgery and his neurological examination was normal. Laboratory tests and cranial MRI were requested. In laboratory evaluation, vitamin D was found to be lower than reference values and findings compatible with right petrous apicitis were recorded in cranial MRI report. Following the physical and radiological examination, patient was consulted and referred to otorhinolaryngology clinic.

Conclusion: Petrous apicitis is more frequently reported in the literature as a result of otitis media. Although incidence has been decreased due to widespread antibiotic usage, patients may apply to neurology or other clinics due to the development of neurological findings secondary to disease. It is important to evaluate radiologically and clinically any pathologies that may be causing these symptoms and refer them to appropriate clinics for treatment planning.

Keywords: petrous apicitis, facial paresthesia, trigeminal nerve, apex of petrous part

OP-118

Abstract no: 8827

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

The relationship between brain volume and rotator cuff tear: analysis of MR images with VolBrain

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Objective: Rotator cuff tears are one of the common causes of shoulder pain and functional limitations. The aim of this study is to evaluate the relationship between brain volume and rotator cuff tears using the VolBrain platform.

Methods: In this retrospective study, brain MRI images of a total of 15 female patients were examined, including a control group (n=8) and a rotator cuff tear (RCC) group (n=7). Exclusion criteria included ischaemic-hypoxic lesions, hydrocephalus, tumours, and arteriovenous malformations. MRI images were converted from DICOM format to NIFTI format using MRIcron software and automatic volumetric analysis was performed using the VolBrain system.

Results: Statistical analyses revealed significant differences in some brain regions. White matter volume was significantly higher in the RCC group ($582.0 \pm 70.01 \text{ cm}^3$) (control: $473.6 \pm 66.42 \text{ cm}^3$; $p=0.008$). Grey matter volume was significantly lower in the RCC group ($512.9 \pm 64.01 \text{ cm}^3$) (control: $714.1 \pm 114.2 \text{ cm}^3$; $p=0.001$). Additionally, cerebellar grey matter ($p=0.002$), putamen ($p=0.004$), and amygdala volumes ($p=0.001$) were significantly lower in the RCC group. No significant differences were found between the groups in terms of cerebrospinal fluid volume and thalamus volume.

Conclusion: The study suggests that morphological changes in brain regions associated with motor coordination and pain modulation may contribute to the clinical findings of rotator cuff tears. The decrease in grey matter volume and the involve-

ment of specific subcortical structures highlight the need to consider the central nervous system in the assessment of musculoskeletal injuries.

Keywords: brain volume, rotator cuff tear, VolBrain

OP-119

Abstract no: 8880

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

The impact of nasal septum deviation on maxillary, frontal, and sphenoid sinus volume: preliminary study

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Objective: This study aimed to determine and three-dimensionally visualize the relationship between nasal septum deviation (NSD) and the volumes of the maxillary, frontal, and sphenoid sinuses.

Methods: This retrospective, single-center study received ethical committee approval. The study sample was selected from individuals presenting to the Otorhinolaryngology Outpatient Clinic for rhinoplasty requests who underwent routine computed tomography (CT) scans. All individuals were classified based on their NSD angle, as either less than or greater than 9 degrees. The 3D Slicer software was used for all measurements and visualizations.

Results: A total of 14 individuals (6 females, 8 males) with a mean age of 32.57 ± 10.07 years participated. Seven had an NSD angle of 9 degrees or greater, while the remaining seven had an angle less than 9 degrees. The volumes of the right and left maxillary sinuses were $15474.74 \pm 7678.22 \text{ mm}^3$ and $16277.70 \pm 7678.22 \text{ mm}^3$, respectively. Sphenoid sinus volumes were $4481.67 \pm 1902.40 \text{ mm}^3$ (right) and $5215.42 \pm 4547.76 \text{ mm}^3$ (left), while frontal sinus volumes were $3634.83 \pm 2664.67 \text{ mm}^3$ (right) and $4673.66 \pm 3136.35 \text{ mm}^3$ (left). No significant difference was found between right and left frontal, maxillary, and sphenoid sinus volumes, irrespective of the NSD angle group ($p>0.05$). However, right sphenoid sinus volume was significantly higher in individuals with right-sided NSD compared to those with left-sided NSD ($p=0.020<0.05$).

Conclusion: Our findings indicate that the direction of NSD affects the sphenoid sinus volume. We are continuing to inves-

tigate its impact on other sinuses by increasing the sample size. We believe this comprehensive data will be instrumental in guiding surgical indications and planning approaches.

Keywords: nasal septum, deviation, sinus, 3D Slicer, volume

OP-120

Abstract no: 9281

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Evaluation of pelvic diameters in nulliparous, primiparous and multiparous women on radiological images and 3D analysis of the pelvis: pilot study

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Objective: Apertura pelvis superior is the primary anatomical barrier the fetus encounters during labor. Pelvic diameters are believed to influence the course of labor. This study aimed to evaluate pelvic diameters and pelvic bone volume via MRI in nulliparous, primiparous, and multiparous women.

Methods: After ethics committee approval (2025/11-12), MRI data of non-pregnant women presenting to Alanya Alaaddin Keykubat University Hospital, Gynecology and Obstetrics Clinic, were retrospectively analyzed. Age, delivery type, and number of live births were recorded. Women with uterine or ovarian cysts >5 cm or prior surgeries affecting pelvic anatomy were excluded. Measurements of conjugata anatomica, recta, diagonalis, and obstetrica were taken from pelvic MRIs. Pelvic bone volume was calculated using 3D Slicer software. Participants were grouped as nulliparous (n=15), primiparous (n=12), and multiparous (n=13). Data analysis was performed using IBM SPSS Statistics 25.0.

Results: Out of 82 women, 42 were excluded. The final sample included 40 women with a mean age of 32.12 years. Among those who gave birth, 20 had cesarean sections and 5 had vaginal deliveries. Conjugata obstetrica ($r=-0.419$, $p=0.007$) and conjugata diagonalis ($r=-0.362$, $p=0.022$) showed a significant negative correlation with age. After adjusting for age, no significant differences were found between the groups ($p>0.05$).

Conclusion: Age negatively affects pelvic diameters and volume. Similar measurements between groups may result from the high rate of cesarean deliveries. Further studies with larger samples are needed.

Keywords: 3D Slicer, conjugata anatomica, magnetic resonance imaging, pelvis

OP-121

Abstract no: 6691

Abstract group: Anatomy Techniques and Cadaver Management /
Anatomy Museums and Collections

Morphometric analysis, structural variations, and clinical significance of the sacrum: a dry bone study

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Objective: This study aimed to examine the morphometric features of the sacrum, which plays an anatomically important role in caudal anesthesia and in surgical procedures planned for the pelvic, inguinal, rectal, urogenital regions.

Methods: Twelve parameters were measured on 11 dry human sacrum bones. The data were recorded in millimeters (mm) using a digital caliper with 0.01 mm precision.

Results: The mean sacral height was 100.25 ± 13.97 , sacral width was 103.53 ± 5.21 . The transverse diameter of the basis ossis sacri was 43.54 ± 4.17 , the sagittal diameter was 29.43 ± 3.83 . The width of the sacral canal was 25.14 ± 3.85 . The sacral hiatus (HS) length was 24.62 ± 9.3 , the distance between the cornua sacrale was 16.2 ± 4.6 . The distance from the apex of the sacrum to the superior margin of the HS was 28.86 ± 7.65 . The transverse line lengths from top to bottom were 28.96 ± 3.14 , 27.37 ± 2.76 , 26.47 ± 2.44 , 24.59 ± 1.46 . Interforaminal heights from top to bottom were 10.06 ± 1.52 , 9.78 ± 1.43 , 7.25 ± 1.42 on the right; 6.77 ± 1.33 , 12.12 ± 3.26 , 11.90 ± 2.26 on the left. The width of the facies auricularis was 37.44 ± 7.47 on the right, 34.82 ± 7.4 on the left, while the length was 57.61 ± 7.1 on the right, 54.82 ± 9 on the left. Sacralization was observed in 27.27% of samples. Two pairs of sacral foramina were seen in 63.6%, four pairs in 9.1% (fusion with the first coccygeal vertebra), five pairs in 27.3% (fusion with the fifth lumbar vertebra).

Conclusion: In the study, it was determined that the sacrum has highly variable morphometric features and structural variations. We believe that the data we obtained may assist clinicians in performing caudal anesthesia and surgical interventions in this region.

Keywords: dry bone, morphometry, os sacrum

OP-122**Abstract no:** 6541**Abstract group:** Clinical Anatomy /
*Biomechanics and Musculoskeletal System Anatomy***Anatomical rationale for osteopathic therapy and Karabakh folk medicine in facial nerve palsy treatment**

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Objective: Facial nerve palsy is characterized by impaired function of the mimetic muscles, typically due to damage to the facial nerve (n. facialis) after its exit from the stylomastoid foramen. To evaluate the clinical and anatomical effectiveness of a combined treatment approach using osteopathic therapy, traditional Karabakh folk medicine, and the Stone scalpel technique.

Methods: Seventy-two patients underwent cranial osteopathic manipulations, herbal applications, and facial Stone scalpel therapy. Osteopathic techniques enhanced temporal and occipital bone mobility, aiming to relieve neural canal compression, improve circulation, and support tissue regeneration.

Results: Most patients showed notable improvement in facial symmetry at rest. Muscle activity increased in nearly all facial expressions, such as eyebrow elevation, eye closure, and smiling. Synkinesis increased in 3 of 8 key movements but significantly decreased in 6. Difficulties in eating, drinking, and speaking were markedly reduced. These improvements corresponded with higher self-reported quality of life scores. Functional gains remained stable over a follow-up period of 8 to 14 months.

Conclusion: The results support the potential effectiveness of this anatomy-based holistic approach in the rehabilitation of facial nerve paralysis.

Keywords: n. facialis, peripheral paralysis, osteopathic treatment, Karabakh folk medicine, anatomy

OP-123**Abstract no:** 2361**Abstract group:** Clinical Anatomy /
*Radiological and Cross-Sectional Anatomy***Descriptive study and three-dimensional modeling of femur morphometric analysis in terms of vascular disorders, pilot study**Rumeysa Dikici¹, Kübra Öncü¹, İlhan Çelik²,
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Objective: Avascular necrosis (AVN) is a process that results in the death of bone cells due to the disruption of blood flow in bone tissue. The aim of our study is to perform morphometric analysis of the femoral head in AVN patients and healthy individuals using magnetic resonance images (MRI) and to show the effect of the disease.

Methods: MRI data of AVN patients and healthy individuals who applied to Alanya Alaaddin Keykubat University Hospital, Orthopedics and Traumatology Clinic were retrospectively included in the study with the approval of the ethics committee numbered 2025/11-13. For all patients, 13 different femoral head morphometric measurements were made, such as femoral head diameter (FBAD), femoral head length (FBAU), femoral neck diameter (FBOC). Volume data were normalized by proportioning to FBAD and compared between the two groups based on gender.

Results: A total of 36 participants were included in the study (17M, 19F), (18 AVN, 18 control). In male individuals, AD distance was found to be higher in the AVN group ($p=0.041$). In females, IA ($p=0.014$) and sharp angle ($p=0.020$) were found to be lower in the AVN group. Other measurements were similar between the groups but were found to be lower in AVN. Length and volume values were found to be significantly lower in females compared to males ($p<0.05$).

Conclusion: It has been observed that the diagnosis of AVN causes changes in the diameters and lengths affecting the joint. The sample size needs to be increased for more effective results.

Keywords: 3D Slicer, avascular necrosis, coxarthrosis, femoral head, magnetic resonance imaging

OP-124**Abstract no:** 8464**Abstract group:** Clinical Anatomy /
*Radiological and Cross-Sectional Anatomy***Evaluation of the relationship of cervical lordosis angle with disc herniation using magnetic resonance imaging**Büşra Çayabatmaz¹, Fatih Çiçek², Sümeyye Uçar¹, Gamze Nur Koçer Kahrıman¹, İlyas Uçar¹

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Objective: Cervical lordosis plays a critical role in posture and function; it is associated with many vital functions such as neck movements, respiration, speech and eye movement adaptation. Deviation of the head mass from its normal alignment can cause disruption of biomechanical balance and increased energy consumption in muscles. In our study, cervical lordosis

angle was measured on magnetic resonance (MR) images and its relationship with cervical disc herniation was evaluated.

Methods: MR images of a total of 145 individuals, 90 female and 55 male, aged between 17–76, were examined. The images were grouped as individuals without disc herniation, with single-level disc herniation and with multiple-level disc herniation. The angular value between the posterior lines of the cervical second (C2) and seventh (C7) vertebral bodies in the sagittal plane was measured as the lordosis angle.

Results: Cervical lordosis angle was calculated as 23.22 ± 7.17 , 18.88 ± 9.18 and 14.56 ± 6.03 degrees in control, single-level and multi-level disc herniation groups, respectively. It was determined that the lordosis angle decreased in both single-level and multi-level disc herniation groups compared to the control group ($p < 0.001$).

Conclusion: Our data reveal that individuals with disc herniation tend to flatten the cervical spine. Therefore, considering the lordosis angle in the process of preventing cervical disc herniation or planning treatment approaches may provide clinical benefit.

Keywords: cervical lordosis, disc herniation, magnetic resonance

OP-125

Abstract no: 1070

Abstract group: Anatomy Education and Terminology / *Anatomy Education*

An alternative approach in anatomy education: design of a learning environment based on artificial intelligence supported virtual manipulatives and investigation of its effectiveness

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Objective: Given the challenges of teaching and learning anatomy, it is vital to explore tools that enhance knowledge and understanding. In line with this need, this study aimed to develop a web-based learning module with ChatGPT-based artificial intelligence-supported virtual manipulatives to enhance anatomy education and assess its efficacy.

Methods: The ADDIE model was adopted for the instructional design process. By employing a mixed-method research design, the effects of this learning module on the students' academic

achievement, cognitive load, retention, and perceptions were analyzed. In the quantitative research phase, a quasi-experimental pre- and post-test design was used to examine the effects of academic achievement and cognitive load by using the Academic Achievement Test and Cognitive Load Scale. Qualitative data were gathered via an interview form developed by the researchers.

Results: The results of the research demonstrate that the instructional design model which incorporates artificial intelligence-based virtual manipulatives is an effective approach to learning anatomy, with a notable impact on academic achievement and a reduction in cognitive load. While the students' perceptions of their educational experiences showed that the usability of the web module was well-received and ChatGPT was adopted as a study companion, however, both positive and negative comments were made regarding the use of the virtual manipulatives and ChatGPT.

Conclusion: This study suggests that AI and virtual manipulatives may offer a promising alternative to traditional learning, providing an innovative framework for the instruction and learning of anatomy.

Keywords: artificial intelligence, chatgpt, virtual manipulative, simulation, anatomy education

OP-126

Abstract no: 3749

Abstract group: Clinical Anatomy / *Radiological and Cross-Sectional Anatomy*

The relationship between the vagus nerve and the common carotid artery in thyroid surgery: an ultrasonographic study

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Objective: Accurate localization of the vagus nerve (VN) during intra-operative neuromonitoring (IONM) in thyroid surgery is essential for verifying the functional integrity of the recurrent laryngeal nerve and reducing postoperative vocal-cord palsy. Because previous studies have reported positional variations of the VN relative to the great cervical vessels, this study assessed those variations ultrasonographically.

Methods: Ninety-seven volunteers (57 females, 40 males; ages 20–30 yr) were examined. A radiologist and an anatomist obtained and reviewed transverse B-mode ultrasound images at

the C5–C7 vertebral levels. The VN position was categorized in six patterns with respect to the common carotid artery (CCA): superficial, deep, or intervacular (between the CCA and internal jugular vein) on both right and left sides.

Results: Pooling right and left sides (n=194), the VN lay between the CCA and vein in 96.4 % of cases (n=187) and superficial to the CCA in 3.6 % (n=7). No instance of a VN deep to the CCA was observed. VN position showed no statistically significant association with side or sex ($p>0.05$).

Conclusion: In young adults, the vagus nerve most commonly courses between the common carotid artery and internal jugular vein, and rarely superficial to the artery, with no deep variant detected. Pre-operative ultrasound mapping of this anatomic relationship may simplify IONM and help prevent VN injury during thyroidectomy.

Keywords: common carotid artery, intraoperative neuromonitoring, thyroid surgery, ultrasonography, vagus nerve

OP-127

Abstract no: 4392

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Radiographic investigation of the effect of the craniofacial structures above velum in obstructive sleep apnea patients

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Objective: Snoring is a primary symptom of obstructive sleep apnea (OSA), a sleep-related breathing disorder whose prevalence increases annually. Studies focusing on upper airway anomalies often use cephalometric measurements, showing narrowing of distances between craniofacial structures, which are thought to contribute to OSA. However, most research concentrates on structures below the velum. This study aims to highlight the significance of the craniofacial structures above the velum and evaluate their association with the disease.

Methods: OSA results from intermittent collapse of the upper airway, significantly impacting patients' daily lives. While its causes vary, the disease is rarely observed in individuals with normal upper airway anatomy, directing research towards anatomical anomalies. Previous studies mainly assess craniofacial structures below the velum using cephalometric analysis, linking narrowed spaces to OSA. Few studies investigate the

effect of structures above the velum. This study retrospectively analyzed computed tomography images of 71 patients (50 males, 21 females), aged 20–65 years. Using 3D Slicer 5.6.1 software, seven parameters related to the velum and overlying craniofacial structures affecting airway width were measured. Statistical analysis was performed with SAS® Version 9.4 to determine correlations between these parameters and OSA.

Results: A significant correlation found in all except two of the measured parameters ($p<0.05$).

Conclusion: Craniofacial structures above velum have a significant effect on obstructive sleep apnea.

Keywords: sleep apnea, obstructive, spina nasalis posterior, sinus sphenoidalis, septal deviation

OP-128

Abstract no: 4523

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Evaluation of the anatomy of the ligamentum retinaculare using ultrasonographic imaging

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Objective: This study aimed to evaluate the morphometric characteristics of the retinacular ligament, a component of the temporomandibular joint (TMJ), using ultrasonography (USG), and to investigate its possible association with TMJ dysfunctions.

Methods: This prospective study included symptomatic patients and healthy volunteers who presented to the Department of Oral and Maxillofacial Radiology at the Faculty of Dentistry, Ankara University. A linear L3–12 ultrasound probe was positioned longitudinally from the angle of the mandible to the mandibular ramus to visualize the retinacular ligament. To reduce anisotropy artifacts, the probe was aligned perpendicularly to the fascial layers. For anatomical verification, a fresh frozen cadaveric head was examined using USG and dissected. Ligament length was measured using Micro DICOM Viewer software.

Results: Data analysis using SPSS software revealed a statistically significant difference in retinacular ligament length between the patient and control groups ($p<0.001$). No significant correlation was found between ligament length and age ($p>0.05$).

Conclusion: TMJ disorders affect 20–25% of the general population. Therapies targeting the cervical region, especially those correcting craniocervical posture, have shown positive

effects on TMJ symptoms. Manual therapy, myofascial release, and USG-guided soft tissue evaluation may enhance treatment outcomes. The findings of this study suggest that ligament length differs significantly in individuals with symptoms. Considering its anatomical continuity with the cervical fascia and parotidomasseteric fascia, the retinacular ligament may influence TMJ function and pain. These results underscore the importance of incorporating this structure into comprehensive TMJ management strategies.

Keywords: temporomandibular joint, retinacular ligament, ultrasonography

OP-129

Abstract no: 7427

Abstract group: Clinical Anatomy /
Anatomical Variations

Examination of the connections between the spinal root of the accessory nerve and the posterior root of the C1 spinal nerve in human fetuses

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Objective: The nerve fibers responsible for innervating the sternocleidomastoid and trapezius muscles originate entirely from the spinal root of accessory nerve (SAN). Congenital anomalies or birth trauma may affect the accessory nerve, causing muscle damage and torticollis. Literature reports frequent connections between the SAN and the posterior root of C1, especially in spasmodic torticollis patients. The presence of these connections may influence aetiology and clinical course of torticollis. This study aims to investigate the connections between SAN and posterior root of C1 spinal nerve in fetuses.

Methods: Dissection was performed on 54 sides of 27 fetuses (10 males, 17 females) in the Laboratory of the Department of Anatomy, Faculty of Medicine, Gaziantep University. Surgical microscope was used for dissections. The presence of connections between the SAN and the posterior root of C1 spinal nerve was investigated and a classification was made based on the types of these connections. The study was conducted in accordance with the Declaration of Helsinki.

Results: A direct connection between the SAN and the posterior root of C1 spinal nerve was identified in 21 of the 54 sides (38,9%) of the 27 fetuses examined bilaterally. These connections

were consistent with five different variation types previously described in the literature. The most frequently observed variation was Type 2 (19 sides, 35.2%), followed by Type 1 (14 sides, 25.9%), Type 3a (12 sides, 22.2%) and Type 4 (8 sides, 14.8%). Type 5 was identified in only one side (1 side, 1.9%). According to the literature, Type 3 variation is classified as Type 3a (connection via a branch) and Type 3b (connection at the crossing point); in the present study, only Type 3a was observed.

Conclusion: Identifying variations and anatomy of the connection between SAN and the posterior root of C1 is important for understanding postnatal clinical conditions, especially congenital torticollis. This classification contributes to the literature on intradural nerve variations and has clinical value for surgical approaches.

Keywords: dissection, fetus, accessory nerve, spinal root, posterior root of spinal nerve C1

OP-130

Abstract no: 6863

Abstract group: Experimental Research and Neuroscience /
Neuroanatomy and Neuroscience

Comparison of imaging software for neuroanatomical volume measurements: an evaluation on VolBrain, ITK-SNAP, 3D Slicer, FreeSurfer, FSL and SPM

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Objective: Volumetric analysis of neuroanatomical structures is widely used in both clinical decision support systems and research. In this study, six common software (VolBrain, ITK-SNAP, 3D Slicer, FreeSurfer, FSL, SPM) were compared in terms of hippocampus, lateral ventricle and total brain volume measurements on T1-weighted MRI images.

Methods: WoS, Pubmed databases and artificial intelligence based programmes were used to compare the software. The software were evaluated in terms of segmentation approach, output format, user interface and processing time.

Results: While VolBrain offers a fast and practical solution with its fully automated structure, the fact that it does not allow user intervention is limiting in terms of customisation. While ITK-SNAP allows manual intervention in the segmentation process, it is especially suitable for detailed morphological analyses and research. 3D Slicer offers a versatile platform for

both volumetric analysis and advanced visualisation thanks to its modular structure and wide plug-in support. Although FreeSurfer is considered one of the gold standards in the literature with the detailed measurements it provides, especially in cortical thickness and surface area analysis, the processing time is quite long.

Conclusion: The command line knowledge required may be a disadvantage for those looking for a user-friendly interface. FSL offers fast and stable results for both brain extraction and segmentation of subcortical structures; especially for hybrid uses.

Keywords: VolBrain, ITK-SNAP, 3D Slicer, neuroanatomy, MRI

OP-131

Abstract no: 1094

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Evaluation of meniscal ramp lesions with magnetic resonance arthrography

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Objective: Meniscal ramp lesion is a type of meniscal tear that occurs as a result of the disruption of the relationship between the posterior horn of the medial meniscus and the joint capsule of the knee. These lesions involves damage of the peripheral part of the posterior horn, meniscocapsular and meniscotibial ligaments that connect the posterior horn to the capsule. Although arthroscopy is considered the gold standard in the diagnosis of ramp lesions, it is difficult to reach these hidden tears with standard arthroscopic portals. However, it is difficult to reach this hidden tear with standard arthroscopic portals. We did not find any study in the literature evaluating the diagnosis of ramp lesion with MR arthrography (MRA). Based on this deficiency, we aimed to examine the effectiveness of MRA in the detection of ramp lesion in our study.

Methods: In our study, we evaluate the peripheral meniscal tears, meniscocapsular zone, meniscocapsular and meniscotib-

ial ligaments with conventional MRI, standard MRA, traction MRA (TMRA) and pressure MRA (PMRA) on patients with anterior cruciate ligament injury.

Results: Ramp lesions were observed in 3 patients according to conventional MRI evaluation, and in 10 patients according to standard MRA, TMRA, PMRA and arthroscopy. In ramp lesion evaluation, sensitivity values of PMRA, TMRA and standard MRA (100%) are higher than conventional MRI (11.1%) ($p<0.005$).

Conclusion: We believe that it would be beneficial to evaluate patients with ACL trauma history and suspected ramp lesion in clinical examination with MRA together with pressure applied to the suprapatellar recess.

Keywords: ramp lesion, meniscocapsular separation, meniscocapsular ligament, meniscotibial ligament, magnetic resonance arthrography

OP-132

Abstract no: 2143

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Evaluation of anatomical features of arterial corona mortis by computed tomography: preliminary report

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Objective: This study aimed to assess the prevalence, anatomical characteristics, and distance to the pubic symphysis of the arterial corona mortis using computed tomography (CT) images.

Methods: Intravenous contrast-enhanced CT images of the pelvis of 150 female patients aged 18 to 96, were retrospectively analyzed. The frequency of the arterial corona mortis, its diameter, the artery from which it originates from the external iliac system, and its distance from the pubic symphysis were evaluated.

Results: A total of 10 arterial corona mortis were detected in 9 patients (6%): 4 right, 4 left and 1 bilateral. The median diameter was 2.4 mm on the right and 2.7 mm on the left. All of the left vessels originate from the inferior epigastric artery, while four of the right vessels originate from the inferior epigastric artery and one directly from the external iliac artery. The

median distance from the pubic symphysis was 67 mm on the right and 63 mm on the left.

Conclusion: Corona mortis, if present, most commonly originates from the inferior epigastric artery. On the left side, the artery diameter is minimally larger and the artery is closer to the midline. Recognizing this variant, which can lead to life-threatening bleeding in numerous surgical procedures such as hernia repair, pelvic fractures, and gynecological procedures, and understanding its anatomy plays a crucial role in reducing potential complications. In our ongoing study, we will increase the number of cases and evaluate these findings statistically.

Keywords: corona mortis, epigastric arteries, pelvis / anatomy & histology, computed tomography, vascular system / abnormalities

OP-133

Abstract no: 3537

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

The relationship of pectoralis major muscle cross-sectional area and density with mortality in elderly COVID-19 patients

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Objective: Pectoralis major muscle is one of the auxiliary respiratory muscles. COVID-19 (Coronavirus Disease 2019) is a disease that can affect the respiratory system. Our aim in this study was to examine the relationship between the cross-sectional area and density of the musculus pectoralis major and mortality in COVID-19 cases.

Methods: A total of 201 individuals aged 65 years and over were included in the study. Right and left pectoralis major cross-sectional areas and mean densities were calculated using the Slicer application using the thorax tomographs of the cases. Laboratory blood values of the patients were also analysed. Parameters that may be associated with mortality were analysed.

Results: In male cases, a significant correlation was found between decreased mean density of the left pectoralis major and high mortality ($p=0.011$). In female cases, decreased cross-sectional areas of the m. pectoralis major on both right and left

sides were found to be associated with higher mortality ($p=0.015$, $p=0.015$, respectively). Decrease in lymphocyte values, increase in NLR (Neutrophil to lymphocyte ratio) values, increase in AST (Aspartate aminotransferase) values, increase in LDH (Lactate dehydrogenase) values and increase in CRP (C-reactive protein) values were associated with high mortality ($p=0.019$, $p=0.002$, $p<0.001$, $p<0.001$, $p<0.001$, $p<0.001$, respectively).

Conclusion: Pectoralis major muscle mean density and cross-sectional area were found to be associated with mortality. These values, which can be measured from tomography images, can be used in planning the treatment of patients.

Keywords: COVID-19, cross-sectional area, density, mortality, pectoralis major

OP-134

Abstract no: 8792

Abstract group: Clinical Anatomy /
Anatomical Variations

An anatomical variation of the nervus medianus: MRI case report of nervus medianus bifidus

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Objective: Nervus medianus bifidus is a rare anatomical variation characterized by the division of the nervus medianus into two branches. This variation is frequently observed in association with arteria mediana persistens and is of clinical importance in the differential diagnosis of pathologies occurring at the canalis carpi, particularly carpal tunnel syndrome. This case report presents an isolated nervus medianus bifidus variation without an accompanying arterial structure, detected via magnetic resonance imaging (MRI) in a patient with symptoms of carpal tunnel syndrome.

Case: A 34-year-old female patient with no known systemic disease presented to the orthopedic outpatient clinic with swelling and pain in the right wrist. On physical examination, Tinel's sign was positive, and no neurological deficits were noted. Her body mass index was calculated as 26.2. MRI of the wrist was performed for differential diagnosis, providing detailed evaluation of neural structures. Imaging revealed a nervus medianus bifidus at the level of the canalis carpi. No arteria mediana persistens was identified. Mild synovial thickening and minimal signal changes due to compression were

observed around the nervus medianus. The cross-sectional area of the ulnar branch was 15.05 mm², while the radial branch measured 16.53 mm². Clinical and radiological findings supported the preliminary diagnosis of carpal tunnel syndrome.

Conclusion: Variations of the nervus medianus can influence diagnostic processes and surgical planning in patients with wrist symptoms. Identifying such variations, especially nervus medianus bifidus, through imaging is crucial to avoid potential complications. This case demonstrates that symptomatic neural variations may occur even in the absence of accompanying arterial anomalies.

Keywords: anatomical variation, carpal tunnel syndrome, Nervus medianus bifidus

OP-135

Abstract no: 8369

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Clinical presentation of a tumor in the nervus vestibulocochlearis, vestibular schwannoma (acoustic neurinoma): case report

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Objective: Acoustic neuroma or vestibular schwannoma, also known as neurinoma, is a benign tumor that develops on the vestibulocochlear nerve. Patients often experience hearing loss, dizziness, and tinnitus on the affected side, while facial paralysis, paresthesia, and headache may also accompany the condition in later stages. This study aims to demonstrate the importance of appropriate evaluation of the patient's symptoms by the applied clinic and referral to relevant clinics in terms of diagnosis and treatment.

Case: A 63-year-old woman applied to the neurology clinic with complaints of increasing amnesia for one year, dizziness and headaches lasting 2–3 days a week for six months. Her family history includes a mother with Alzheimer's disease. The patient, who had mild cognitive impairment, was found to have limited long-term memory. Hearing test showed a decrease in function, and laboratory tests showed no significant pathology. Cranial MRI report showed findings consistent with vestibular

schwannoma on the left side. After physical and radiological examination, consultation and referral to the ear, nose and throat clinic were deemed appropriate.

Conclusion: The diagnosis and treatment of vestibular schwannoma patients are performed by ear, nose and throat clinics, and patients may apply to the neurology clinic due to the presence of neurological symptoms. It is important for early diagnosis and treatment to refer patients who are evaluated multidisciplinary with clinical and radiological anatomy to the relevant branch.

Keywords: vestibular schwannoma, acoustic neuroma, vestibulocochlear nerve, acoustic neurinoma

OP-136

Abstract no: 5926

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Morphometric features of renal vessels in renal cyst diseases: an anatomical evaluation

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Objective: This study aimed to investigate the potential morphometric alterations in renal vasculature caused by Autosomal Dominant Polycystic Kidney Disease (ADPKD) and Simple Renal Cyst Disease (SRCD), and to compare the findings with those of a healthy control group (CG).

Methods: A total of 95 abdominal computed tomography (CT) scans obtained between 2019 and 2024 from the Nephrology Clinic of Kartal Dr. Lütfi Kırdar City Hospital were retrospectively analyzed. Patients were divided into three groups: ADPKD (n=30), SRCD (n=33), and CG (n=32). Morphometric parameters of the renal arteries and veins, including origin level, diameter, angle, and length, were measured and compared.

Results: No statistically significant differences were found in the morphometric measurements of the right and left renal arteries across the groups. Similarly, right renal vein parameters were comparable. However, the diameter of the left renal

vein showed a statistically significant difference between the ADPKD group and controls ($p<0.05$).

Conclusion: The findings suggest that cystic kidney diseases—particularly ADPKD—may cause significant morphometric changes in the left renal vein. This highlights the importance of detailed preoperative anatomical evaluation of renal vasculature to reduce surgical complications and contributes novel anatomical data to the existing literature.

Keywords: autosomal dominant polycystic kidney disease, morphometric measurement, renal artery, renal vein, simple kidney cyst disease

OP-137

Abstract no: 8434

Abstract group: Lifelong Anatomy /
Art and Anatomy

From the Imperial School of Medicine to the Cerrahpaşa Faculty of Medicine History of Medicine Museum: the institutional memory of anatomical cultural heritage

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Objective: Since the establishment of the Mekteb-i Tıbbiye (Imperial School of Medicine), various collections and museums have been created to support the practical structure of medical education. In line with the understanding of the period, these spaces functioned not as public exhibitions but as venues serving scientific research and medical training. This study aims to examine the historical development, educational role, and institutional significance of the collections and museums established within Mekteb-i Tıbbiye, with a focus on anatomy.

Methods: This study was conducted using qualitative research methods, specifically the historical document analysis technique. Objects and documents identified as having been used in Mekteb-i Tıbbiye and currently preserved in the Cerrahpaşa Medical School History of Medicine Museum collection were analyzed. The impact of the 1933 University Reform on these collections was examined in terms of spatial change and institutional continuity.

Results: The analysis revealed that the anatomical collections at Mekteb-i Tıbbiye played a significant role in enhancing students' theoretical and practical skills. These collections served not only as educational tools but also contributed to scientific

knowledge production and institutional memory. Following the 1933 reform, collections were dispersed across campuses, with some preserved to this day. However, the lack of a systematic preservation and exhibition policy remains evident.

Conclusion: The anatomical collections of Mekteb-i Tıbbiye provided unique visual and experiential learning materials that strengthened students' professional formation. Supporting these collections through archiving, exhibition, and digitalization is crucial for both improving medical education and sustaining a valuable scientific heritage.

Keywords: imperial school of medicine, Cerrahpaşa Faculty of Medicine, history of medicine museum, anatomy collection, cultural heritage

OP-138

Abstract no: 5744

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

Treatment of posttraumatic orbital decompression with endoscopic sinus surgery: a case report

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Objective: Proptosis, which is the displacement of eyeball forward from orbital border, is one of the most common symptoms of orbital pathologies. It may develop after trauma and depending on the degree of trauma, orbital fracture, optic nerve damage, hematoma and periorbital tissue damage may be occurred. Due to anatomical neighborhood of orbit and surrounding structures, it is important to be evaluated by otorhinolaryngology for treatment.

Case: A 12-year-old male patient was evaluated by the ophthalmology clinic due to blunt force trauma to the orbit. After physical and radiologic examination, patient was found to have orbital fracture and proptosis subsequently underwent lateral canthotomy. The patient whose proptosis did not regress and vision worsened was evaluated by otorhinolaryngology clinic. Endonasal orbital decompression surgery was planned under general anesthesia. The concha nasalis media was excised and the base of the ethmoid bone and sphenoid sinus were exposed. Then the left orbital plate of ethmoidal labyrinth was lifted, the

periorbital tissues were exposed and orbital apex was decompressed. With the normalization of orbital tone, medial canthotomy was also performed and proptosis was observed to decrease. The patient without postop complications was discharged.

Conclusion: The diagnosis and treatment of eye, orbital and periorbital tissue injuries resulting from orbital trauma are usually performed by ophthalmology clinic. Considering the importance of the anatomical structures neighboring to this region, a multidisciplinary approach comes to the forefront in treatment. It is important that such cases are evaluated multidisciplinary by other branches dealing with the orbit and surrounding anatomical region.

Keywords: orbital fracture, proptosis, orbital decompression, endoscopic sinus surgery

OP-139

Abstract no: 7899

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Computed tomography evaluation of maxillary sinus septa and anterior antral artery morphology in relation to gender and posterior edentulism

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Objective: Septum formation, and anterior antral artery diameters using CT scans.

Methods: A retrospective analysis was conducted on CT images of 33 patients (average age: 57.45; age range: 18–92, 17 females, 16 males). The presence and size of the septum, alveolar crest height, sinus dimensions, and the diameters of the right and left anterior antral arteries were measured.

Results: Results indicated that the average septum size was 1.95 mm, with the right anterior antral artery measuring 2.79 mm and the left 2.68 mm. Septa were more common in posterior edentulous women, with the largest average septum size being 14.15 mm. In these women, the diameters of the antral arteries (right: 2.14 mm; left: 1.98 mm) were narrower compared to those without septa (right: 2.98 mm; left: 2.77 mm). Overall, the presence of a septum was linked to narrower anterior antral artery diameters, especially in women. Posterior edentulism correlated with reduced artery diameters and increased septum frequency. The average heights of the right

and left alveolar crests were 8.19 mm and 8.83 mm, respectively. In women without posterior tooth loss, alveolar crest heights and sinus dimensions were significantly higher.

Conclusion: In conclusion, septum formation and anterior antral artery morphology exhibit significant variations based on gender and dental conditions, which may help identify anatomical risks before sinus lifting and implant procedures.

Keywords: maxillary sinus, anterior antral artery, septum formation, posterior edentulism

OP-140

Abstract no: 8375

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Development of the dorsum sellae in children: a CT study

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Objective: The aim of the study was to determine age-related changes in the size and pneumatization of the dorsum sellae (DS) in children aged 1–18 years.

Methods: Study population consisted of computed tomography views of 360 children (180 males and 180 females) aged 9.52±5.17 years. The length of DS at its superior border (SB-L) and the thickness of DS at its middle part (ML-T) were measured. In addition, DS's height at its right lateral margin (RLM-H), at its left lateral margin (LLM-H), and at its middle part (ML-H) were measured. The angle between DS and the floor of the hypophyseal fossa (DS-A) were measured. Four configurations related to DS pneumatization were defined as follows: no pneumatization (Type 0), pneumatization <50% (Type 1), pneumatization >50% (Type 2), and total pneumatization (Type 3).

Results: SB-L, RLM-H, LLM-H, ML-H, ML-T and DS-A were measured as 17.61±3.57 mm, 6.83±2.21 mm, 7.07±2.30 mm, 6.29±2.20 mm, 2.58±0.90 mm, and 77.89±9.97°, respectively. All parameters increased with advancing pediatric age. No difference was found between the parameters in term of sex

($p>0.05$). DS pneumatization was identified as type 0 in 289 cases (80.3%), type 1 in 57 cases (15.8%), type 2 in 10 cases (2.8%), and type 3 in four cases (1.1%). Frequencies of DS pneumatization types were affected by ages ($p<0.001$), but not sex ($p=0.851$).

Conclusion: Dimension and pneumatization of DS should be considered by surgeons to reduce the risk of complications such as cerebrospinal fluid fistula while performing an operation like posterior clinoidectomy.

Keywords: pneumatization, dorsum sellae, posterior clinoid process, computed tomography, sella turcica

OP-141

Abstract no: 8771

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Evaluation of aortic arch branching pattern variations using computed tomography angiography images

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Objective: Aortic arch branching pattern variations are common and often detected incidentally during routine computed tomography angiography (CTA). This study aimed to determine the prevalence of these variations in the Turkish population using CTA images.

Methods: CTA images of 1000 patients (500 males, 500 females) who visited the radiology clinic between June 2018 and June 2024 were retrospectively reviewed. Branching patterns were classified into seven main types. The relationship between branching variations and gender was analyzed using the Chi-Square test.

Results: Normal branching (type 1) was observed in 853 cases, while 147 showed variations. The most common variation was type 2 (bovine arch), where the brachiocephalic trunk and left common carotid artery originate from a common trunk (8.3%). This was followed by type 3, where the left vertebral artery arises directly from the arch (4.1%), and type 4, showing both a bovine arch and a left vertebral artery from the arch (1.3%). Type 6 (aberrant right subclavian artery) was seen in 0.8%, and type 7 (mirror image) in 0.1%. Type 5 was not observed.

Additionally, one female patient had a left inferior thyroid artery originating from the arch.

Conclusion: There was no significant relationship between branching variations and gender ($p=0.067$). Patients with aortic arch variations are at increased risk of bleeding and ischemia during thoracic surgery. Awareness of aortic arch variations is particularly important in patients scheduled for thoracic surgery or interventional radiological procedures, as it helps reduce potential risks.

Keywords: aortic arch, variation, computed tomography angiography

OP-142

Abstract no: 9334

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Clinical characteristics and computed tomography findings of patients with median arcuate ligament syndrome: a single center study

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Objective: Median arcuate ligament syndrome is a rare condition caused by the compression of the celiac trunk by the median arcuate ligament. The true frequency of this syndrome is unclear, which is partly due to its variable clinical presentation. This syndrome may cause postprandial abdominal pain, weight loss, nausea and vomiting. The aim of the study was to present clinical characteristics and computed tomography angiography findings of patients who were diagnosed with this syndrome retrospectively.

Methods: We examined 734 computed tomography angiography images of patients who applied to the Hacettepe University Hospital for any reason between the dates of October 1, 2015, and March 1, 2018.

Results: We detected median arcuate ligament syndrome in 21 (2.86%) of a total of 734 images. Of the 21 patients, 13 were male and 8 were female. The average age of the male patients was 62.5, while that of the female patients was 60.25 years. Clinical characteristics and computed tomography angiography findings of patients were recorded.

Conclusion: The symptoms of median arcuate ligament syndrome are very similar to other abdominal disorders and should definitely be considered in the differential diagnosis.

Treatment focuses on decompression of the median arcuate ligament compression of the celiac trunk, using laparoscopic, endoscopic, or open surgical intervention.

Keywords: median arcuate ligament syndrome, celiac trunk compression, abdominal pain

OP-143

Abstract no: 7419

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Microstructural analysis of the tractus corticospinalis and fibrae corticostriatales using tractography in individuals with degenerative scoliosis

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Objective: Degenerative scoliosis (DS) is a type of scoliosis that typically occurs after the age of 50 due to degenerative changes in the spine, characterized by lateral curvature greater than 10° on anteroposterior radiographs, and most commonly located at the L2–4 levels. The etiology of DS includes factors such as intervertebral disc degeneration, reduced spinal stability, and impaired spinal alignment. This study aimed to investigate the microarchitectural structure of the tractus corticospinalis and fibrae corticostriatales, which play a crucial role in spinal alignment and are responsible for motor control processes, in individuals with degenerative scoliosis.

Methods: The study included 10 individuals diagnosed with DS and 10 age- and sex-matched healthy controls. Bilateral tractography analyses of the tractus corticospinalis and fibrae corticostriatales were performed using diffusion magnetic resonance imaging data of the participants and processed with the DSI Studio software. Statistical significance was set at $p < 0.05$.

Results: There was no significant difference between the groups in terms of demographic data ($p > 0.05$). The fiber density in the posterior segments of both the tractus corticospinalis and fibrae corticostriatales was significantly lower in the DS group ($p < 0.05$). However, the average fiber length in the whole brain, as well as in the posterior segments of the right tractus corticospinalis and right fibrae corticostriatales, was significantly higher in the DS group ($p < 0.05$).

Conclusion: The microstructural differences observed in these motor-related pathways in individuals with DS may be associated with decreased spinal stability and impaired postur-

al alignment. These findings may provide valuable insights into the neuroanatomical basis of degenerative scoliosis.

Keywords: degenerative scoliosis, tractography, tractus corticospinalis, fibrae corticostriatales

OP-144

Abstract no: 6566

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

Surgical investigation of the sternopericardial ligament in cadavers

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Objective: The aim of this study is to examine the histological structure of the sternopericardial ligament, to elucidate its anatomical function and potential surgical relevance.

Methods: In our study, four adult cadavers fixed with formaldehyde and with no history of thoracic surgery were used. The anterior wall of the thorax was lifted so that the pericardium remained on the anterior wall. The periosteum on the posterior surface of the sternum was dissected using a periosteal elevator. In each cadaver, a total of six samples were taken: from the levels where the 2nd to 6th ribs articulate with the sternum and from the level of the xiphisternal joint. A total of 24 samples were obtained and examined histologically.

Results: Histological examination revealed that the sternopericardial ligament contained thymic tissue at the level of the 2nd rib in all cadavers, and in one cadaver, this tissue extended to the level of the 4th rib. Fibrous connective tissue and neurovascular structures were observed at varying levels in all specimens. The presence of neurovascular components suggests that this structure may serve not only as a passive connective tissue band, but also as a conduit facilitating neurovascular transmission.

Conclusion: This study demonstrates that the sternopericardial ligament is not composed solely of loose connective tissue, but represents a functional anatomical connection due to its fibrous tissue and neurovascular content. Therefore, it should be carefully considered in surgeries involving the anterior mediastinum.

Keywords: sternopericardial ligament, pericardium, anterior mediastinum

OP-145

Abstract no: 2481

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

The morphological relationship between the abdominal aorta and inferior vena cava

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Objective: The abdominal aorta (AA) and inferior vena cava (IVC) are two large vessels located in the abdomen. The aim of this study is to examine the morphological relationship between these structures in detail.

Methods: The study was conducted retrospectively using tomography images from the imaging system at Ordu University Faculty of Medicine. The diameters of the AA and IVC, the angle between them, and the distances between these

structures and the vertebrae were measured at the lumbar vertebral levels in a total of 58 individuals (26 males, 32 females).

Results: It was determined that the horizontal and vertical diameters of AA decreased from the L1 vertebra level to the L4 level. It was observed that IVC formed at the L5 level and that its horizontal diameter first decreased to the L3 level and then increased at the L4–L5 levels, while its vertical diameter did not change significantly. It was observed that the distance between the AA and IVC increased progressively from L4 to L1, meaning they moved further apart. The distances of the AA and IVC from the lumbar vertebrae were measured, and it was observed that the AA remained close to the vertebrae, while the IVC moved away from the vertebrae from L5 to L1. It was determined that the angle between AA and IVC increases from L4 to L1.

Conclusion: The morphological relationships between the abdominal aorta and inferior vena cava are anatomical parameters that should be considered in surgical procedures and imaging techniques.

Keywords: aort, inferior vena cava, radiology

Poster Presentations

(PP-01 — PP-40)

PP-01

Abstract no: 2554

Abstract group: Anatomy Education and Terminology /
Anatomy Education

The effect of VR technology on dentistry students' anatomy learning: short-term success and perception evaluation

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Anatomy is a fundamental discipline in medical education, and cadaver dissection has long been considered the “gold standard” in anatomical training. However, due to challenges in cadaver availability, high costs, and exceptional situations such as the pandemic, integrating digital technologies into anatomy education has become essential. This study aims to evaluate the short-term effectiveness of virtual reality (VR) technology in teaching mandibular anatomy, as well as to explore student perceptions of this method. A total of 96 first-year dental students, with no prior exposure to the subject, participated in the study. Students were divided into three groups: Classical Education Group (n=26) received a one-hour lecture via PowerPoint presentation, Laboratory Group (n=28) received hands-on instruction using physical bone models, VR Group (n=22) experienced individual instruction using VR headsets and interactive 3D simulations. All groups were taught the same topic—mandibular anatomy—for one hour using their assigned method. Following instruction, students completed a 22-question visual test (scored out of 22). Test results showed average scores of 10.84 in the Classical Group, 8.89 in the Laboratory Group, and 12.81 in the VR Group. One-way ANOVA revealed a statistically significant difference between groups ($p=0.0298$). Tukey HSD post-hoc analysis indicated that the difference was particularly significant between the Laboratory and VR groups ($p=0.0227$), while the Classical Group did not differ significantly from the others. Students reported that VR improved their spatial understanding of anatomical structures. However, limitations such as cost and accessibility may hinder its widespread adoption. In conclusion, combining traditional and digital methods may enhance the effectiveness of anatomy education.

Keywords: anatomy education, interactive education, virtual reality, VR headsets, 3D

PP-02

Abstract no: 8858

Abstract group: Anatomy and Innovation /
The Relationship between Anatomy and Technology

Challenging the gold standard: statistical reliability of ImageJ versus caliper in cadaveric morphometry

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Objective: Morphometric measurements in cadaveric dissection studies are traditionally performed using calipers, which are considered the “gold standard.” With advancing technology, alternative measurement methods applicable outside the dissection lab are being explored to save time and reduce formaldehyde exposure. This study aims to evaluate the statistical reliability and agreement of ImageJ-based morphometric measurements compared to those obtained using calipers.

Methods: A total of ten facial arteries were dissected from six cadaveric specimens (four bilateral, one right-sided, and one left-sided). Each hemi-face was photographed with a 1 cm² piece of millimetric paper placed in the image frame for calibration purposes. Twelve predefined morphometric parameters were measured in each hemi-face—first using a digital caliper and then using the ImageJ software. Statistical analyses were conducted with IBM SPSS to assess significance (p -values), correlation coefficients (r -values), and intra-class correlation coefficients (ICC) between the two measurement methods.

Results: Paired t -test and Wilcoxon signed-rank test showed no statistically significant differences between the methods ($p>0.05$ for all parameters, except one with $p>0.02$). Pearson and Spearman correlation analyses revealed strong positive correlations ($r>0.97$). ICC values were greater than 0.90 for all parameters, indicating excellent consistency between the two techniques.

Conclusion: The absence of significant differences, strong correlations, and high ICC values suggests that ImageJ—when properly calibrated—can be a statistically reliable alternative to calipers in cadaveric morphometric studies.

Keywords: cadaver dissection, ImageJ, caliper, morphometric measurement, statistical reliability

PP-03**Abstract no:** 5233**Abstract group:** Clinical Anatomy /
*Radiological and Cross-Sectional Anatomy***A case of double inferior vena cava**Muhammet Değermenci¹, Selen Kazancı¹, Ali Aygün²¹Department of Anatomy, Faculty of Medicine, Ordu University, Ordu, Türkiye; ²Department of Emergency Medicine, Faculty of Medicine, Ordu University, Ordu, Türkiye**Objective:** This study aims to present the radiological identification of a double inferior vena cava (IVC) through a case example, with the intention of increasing clinical awareness and preventing potential diagnostic confusion.**Methods:** This study was designed as a retrospective and descriptive case-based investigation. The findings were evaluated using abdominal computed tomography (CT) and magnetic resonance imaging (MRI) obtained from the imaging system of Ordu University Training and Research Hospital. The presence of right and left IVC and their morphological variations were assessed.**Results:** The IVC was found not to form at the L5 level but instead ascended bilaterally in the paravertebral region. The abdominal aorta was located in its normal anatomical position. The right renal vein was observed to drain into the right IVC, while the left renal vein drained into the left IVC. After the renal veins diverged, the left IVC crossed over to the right side, and the right and left IVCs were seen to merge at the level of T12.**Conclusion:** Double IVC is a rare congenital vascular anomaly resulting from embryonic development and has limited clinical manifestations. Diagnosis is typically made incidentally during imaging studies performed for other pathological conditions. However, this anatomical variation may have significant clinical implications in retroperitoneal surgeries and in the management of thromboembolic diseases.**Keywords:** inferior vena cava, variation, morphology**PP-04****Abstract no:** 2419**Abstract group:** Clinical Anatomy /
*Anatomical Variations***Anastomosis between musculocutaneous nerve and median nerve: a case report**Büşra Sancaklı^{1,2}, Sevdener Yazı¹, Abdul Veli İsmailoğlu¹, Ümit Süleyman Şehirli¹¹Department of Anatomy, School of Medicine, Marmara University, Istanbul, Türkiye; ²Department of Anatomy, Faculty of Medicine, Istanbul Atlas University, Istanbul, Türkiye**Objective:** Anatomical variations of the brachial plexus are relatively common. Identifying these variations is clinically significant, particularly for optimizing surgical outcomes and avoiding complications. This study describes an unusual communicating branch between the musculocutaneous (C5–7) and median (C6–T1) nerves observed during routine dissection.**Case:** During the cadaver dissection for educational purposes, a communicating branch between the musculocutaneous and median nerves was observed in the right upper limb of an 85-year-old male fixed cadaver. After originating from the lateral cord, the musculocutaneous nerve pierced the coracobrachialis muscle and then innervated the anterior arm muscles. In the mid-arm region, it gave off a communicating branch to the median nerve, which was formed by the union of the lateral and medial cord contributions. This anastomotic branch measured 3.08 cm in length.**Conclusion:** Variations of the musculocutaneous and median nerves may lead to misdiagnosis and failed nerve blocks, and unexpected deficits in cases of injury. Awareness of such anatomical anomalies is crucial for surgeons and anesthesiologists to ensure accurate interventions and prevent iatrogenic complications.**Keywords:** anatomical variation, brachial plexus, musculocutaneous nerve, median nerve**PP-05****Abstract no:** 2649**Abstract group:** Clinical Anatomy /
*Anatomical Variations***Anatomical variations of femoral nerve, obturator nerve, and lateral femoral cutaneous nerve: a case report**

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Objective: Anatomical variations of the lumbar plexus are relatively common. Identification of these variations is clinically significant, particularly for optimizing surgical outcomes and avoiding complications. This study describes the anatomical variations of the femoral, obturator, and lateral femoral cutaneous nerves observed during routine dissection.**Case:** During an educational cadaver dissection, anatomical variations were observed in the right lumbar plexus of an 85-year-old male fixed cadaver. The femoral nerve, which was formed by the union of the ventral rami of the L2–4 spinal nerves, divided into two branches 0.84 cm distal to its origin, with the psoas major

muscle fibers coursing between its two branches. The obturator nerve was formed solely by the ventral rami of the L2–3 spinal nerves, excluding L4. The lateral femoral cutaneous nerve arose from the ventral rami of the L1–2 spinal nerves (rather than L2–3) and formed at the midline of the iliacus muscle, 4.53 cm from the anterior superior iliac spine.

Conclusion: Understanding the anatomical variations in the lumbar plexus is clinically essential for procedures involving the hypogastric and inguinal regions, regional anesthesia, and managing nerve compression syndromes. Aberrant nerve pathways may complicate surgical interventions such as appendectomy, hip arthroplasty, and laparoscopic hernia repair.

Keywords: anatomical variation, lumbar plexus, femoral nerve, obturator nerve, lateral femoral cutaneous nerve

PP-06

Abstract no: 2648

Abstract group: Clinical Anatomy /
Anatomical Variations

A case report including the variant of the vertebral artery originating from the arch of the aorta and its clinical significance

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Objective: Abnormal origin of the vertebral artery (VA) is a rare condition. Variations of this artery should be investigated during operations on the upper mediastinum and the root of the neck due to its clinical importance. AV and basilar artery provide vital vascular support to the central nervous system structures. Disruption in this vascular system and changes in the origin of the vessels may cause unexplained symptoms and fatal neurological outcomes. The aim of the variation presented in this study is to increase the awareness of clinicians and regional surgeons.

Case: In this cadaver case, during routine dissection of a male cadaver for educational purposes, the left AV was found to originate from the aortic arch, positioned between the left common carotid artery and the left subclavia. It was found to pass upwards from behind the left common carotid artery, pass in front of the ventral branches of the cervical spinal nerves within the triangle of Chassaignac, and enter the left foramen transversarium of the C6 vertebra. This atypical left AV originating from the aortic arch was different from the right AV originating from the right subclavian artery. Furthermore, the

left atypical AV was narrower in diameter (2.5 and 4 mm, respectively) and longer (90 and 40.1 mm, respectively) than the right AV.

Conclusion: The present case report will be important for vascular surgeons who plan surgical interventions at the root of the neck and for clinicians responsible for monitoring patients with variable VA to effectively manage potential vascular complications.

Keywords: vertebral artery, variation, aortic arch

PP-07

Abstract no: 4201

Abstract group: Clinical Anatomy /
Anatomical Variations

Evaluation of the morphometry of the superior scapular notch in dry scapula bones

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Objective: The scapula has a superior scapular notch (SSN) through which the suprascapular nerve passes. This notch's morphometric analysis is clinically significant, and this study aims to reveal its characteristics, important for shoulder joint movements.

Methods: A total of 41 dry scapula specimens (24 left, 17 right) without information available regarding age and sex were examined. The SSNs in the scapula bones were classified morphometrically into six types and four morphometric measurements were performed. The main longitudinal axis of the scapular body, the main transverse axis of the scapular body, the maximum depth of the SSN, and the maximum width of the SSN were measured using a digital caliper. The data were analyzed using GraphPad Prism 9, with $p < 0.05$ considered statistically significant.

Results: The scapula bones were classified as follows: 36% Type I, 2% Type II, 56% Type III, 4% Type IV, and 2% Type VI. Type V was not observed. The main longitudinal axis of the scapula body measured (left: 141 ± 11.58 mm, right: 146 ± 14.34 mm), while the main transverse axis of the scapula body measured (left: 98.75 ± 7.35 mm, right: 102.1 ± 7.03 mm). The maximum depth of the ISS was measured (left: 5.46 ± 2.24 mm, right: 6.69 ± 3.09 mm), and the maximum width of the ISS was measured (left: 9.75 ± 3.37 mm, right: 12.02 ± 5.25 mm).

Conclusion: This study reveals the morphometric characteristics and variations of the superior scapular notch. Analyzing scapula dimensions aids in investigating the pathological mechanisms of upper musculoskeletal system injuries.

Keywords: anatomy, morphometry, scapula

PP-08

Abstract no: 4288

Abstract group: Clinical Anatomy /
Anatomical Variations

Corpus callosum hypogenesis: a case report

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Objective: The corpus callosum, with approximately 190 million axons, is the largest commissural pathway that transmits information between the two cerebral hemispheres. Developmental deficiencies in this structure are defined as hypogenesis. Developmental disorders of the corpus callosum can affect the connection between the hemispheres, leading to neurological and neurodevelopmental problems. Genetic factors are reported to play a role in its etiology. It can be seen in association with various syndromes such as Anderman and Proud syndromes. In this case report, we aimed to emphasize the clinical implications of structural abnormalities of the corpus callosum and their decisive role in neurodevelopment.

Case: A 2-year-old child was brought to the emergency department complaining of seizures. Neurological examination revealed that his neuromotor development was delayed compared to his peers. A sleep EEG was normal. EMG revealed sensorineural polyneuropathy. Brain MRI revealed normal gray matter in the cerebrum and cerebellum, while the corpus callosum was thin and demyelinated. Andermann syndrome was suspected.

Conclusion: Hypogenesis of the corpus callosum can lead to various motor, sensory, and cognitive dysfunctions due to the disruption of interhemispheric communication. Findings such as neuromotor developmental delay, seizure history, and sensorineural polyneuropathy are consistent with Andermann syndrome. Neuroimaging and electrophysiological assessments performed at an early age are critical for guiding the diagnosis and treatment management process.

Keywords: corpus callosum, hypogenesis, cerebral malformation

PP-09

Abstract no: 4339

Abstract group: Clinical Anatomy /
Anatomical Variations

Right testicular artery with retrocaval course: a case report

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Objective: The testicular arteries usually originate from the anterolateral or anterior aspect of the abdominal aorta, just below the renal arteries at the level of the second lumbar vertebra. The right testicular artery usually passes ventrally to the inferior vena cava and then proceeds retroperitoneally downward and laterally to reach the pelvic cavity. In this case, we aimed to increase awareness of the course variations in the testicular artery.

Case: In this case, during routine dissection of a male cadaver for educational purposes, it was observed that the right testicular artery originated from the anterior aspect of the abdominal aorta and below the left renal vein. When the course of the right testicular artery was followed, it was determined that it passed through the dorsal aspect of the inferior vena cava and extended into the pelvic cavity with the ureter, the right testicular vein, superficial to the psoas major muscle. The left testicular artery originated from the anterior aspect of the abdominal aorta at the same level as the right testicular artery and continued its normal course.

Conclusion: The various morphological and course variations of the testicular artery are clinically important due to its effect on the blood flow to the gonadal glands and the development of new operative techniques (especially laparoscopic surgery) in the abdominal cavity. Knowing these variations will serve as a reference to avoid clinical complications, especially during surgery in this region.

Keywords: testicular artery, variation, inferior vena cava

PP-10

Abstract no: 5279

Abstract group: Clinical Anatomy /
Anatomical Variations

A bilateral case of “flexor carpi radialis muscle” originating from bicipital aponeurosis and variation of median nerve

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Objective: This study presents a case involving bilateral variations of the pronator teres (PT), flexor carpi radialis (FCR), bicipital aponeurosis (BA), median nerve formation, and brachial artery.

Case: In the dissection of a 98-year-old female cadaver's left upper limb, some FCR fibers originated from the longitudinal part of the BA. The archiform part of the BA was a continuation of fibers from the short head of the biceps brachii (BB). Longitudinal fibers of the BA were attached to a fibrous septum between FCR and PT, from which FCR, PT, and flexor digitorum superficialis (FDS) also originated. In addition to the medial cord, the medial root of the median nerve received a second branch from the lateral cord. On the right side, BA divided into superficial and deep layers distally. A significant portion of FCR was attached to both layers. Some PT and FDS fibers originated from a septum continuous with the deep BA layer. The brachial artery bifurcated into radial and ulnar branches 145.08 mm proximal to the interepicondylar line. The radial artery passed from medial to lateral between the BB tendon and BA. The ulnar artery and median nerve entered the cubital fossa through a fibrous tunnel formed by the brachialis tendon. In addition to the medial cord, the medial root of the median nerve received a second branch from the lateral cord. Palmaris longus was absent bilaterally.

Conclusion: This rare origin of FCR from the BA may suggest an alternative mechanism in arm-forearm force transmission. These variations are clinically significant for surgical and physiotherapeutic procedures.

Keywords: bicipital aponeurosis, flexor carpi radialis muscle, median nerve variation, pronator teres muscle, brachial artery

PP-11

Abstract no: 5684

Abstract group: Clinical Anatomy /
Anatomical Variations

Unilateral ovarian agenesis: a case report

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Objective: Unilateral ovarian agenesis is usually asymptomatic. It is an extremely rare condition that is detected incidental. In this case report, we aimed to highlight the etiology, radiological and clinical features of left ovarian agenesis.

Case: The 28-year-old patient presented to the hospital with the complaint of not being able to get pregnant. When the dynamic pelvic MRI and diffusion MRI images with contrast were evaluated, the right ovary dimensions were measured as 47×27×32 mm.

There was a corpus luteum cyst with a diameter of 20 mm and multiple follicle cysts, the largest of which was 1 cm in diameter. However, the left ovary could not be detected. In the examination, the uterus was of normal structure, and the endometrium thickness was measured as 8.5 mm. The patient's imaging findings did not show any ectopic localization of ovarian tissue, and there was no history of surgical procedures in her medical history.

Conclusion: Unilateral ovarian agenesis has been reported in approximately 1 in 11,200 cases. The most commonly reported causes are embryological, vascular and torsion-related etiologies. We believe that our very rare case will be useful for anatomists, radiologists and clinicians in terms of diagnosis, treatment and awareness of possible complications.

Keywords: unilateral ovarian agenesis, anatomy, anomaly

PP-12

Abstract no: 1195

Abstract group: Clinical Anatomy /
Biomechanics and Musculoskeletal System Anatomy

A rare injury due to electric shock: a case of bilateral anterior shoulder dislocation

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Objective: Electrical injuries can lead to serious complications, including organ damage and death. The severity depends on current intensity, type, duration, pathway through the body, and tissue resistance. The glenohumeral joint, being the most mobile joint in the body, increases the risk of dislocation. We present a rare case of bilateral shoulder dislocation in a 21-year-old male following exposure to 220 volts.

Case: A 21-year-old university student sustained an electrical injury after touching a door with electrical leakage using both hands. He experienced intense muscle contractions and pain, followed by temporary memory loss of the incident. At the emergency department, bilateral shoulder dislocation was diagnosed. Orthopedic consultation revealed isolated anterior dislocation in the right shoulder and anterior dislocation with a greater tubercle fracture in the left. Both shoulders were reduced using the Hippocratic maneuver. Post-reduction CT showed a non-displaced fracture, so surgery was not required. A Velpeau bandage was applied for 3 weeks on the right shoulder and 6 weeks on the left. At 6 weeks, radiographs confirmed the fracture had healed. The patient completed 2 weeks of physical therapy and continued regular follow-up. At the two-year mark, full recovery without complications was observed.

Conclusion: Simultaneous bilateral shoulder dislocations with associated fractures, managed non-surgically, are rare. This case highlights the importance of thorough musculoskeletal evaluation in patients with electrical injury to prevent overlooked complications.

Keywords: shoulder anatomy, shoulder dislocation, electric shock, orthopedics

PP-13

Abstract no: 9431

Abstract group: Clinical Anatomy /
Anatomical Variations

An interesting case and an important message from the past to the present: supraorbital ethmoid cell

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The orbit is a pyramid-shaped anatomical bone structure located in the anterior-upper part of the skull, containing the eyeball and its appendages. There are four groups of paranasal sinuses adjacent to the orbit. The maxillary sinus is located at the base of the orbit, the frontal sinus at the ceiling, the sphenoid sinus at the bottom of the orbit and the ethmoid sinuses on the medial wall. Pain and pressure caused by inflammation of these sinuses affects the eyeball. In the differential diagnosis of causes of pain and limitation of movement in the eye, it is necessary to evaluate the sinus structures around the eye. The ethmoidal sinuses, which have the most variable changes among the paranasal sinuses, consist of a large number of cells within the body of the ethmoid bone. The supraorbital ethmoid cell (SOEH) is the pneumatization of the orbital layer of the frontal bone by the anterior ethmoid cell. The rate of occurrence of SOEH is 2.6%–62%. This rate varies depending on geographical and ethnic structure. Ophthalmologists should keep in mind that the thinned structure of the orbital roof in the presence of atypically located sinuses and SOEH may facilitate the passage of infections into the orbit and may cause spontaneous fractures during surgeries. The SOEH variation structure that we detected in 1 dry skull bone used as educational material in our anatomy laboratory is presented by photographing and computed tomography. In CT images, SOEH structure is observed in both orbital roofs.

Keywords: ethmoidal cell, ethmoidal sinus, eye pain, orbit

PP-14

Abstract no: 9829

Abstract group: Clinical Anatomy /
Anatomical Variations

A hidden tunnel at the skull base: anatomical and surgical importance of the foramen mastoideum

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Objective: This study aims to determine the morphological variations of the foramen mastoideum (FM) by examining its number, diameter, and distance to the asterion, and processus mastoideus. The FM is an important anatomical structure that connects the intracranial and superficial venous systems via the vena emissaria mastoidea. Its location and size are of great clinical importance, particularly during skull base surgeries.

Methods: A total of 185 dry crania of unknown sex from the Department of Anatomy were evaluated. The presence, number, diameter, and distances to anatomical landmarks were measured using a digital caliper. All measurements were repeated three times by two independent researchers. Data were analyzed using IBM SPSS 22 Statistics software.

Results: Regardless of side, FM was observed in 83.5% (n=309) of the crania, while it was absent in 16.5% (n=61). It most commonly appeared as two foramina (%37.8) or a single foramen (%34.3). The diameter ranged from 0.6 mm to 7.65 mm. The mean distance to the asterion was 18.10 ± 5.34 mm and to the processus mastoideus was 29.60 ± 5.38 mm.

Conclusion: This study revealed significant morphological variations in the FM regarding its frequency, diameter, and positional relationships. These findings suggest that detailed evaluation of FM is crucial to help prevent surgical complications, especially in neurosurgery, otolaryngology, plastic surgery, and radiology.

Keywords: foramen mastoideum, vena emissaria mastoidea, skull base, anatomy

PP-15

Abstract no: 7334

Abstract group: Anatomy Techniques and Cadaver Management /
Body Donation

The role of donated cadavers in anatomy education and commemorative practices for raising public awareness

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Objective: To emphasize the indispensable role of donated cadavers in anatomy education and to discuss how commemo-

rative and respectful practices can express gratitude while enhancing public awareness.

Case: Body donation is crucial for medical and health sciences students to learn human anatomy in a direct and detailed three-dimensional manner. As a reflection of respect for donors, commemorative practices such as memory books, memorial boards, and burial ceremonies are recommended, with the participation of students, faculty members, and administrators. Publicizing these activities through media can help raise societal sensitivity and familiarity with the concept of body donation.

Conclusion: Such practices, rooted in the principle of honoring the donor's final will, serve not only as ethical academic gestures but also as powerful tools to promote public awareness and acceptance of body donation.

Keywords: body donation, anatomy education, gratitude, memorial ceremony, public awareness

PP-16

Abstract no: 6596

Abstract group: Clinical Anatomy / Anatomical Variations

Multiple muscle variations in the left upper extremity

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Objective: We aim to present a case of containing extremity unilateral muscle variations in the upper extremity.

Case: We found the three different muscle variations in the left upper extremity of a formalin-fixed 78-year-old male cadaver. (1) We observed a third head originating from shoulder joint capsule and running parallel to the long head of the biceps brachii (BB) in the intertubercular sulcus on the lateral side. This head fused with the other heads of BB and attaching to the radial tuberosity. (2) There were exist two brachioradialis, one located on the medial and the other on the lateral side, starting from a common origin and ending by attaching to the lateral surface of distal end of radius at different points in 2.6 cm proximal to the styloid process. Lateral brachioradialis was double-bellied. (3) We found two musculotendinous bundles originating from third head of BB. Lateral bundle was 11.08 cm length and ended at muscle belly of medial brachioradialis. Medial bundle was 9.04 cm length and attached to the radial tuberosity.

Conclusion: The presence of a third head of BB is a common variation. In the available literature, the incidence of two brachioradialis are reported to be between 0.5–2.8%. We are not able to have a similar study reporting that there are two brachioradialis in same case and one of them is double-bellied. We believe that keeping in mind such as these complex variations we detected may contribute to the avoid of complications during upper extremity surgery.

Keywords: biceps brachii, brachioradialis, musculotendinous bundle, upper extremity, anatomical variation

PP-17

Abstract no: 8836

Abstract group: Clinical Anatomy / Biomechanics and Musculoskeletal System Anatomy

Investigation of the relationship between foot morphometric parameters and vertical jump performance in professional football players

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Objective: This study aimed to examine the relationship between detailed foot morphometric parameters and vertical jump performance in professional football players, and to assess their predictive value on athletic performance.

Methods: Forty-three professional male football players (age: 21.1±4.4 years; height: 180.5±7.2 cm; weight: 73.4±8.0 kg) were included. Using Harris mat footprints, arch angle, footprint index, arch index, arch length index, truncated arch index, Staheli index, and Chippaux-Smirak index were calculated. Arch height index (AHI) was determined for both feet as the ratio of dorsum height at 50% of total foot length (measured in sitting and standing) to truncated foot length (distance from the most posterior heel point to the first metatarsal head). Arch stiffness (AS) was calculated as the ratio of load change (10–50% increase in body weight) to AHI change ($AS = \Delta \text{load} / \Delta \text{AHI}$). Vertical jump performance was evaluated using single-leg jump (left/right), Abalakov, and countermovement jump (CMJ) tests. Bilateral asymmetry percentages were determined. Pearson or Spearman correlation tests were applied based on data distribution.

Results: No significant correlations were found between static footprint parameters and jump performance ($p > 0.05$). AHI of the right foot in sitting position showed a significant positive correlation with single-leg jump heights (left: $r = 0.325$,

$p=0.049$; right: $r=0.338$, $p=0.041$). AHI values were negatively correlated with bilateral asymmetry (sitting-right: $r=-0.343$, $p=0.047$; standing-right: $r=-0.343$, $p=0.047$; standing-left: $r=-0.349$, $p=0.043$). No significant relationship was observed between AS and any jump parameter ($p>0.05$).

Conclusion: AHI is a significant predictor of single-leg jump performance and bilateral symmetry. Static footprint parameters and AS are insufficient to estimate jump performance, emphasizing the need for dynamic foot assessments.

Keywords: arch height index, foot morphometry, vertical jump

PP-18

Abstract no: 9436

Abstract group: Clinical Anatomy /
Anatomical Variations

Duplication of vena saphena magna in a male cadaver

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Objective: Demonstration of duplication of the vena saphena magna encountered during cadaver dissection.

Case: Variations of vena saphena magna are of clinical significance, particularly in radiological evaluations and surgical interventions. One of these variations, duplication of vena saphena magna, is a condition encountered during anatomical dissections, radiological and surgical interventional procedures. Incidence of vena saphena magna duplication has been reported in literature at various rates. During routine anatomical dissection duplication of vena saphena magna was encountered in left lower extremity of 50-year-old male cadaver. On left side, initially, vena saphena magna was seen to start from arcus venosus dorsalis pedis, pass in front of malleolus medialis, and course upwards. It was seen that vena saphena magna divided into two 19 cm above malleolus medialis and continued as a double branch on medial side of the leg and thigh until it reached the vicinity of hiatus saphenus. It was observed that two branches connected to each other in two places during their course. It was observed that these two branches, which proceed together in the lower extremity, merged near the hiatus saphenus, formed a single trunk, and drained into vena femoralis.

Conclusion: Variations of vena saphena magna are an important factor in the etiology and treatment of lower extremity

thrombotic diseases. Identifying presence of vena saphena magna duplications before interventional radiologic procedures and coronary bypass surgery contributes to increased surgical and interventional success.

Keywords: vena saphena magna, venous variation, cadaver, duplication

PP-19

Abstract no: 9631

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Tolosa-Hunt syndrome followed by cavum septum pellucidum and cavum vergae: a rare case

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Objective: The cavum septum pellucidum is a space in brain's midline that exists prenatally and disappears over time in post-natal period. If it persists, it is considered as a variation. The posterior extension of this space is defined as cavum vergae. This study aimed to examine the clinical presentation of a patient with Tolosa-Hunt syndrome, an idiopathic granulomatous inflammatory disease, who had both a cavum septum pellucidum and a cavum vergae.

Case: A 42-year-old man applied to the hospital with complaints of diplopia, limited lateral movement in the right eye, ptosis in the right eye, and hypoesthesia on the right half of his face. The patient, who previously presented with the same symptoms, showed no other comorbidities and responded to steroid treatment. The patient, diagnosed with Tolosa-Hunt syndrome, during the radiological assessment reveals a lesion originating at the level of the right cavernous sinus and extending inferiorly, encompassing the internal carotid artery 270°. The basilar artery was also found to have a tortuous course. The patient also exhibited cavum vergae and cavum septum pellucidum, and his symptoms responded positively to steroid therapy.

Conclusion: Tolosa-Hunt syndrome is a rare disorder that involves the cavernous sinus and therefore accompanied by symptoms related to the 3rd, 4th, 5th, and 6th cranial nerves.

Furthermore, the cavum septum pellucidum and cavum vergae being a rare variation in adults and is associated with certain psychiatric and neurological disorders. In this case, the cavum septum pellucidum and cavum vergae variations were observed together in a patient with Tolosa-Hunt syndrome.

Keywords: cavum septum pellucidum, cavum vergae, cavernous sinus, Tolosa-Hunt syndrome

PP-20

Abstract no: 3155

Abstract group: Anatomy and Innovation /
Digital Anatomy and Virtual Reality in Anatomy

The subpubic angle and palpable pelvic parameters in sex determination using machine learning algorithms

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Objective: In this study, morphometric measurements obtained from the pelvic region were utilized to predict sex using machine learning algorithms.

Methods: The study evaluated computed tomography images of a total of 301 individuals aged over 18 years, comprising 150 females and 151 males. Six different morphometric parameters were measured in the pelvic region, including 5 palpable landmarks and the subpubic angle (SPA). For sex determination, classification analysis was performed using a multiple binary logistic regression (LR) model and the Classification and Regression Trees (CRT) method. In addition, a multilayer perceptron (MLP) was employed, with 70% of the data used for training and 30% for testing to classify sex.

Results: Analyses revealed that the distance between the right and left anterior superior iliac spines did not contribute significantly to sex differentiation, whereas all other parameters were effective in determining sex. The overall accuracy of the LR model was calculated as 94.7%. The MLP algorithm achieved the highest classification performance, with 100% accuracy for females and 96% accuracy for males. Using only the SPA parameter, the CRT model attained over 93% accuracy. K-means clustering achieved grouping success rates of 92% for both sexes.

Conclusion: The findings of this study demonstrate that machine learning algorithms, particularly the MLP, can achieve high accuracy in sex prediction based on pelvic morphometric measurements, especially the SPA. These results suggest that such anatomical parameters have effective and practical potential for use in forensic anthropology for sex determination, as well as in clinical assessments of living individuals.

Keywords: sexual dimorphism, computational anthropology, artificial intelligence, forensic medicine, pelvic morphometry

PP-21

Abstract no: 2532

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

The morphometry of the anterior surface of the sacrum and its clinical importance: an anatomical study

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Objective: Degenerative lower lumbar spine disease may necessitate sacral fusion and instrumentation. Given the concentration of critical structures, detailed knowledge of sacral anatomy and morphometry is crucial for safe screw placement, minimizing neurological injury, and ensuring stable fixation. Awareness of this region's anatomy is also crucial in gynecological, urological, and orthopedic surgeries to reduce complication risks. The objective of this study is to reduce the risk of intraoperative injury by evaluating the anatomical position of the anterior sacral foramina.

Methods: In this study, 50 dry sacrum bones of unknown age and gender were examined. Bones that were partially broken, fragmented, or damaged were excluded. Measurements included the distance from the anterior sacral foramina to the promontory, and their distance from the midline. These same measurements were also taken for the posterior sacral foramina.

Results: Measurements taken at different levels revealed distances to the midline of 13.12, 12.62, 11.74, and 11.51 mm, respectively. Compared to the posterior foramina, the anterior foramina exhibited a deviation from the midline ranging

between 1.52 and 3.21 mm. All data were analyzed with IBM SPSS v16.0 (SPSS Inc., Chicago, IL, USA).

Conclusion: These findings highlight key anatomical landmarks for safe sacral screw placement. In posterior approaches, the similar distance to the foramina as in anterior techniques underscores the need for equal surgical caution. Thorough knowledge of this anatomy lowers postoperative risks and improves surgical precision in complex sacral areas.

Keywords: pelvis, os sacrum, sacral surgery

PP-22

Abstract no: 4538

Abstract group: Lifelong Anatomy /
Physical Anthropology and Paleoanthropology

The role of the os coxae in sex estimation

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Objective: To compile data on the os coxae, a reliable anatomical structure for sex estimation, and to determine the sex of unilateral os coxae specimens in the anatomy laboratory.

Methods: Seven morphological (crista phallica, preauricular sulcus, facies auricularis prominence, obturator foramen shape, obturator foramen tubercle, tuberculum iliacum prominence) and 12 morphometric (os coxae height-width; facies auricularis length-1, length-2, angle; symphysis pubica height-width; incisura ischiadica major width, depth, angle; acetabulum vertical-transverse diameter) parameters were evaluated in 40 adult os coxae specimens at Necmettin Erbakan University, Faculty of Medicine, Department of Anatomy. Damaged bones (n=10) were excluded. Morphological assessment was observational, while morphometric measurements were taken using digital calipers and a goniometer. Bones were classified as male/female if at least four of the seven reliable morphological features were present; if only three unreliable features co-occurred, sex was considered indeterminate.

Results: The most frequently observed morphological features were: obturator foramen tubercle (67.5%), crista phallica (62.5%), facies auricularis prominence (60%), preauricular sulcus (57.5%), and tuberculum iliacum prominence (57.5%). The obturator foramen was oval in 57.5% and triangular in 42.5%. Facies auricularis was type L (65%), V(25%), or C (5%). Morphological parameters were assessed in 19 groups.

Based on co-occurrence, 25 bones were male, 11 female, and four indeterminate. In sex-determined bones, os coxae height, facies auricularis length-2, and symphysis pubica height were significantly greater in males ($p<0.05$).

Conclusion: The morphological and morphometric features of the os coxae are reliable for sex estimation, and labeled bones serve as valuable educational material for students.

Keywords: sex determination, morphometry, morphology, os coxae

PP-23

Abstract no: 8164

Abstract group: Experimental Research and Neuroscience /
Cellular and Molecular Anatomy

Effects of boldine on ovarian injury induced by ovarian torsion detorsion (biochemical parameters)

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Objective: This research has been supported by Gazi University Scientific Research Projects Coordination Unit with the grant number TYL-2025-9916. This study aimed to investigate the effects of boldine, which has antioxidant and anti-inflammatory properties, on rat model of ovarian torsion-detorsion injury in terms of biochemical parameters.

Methods: 24 rats were assigned into 4 groups: Sham (S), Boldine (B), Torsion-Detorsion (T/D), T/D+B. Left adnexa were exposed, NaCl or 50 mg/kg boldine was administered at the 150th minute of the experiment in S and B groups, or at the 150th minute of 720°-left adnexal-torsion in T/D and T/D+B groups. Detorsion was established 30 minutes after NaCl or boldine administration and reperfusion-period was maintained for 3 hours. At the end of the experiment, all animals were sacrificed, and tissues were preserved under appropriate conditions for biochemical analyses.

Results: Malondialdehyde (MDA) level in T/D group was higher than S and B groups ($p<0.001$, both); while it was lower in T/D+B group than T/D group ($p=0.004$). Catalase (CAT)

activity in T/D group was lower than S and B groups ($p<0.001$, $p=0.003$, respectively). CAT activity in T/D+B group was lower than B group ($p=0.030$), however, it was greater than T/D group ($p=0.033$). Glutathione S-transferase (GST) activity in T/D group was less than S and B groups ($p<0.001$, both). GST activity in T/D+B group was lower than S and B groups ($p=0.002$, $p=0.030$, respectively); while it was higher than T/D group ($p<0.001$).

Conclusion: Results of our study suggest that boldine has protective effects on ovary against reperfusion injury in rats subjected to torsion-detorsion.

Keywords: ovarian torsion-detorsion, boldine, oxidative stress

PP-24

Abstract no: 2080

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

Surgical treatment of thyroglossal ductus cyst: case report

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Objective: Thyroglossal duct cysts are cysts that form during the development of the thyroid gland and are usually located in the midline of the neck. It is the most common congenital neck mass, with more than 50% of cases observed in the first two decades of life. Knowledge of the anatomical structure of this region is important from a surgical point of view. Its location also affects the psychosocial situation from a visual perspective. This study aims to clinically evaluate paediatric cases with thyroglossal duct cysts and to consider anatomical and psychosocial factors in the surgical treatment plan.

Case: A 12-year-old girl was admitted to the hospital complaining of swelling in the submandibular region. Radiological examination revealed a 33x28 mm thyroglossal duct cyst on magnetic resonance imaging. The non-effective and non-fistulated cyst was resected using Sistrunk surgery, taking into account the patient's age and psychosocial condition. The patient was discharged the following day without any postoperative complications.

Conclusion: Patients are often asymptomatic and present to the hospital with a painless, mobile, non-tender mass in the neck that typically moves with swallowing. Due to its anatomical location

and the fact that it is mostly seen in children, aesthetic anatomy must also be taken into consideration in surgery.

Keywords: aesthetic anatomy, thyroglossal duct cyst, sistrunk procedure

PP-25

Abstract no: 8841

Abstract group: Clinical Anatomy /
Biomechanics and Musculoskeletal System Anatomy

Comparison of the 2D:4D digit ratio between taekwondo athletes and control group individuals

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Objective: This study aimed to investigate the relationship between the second-to-fourth digit ratio (2D:4D), sports aptitude, and sex differences in licensed taekwondo athletes aged 8 to 18, by comparing them with a control group within the Gaziantep province.

Methods: The study involved 102 licensed taekwondo athletes and 117 healthy controls. Demographic data were collected first. Then, the lengths of the second (index) and fourth (ring) fingers on both hands were measured using a digital caliper, from the midpoint of the proximal palmar crease to the fingertip. The 2D:4D ratio was calculated by dividing the second digit length by the fourth.

Results: Significant differences were found in body weight and BMI between groups, both being lower in athletes ($p=0.014$; $p=0.022$). The 2D:4D ratio was significantly lower in males than females for both hands ($p=0.001$). Fourth digit length showed borderline significance (right $p=0.058$; left $p=0.059$). No significant effects were observed for sports participation, limb dominance, or age group.

Conclusion: To our knowledge, this is one of the first studies on 2D:4D ratios in Turkish taekwondo athletes. The findings suggest that the 2D:4D ratio is not associated with the selection of taekwondo as a sport. This may be attributed to the discipline-specific training approaches in taekwondo that emphasize emotional regulation and the control of aggression. Future research involving larger sample sizes and the inclusion of physical per-

formance metrics is recommended to explore this relationship in greater depth.

Keywords: taekwondo, 2D:4D digit ratio, sports aptitude

PP-26

Abstract no: 4278

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Morphometric analysis of the posterior cranial fossa and associated structures in the pediatric population

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Objective: Aim of this study was to establish a healthy database for many malformations by evaluating the morphometric development of posterior cranial fossa, bone tissue and soft tissue structures in the pediatric age.

Methods: Cranial magnetic resonance scans reported as normal in 353 children (179 girls, 174 boys) aged 1–18 years were retrospectively measured. Nine two-year age cohorts were created. Recorded variables were the anteroposterior and transverse diameters of the foramen magnum (FM), areas of the FM and medulla spinalis, PCF (posterior cranial fossa) width and height, cerebellar lateral length, width and height, clivus and supraocciput lengths, and the clivus-dens axis angle. First group differences were tested with Kruskal-Wallis variance analysis ($p < 0.05$). Significantly different groups were compared pairwise using the Mann-Whitney U test.

Results: No significant change appeared between ages 1–4, but all parameters rose markedly from 5–6 years onward. Groups 3–5 (5–10 years) shared a common growth curve, while groups 8–9 (15–18 years) displayed similar late-adolescent rates. Growth charts showed that 90% of cranial base expansion is complete by 3–5 years, with the remaining 10% accruing over the next decade. Boys exhibited larger FM transverse diameter, medulla spinalis area, PCF height, cerebellar width and height, and longer clivus and supraocciput, differences likely driven by adolescent sex-hormone surges.

Conclusion: The PCF matures rapidly before school age and shows sex-specific divergence in adolescence. These normative data may assist radiologists in evaluating pediatric craniovertebral anomalies.

Keywords: foramen magnum, pediatrics, posterior cranial fossa

PP-27

Abstract no: 4571

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

Factors determining palpation frequency in physiotherapists: knowledge, attitude, and motivation regarding surface anatomy and palpation techniques

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Objective: This study examined the relationship between physiotherapists' frequency of palpation application and their knowledge, attitudes, and motivation towards surface anatomy and palpation techniques.

Methods: 202 physiotherapists aged between 21 and 56 years participated in an online survey using Google Forms. Descriptive statistics, exploratory factor analysis, correlation analysis, reliability analysis, and Partial Least Squares Structural Equation Modelling (PLS-SEM) were used in the data analysis.

Results: The mean knowledge scores for the palpation techniques were 3.84 ± 0.69 , attitude score 4.54 ± 0.50 , motivation score 4.48 ± 0.66 , and practice frequency score 3.69 ± 0.90 , respectively. PLS-SEM results showed no significant relationship between physiotherapists' knowledge of palpation techniques and motivation to improve their skills ($B=0.007$, $p=0.922$). However, a significant positive relationship was found between the knowledge level of palpation techniques and the frequency of palpation practices ($B=0.464$, $p<0.01$). A positive attitude significantly increased both motivation to improve palpation skills ($B=0.273$, $p<0.01$) and frequency of practice ($B=0.137$, $p=0.022$). Motivation for self-improvement related to palpation was a strong predictor of palpation technique use ($B=0.190$, $p=0.003$). Attitudes toward palpation techniques had an indirect and positive effect on frequency of use through motivation for self-improvement related to palpation ($B=0.052$, $CI:0.014-0.099$), while this indirect effect of knowledge was not significant ($B=0.001$, $CI:-0.029-0.030$). When the variables affecting palpation frequency were examined, knowledge, attitude, and motivation regarding surface anatomy explained 33.3% of the total variance.

Conclusion: The frequency with which physiotherapists perform palpation techniques is associated with their knowledge of surface anatomy, as well as their attitudes and motivation.

Keywords: clinical decision-making, physiotherapy, landmark, palpation, surface anatomy

PP-28

Abstract no: 1225

Abstract group: Clinical Anatomy /
Macroscopic and Surgical Anatomy

The importance of anatomical region in the surgical approach to basal cell carcinoma: a case in the infraorbital region

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Objective: Basal cell carcinoma is the most common type of skin cancer. Often it occurs after the age of 50 and observed mainly on the facial region. This study aimed to examine the surgery performed on a patient with basal cell carcinoma in the facial region and to evaluate the approach to the anatomical structures of the region.

Case: A 69-year-old male patient presented to the ear, nose, and throat clinic complaining of a lesion on the right side of his nose that had been present for 5 years. Based on the examination results, surgery was planned for a 3×3 cm ulcerative lesion located at the intersection of the right nasal region and right infraorbital region. During surgery, the lesion was completely resected, leaving a 5 mm distance from the right inferior lacrimal punctum, and the affected area was closed with a rotation flap. The patient was discharged with an appropriate treatment protocol, with preserved facial anatomy and no postoperative complications.

Conclusion: Basal cell carcinoma is usually seen in the facial region, and its primary treatment is surgical excision. Preserving the visual and anatomical integrity of the face is important in facial surgery. Understanding the importance of anatomical structures and their proximities in surgeries performed in this region will contribute to a comprehensive anatomical assessment of the region and positively affect the success of reconstruction.

Keywords: basal cell carcinoma, facial anatomy, infraorbital region, nasal region

PP-29

Abstract no: 9563

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Defining anatomical regions of interest for volumetric evaluation of lumbar paravertebral muscles: a manual segmentation approach using ITK-SNAP

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Objective: Various methods have been used in the evaluation of lumbar paravertebral muscles. While most studies present cross-sectional areas, volumetric measurements have gained importance as single-slice analyses have been shown to be functionally insufficient. This study aims to describe the process of accurately identifying the anatomical boundaries of muscle tissue using manual segmentation with ITK-SNAP software on T2-weighted axial MRI images.

Case: Four paravertebral muscles—psoas major (PS), quadratus lumborum (QL), erector spinae (ES), and multifidus (MF)—were evaluated at the L3–L4 intervertebral disc level. Fat tissue within the muscle fascia was excluded from the regions of interests (ROI). For each muscle, medial, anterior, lateral, and posterior boundaries were defined. PS was segmented starting from the anteromedial region adjacent to the disc, progressing anteriorly, laterally, and posteriorly, and ending again at the disc border. The QL ROI was traced anterolaterally from the fascia posterior to PS, continuing along fascial planes bordering the lateral abdominal wall and ES. The ES border began anteromedially at the MF–ES fascial line and extended parallel to the transverse process. MF was outlined medially from the mammillary process or zygapophyseal joint, with anterior boundary following the transverse process. Lateral and posterior borders for both muscles followed fascial planes and the ES aponeurosis, separating from the thoracolumbar fascia and subcutaneous fat.

Conclusion: Accurate identification of muscle borders using fascia, fat, and bony landmarks enhances the reliability of volumetric muscle analysis and improves the functional interpretation of muscular changes.

Keywords: ITK-SNAP, lumbar MRI, paravertebral muscles, segmentation

PP-30

Abstract no: 5683

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Radiographic evaluation of pes planus using angular measurements on lateral foot radiographs

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Objective: The aim of this study was to radiologically evaluate both the presence and prevalence of pes planus in adult males using angular measurements from weight-bearing lateral foot radiographs. Additionally, it examines the effectiveness of T1MA (Talus–1st Metatarsal Angle), TDA (Talar Declination Angle), and CIA (Calcaneal Inclination Angle) in reflecting medial longitudinal arch structure.

Methods: A total of 500 weight-bearing lateral foot radiographs from adult males were analyzed. Angular measurements of T1MA, TDA, and CIA were performed using RadiAnt DICOM Viewer software. The values obtained were compared with reference ranges defined in the literature, and individuals were classified according to the morphology of their medial longitudinal arch.

Results: The mean age of participants was 25.17±5.87 years. On the left side, no statistically significant difference was observed between CIA and either T1MA or TDA ($p>0.05$), whereas a significant difference was found between TDA and T1MA ($p<0.001$). On the right side, T1MA showed a significant difference when compared with both CIA and TDA ($p<0.001$), but no significant difference was observed between CIA and TDA ($p=0.236$). Correlation analysis revealed a moderate positive correlation between TDA and T1MA ($p<0.001$).

Conclusion: According to the findings of this study, CIA, which is frequently used in clinical settings, alone may not be a sufficient indicator for the diagnosis of pes planus. For a more accurate and reliable diagnosis, it is recommended that all three

angular parameters be evaluated together. Additionally, using these angular measurements in a machine learning algorithm is recommended to reduce subjective measurement errors.

Keywords: calcaneal inclination angle, lateral foot radiograph, meary angle, pes planus, talar declination angle

PP-31

Abstract no: 6390

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Determination of trachea and main bronchus morphometrics in pediatric population by multidetector computerized tomography

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Objective: The trachea and main bronchus are the tube-shaped airways necessary for the main respiratory tract. Their anatomical and functional integrity are vital for life. These components are important for safe clinical and surgical procedures. Because their morphometry can change depending on age and environmental factors. Therefore, our study aimed to evaluate the morphometry of the trachea and main bronchus in the pediatric population.

Methods: In our study, thorax images of 240 pediatric cases between the ages of 0–16 were retrospectively examined with multidetector computerized tomography. Trachea and main bronchus angle, diameter and length measurements were made. Cases were evaluated separately according to trachea shape, gender and age groups.

Results: Statistical analysis showed that diameter and length increased with age, while left main bronchus and bifurcatio trachea angles decreased ($p<0.001$). It was also observed that the angle of entry of right main bronchus was steeper than that of left main bronchus. In all parameters, male measurements were measured larger than female measurements. However, significant statistical differences were found in the anteroposterior diameters of the trachea beginning and bifurcatio trachea ($p<0.001$). Trachea shapes of the cases were determined that 87.5% were round, 12.5% were flat.

Conclusion: In our study, it was determined that diameter and length measurements increased depending on age. A morphometric scale for the pediatric population was created. We believe

that these results may help in determining airway anomalies in the pediatric population, reducing clinical complications, in treatment planning.

Keywords: anatomy, main bronchus, trachea

PP-32

Abstract no: 4636

Abstract group: Experimental Research and Neuroscience / *Translational Research in Anatomy*

Locomotor assessment of poly (L-lactic acid) (PLLA) and graphene-functionalized PLLA piezoelectric nerve conduits in an *[in vivo]* spinal cord injury model: a preliminary study

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Objective: Spinal cord injury (SCI) causes serious functional impairments due to axonal damage and neuronal loss. Effective treatment options remain limited. Biomaterials offer promising approaches to support regeneration. When combined with the biodegradable polymer poly (L-lactic acid) (PLLA), graphene can enhance the properties of nerve conduits. This study evaluated the effect of biodegradable PLLA and graphene-functionalized PLLA nerve conduits on recovery following SCI.

Methods: Adult Wistar albino rats were subjected to compression-type SCI at the T8–T9 level. Animals were divided into SCI control, SCI+PLLA, and SCI+graphene-functionalized PLLA groups. Locomotor recovery was assessed using the Basso, Beattie, and Bresnahan (BBB) scale on days 1, 7, 14, and 28. Experimental protocols were conducted with the approval of Ege University Ethics Committee (2022-026).

Results: Functional recovery was classified according to BBB scores as early (0–7), intermediate (8–13), and late (14–21) stages. The treatment groups showed higher BBB scores compared to the control group. Both treatment groups reached the intermediate stage by day 7 and the late stage by days 14 and 28, indicating improvements in motor coordination and mobility.

Conclusion: These preliminary findings suggest that PLLA-based piezoelectric nerve conduits may support functional

recovery following SCI. The observed improvement in motor performance in the treatment groups highlights the potential of these conduits to restore axonal conduction and support regenerative processes. Funding: Supported by the European Union M-ERA.NET and TÜBİTAK (Project No: 122N519).

Keywords: Basso, Beattie, and Bresnahan (BBB) locomotor scale, graphene, *in vivo* spinal cord injury model, piezoelectric nerve conduit, poly (L-lactic acid) (PLLA)

PP-33

Abstract no: 5188

Abstract group: Experimental Research and Neuroscience / *Neuroanatomy and Neuroscience*

Disproportionality analysis of blepharospasm cases induced by drugs used in the treatment of seizure

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Objective: This study aims to analyse blepharospasm adverse events (AE) reported in the US Food and Drug Administration's AE Reporting System (FAERS) database related to drugs used in the treatment of seizure.

Methods: Blepharospasm AO reports for drugs used in seizure treatment found in FAERS were included in the study. Data mining was performed on the data from these reports using OpenVigil 2.1 software, and reports in which the drugs were reported as the “primary suspect” in creating AO were selected for disproportionate analysis. If the Reporting Odds Ratio (ROR) and Proportional Reporting Ratio (PRR) values obtained after the process met the criteria of both methods, they were accepted as positive signals (PRR>2, n>2, $\chi^2>4$ and ROR>2, 95% confidence interval>1).

Results: An analysis of the use of twenty nine active ingredients for use in the treatment of seizure revealed that seven drugs met the study criteria. The drugs with the highest number of cases are: topiramate (n=42), lamotrigine (n=42), and levetiracetam (n=18). Drugs used in seizure treatment that show a positive signal in the occurrence of blepharospasm; topiramate (ROR=9.145, PRR=9.398), cenobamat (ROR=4.866, PRR=4.862), lamotrigine (ROR=4.862, PRR=4.858), vigabatrin (ROR=3.482, PRR=3.48), carbamazepine (ROR=3.320, PRR=3.318), clonazepam (ROR=2.528, PRR=2.528), and levetiracetam (ROR=2.033, PRR=2.032).

Conclusion: This study demonstrates that some of the drugs used in the treatment of seizure may cause blepharospasm. As a result, clinicians should be alert to the possibility of blepharospasm in patients using these drugs. However, we believe that this analysis of the pharmacovigilance database needs to be confirmed by clinical studies.

Keywords: adverse event, blepharospasm, seizure

PP-34

Abstract no: 1589

Abstract group: Anatomy Techniques and Cadaver Management / Ethics and Anatomy

Morphometric and morphological evaluation of the parietal foramen

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Objective: Foramen parietale (FP) is also known as the emissary foramen, located near the sagittal suture (SS) and in the 1/3 posterior and middle part of the parietal bone. Our study aimed to determine the incidence of FP in dry bones belonging to the Central Anatolian population and their location relative to the SS. Material and

Methods: The study was performed on 125 dry skulls of unknown gender from the bone collection in the Anatomy Laboratories of the Faculty of Medicine, KTO Karatay University. The distance between foramina, distance to SS, distance to bregma and lambda were determined. In morphological evaluations, FP was classified as type 0: absent, type 1: bilateral type (right and left), type 2: unilateral, type 3: single, type 4: multiple. In the presence of bilateral FP, the larger one was accepted as dominant. All morphometric evaluations were evaluated by three experienced anatomists. Morphometric measurements were taken three times using digital calipers and average values were given. The obtained data were analyzed in the SPSS 21 program.

Results: The incidence of FP in the study was 64.48%. Unilateral, 24% bilateral, 4.8% in sulcus sagittalis and 7.2% multiple FP were found in 28.8% of the skulls. Unilateral FP was found to be on the right side in 61.8%. The distances of the right FP to bregma and lambda were found to be greater and significant ($p < 0.05$).

Conclusion: Knowing the incidence and topography of FP may contribute to the literature and the preparation of surgical procedures to be performed in this region.

Keywords: parietal foramen, sagittal suture, bregma, lambda

PP-35

Abstract no: 4728

Abstract group: Clinical Anatomy / Radiological and Cross-Sectional Anatomy

Evaluation of volume measurements of neuroanatomical structures related to vision in multiple sclerosis patients

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Objective: Multiple sclerosis (MS) is a chronic disease affecting the central nervous system, the optic nerve and visual pathways. Degenerative changes in these structures can result in visual impairments, which negatively affect patients' quality of life. To better understand the impact of MS on vision, it is crucial to volumetrically assess neuroanatomical structures related to visual processing. This study aimed to investigate the effects of MS by comparing the volumes of vision-related brain regions between MS patients and healthy controls.

Methods: The study included MRI scans from 100 participants, consisting of 50 individuals diagnosed with MS and 50 healthy controls. Volumetric analysis was performed using the VolBrain program. The analyzed brain regions included the middle frontal gyrus, superior occipital gyrus, middle occipital gyrus, inferior occipital gyrus, calcarine cortex, cuneus, lingual gyrus, occipital fusiform gyrus, and occipital pole.

Results: MS patients exhibited significant atrophy in several regions: bilateral middle frontal gyri ($p = 0.001$), right cuneus ($p = 0.029$), left lingual gyrus ($p = 0.009$), left fusiform gyrus ($p = 0.011$), left inferior occipital gyrus ($p = 0.039$), and bilateral superior occipital gyri (right: $p = 0.024$, left: $p = 0.018$).

Conclusion: In this study, volumetric reduction was detected in the visual centers located in the occipital and frontal lobes. The findings show that visual functions are structurally affected in MS patients. This may help clinicians to plan vision-related interventions more effectively in the early stages of the treatment program, especially in the assessment phase of the disease.

Keywords: frontal lobe, occipital lobe, multiple sclerosis, vision, volume variation

PP-36

Abstract no: 7077

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Transpedicular instrumentation in a case of C2-C3 fracture dislocation: clinical and anatomical evaluation

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Objective: Traumatic injuries of the upper cervical spine (vertebrae cervicales C1–C3) are associated with significant neurological risks. Dislocation between vertebra axis (C2) and vertebra cervicalis tertia (C3) is uncommon but requires precise surgical planning due to its proximity to the medulla spinalis. We present a case of C2–C3 dislocation treated with posterior transpedicular instrumentation.

Case: A 53-year-old female patient was admitted in April 2025 following a motor vehicle accident. Cervical CT revealed a dislocated fracture at the C2–C3 level. Neurological examination showed partial muscle weakness in the upper extremities; lower extremities were unaffected. Under general anesthesia, closed reduction was performed with head stabilization. In the prone position, a posterior approach without laminectomy was used. Bilateral transpedicular screws were placed into the corpora of C2 and C3. Additional stabilization was achieved with PDS sutures passed through the processus spinosus. Hemostasis was secured, a drain was placed, and the wound was closed. No perioperative complications were observed. The C2–C3 region's complex anatomy, including pediculus arcus vertebrae and laminae, necessitates careful planning. Although anterior approaches are sometimes preferred, posterior segmental fixation offers a less invasive and reliable alternative for stability.

Conclusion: Posterior transpedicular instrumentation is an effective surgical technique for C2–C3 dislocation when guided by thorough anatomical understanding. This case highlights the essential role of anatomy in ensuring surgical success and patient safety.

Keywords: cervical dislocation fracture, axis vertebra, transpedicular screw, cervical vertebral column, surgical anatomy

PP-37

Abstract no: 9151

Abstract group: Clinical Anatomy /
Radiological and Cross-Sectional Anatomy

Anatomical and radiological evaluation of the biliary tract in a case of choledocholithiasis and cholecystitis: an educational perspective

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Gallbladder (vesica biliaris) and common bile duct (ductus choledochus) stones are among the most frequently encountered pathologies of the gastrointestinal system. When these stones cause distal obstruction, they may lead to complications such as cholestasis, cholangitis, or pancreatitis, which require prompt anatomical evaluation and intervention. This case report presents the clinical and radiological anatomy of the biliary tract in a patient diagnosed with choledocholithiasis and cholecystitis, emphasizing its relevance in radiological anatomy education. A 57-year-old female patient presented with progressive epigastric pain radiating to the back, upper right quadrant tenderness, nausea, and vomiting over the past few months. Laboratory tests revealed elevated transaminases, alkaline phosphatase, GGT, and bilirubin levels, along with an increased C-reactive protein indicating inflammation. Magnetic Resonance Cholangiopancreatography (MRCP) showed an enlarged gallbladder with thickened walls and multiple intraluminal stones, the largest measuring 2 cm. The cystic duct appeared dilated and obstructed by a 19 mm stone, while the common bile duct reached 20 mm in diameter at the hepatic hilum and ended with a 15 mm obstructing stone distally. This case underscores the importance of understanding the detailed anatomy of the biliary system when making clinical and surgical decisions. Additionally, MRCP—due to its

high-resolution and radiation-free imaging capabilities—offers significant value as a visual learning tool in anatomical education, particularly for demonstrating the spatial relationships of the biliary tract in pathological states.

Keywords: gallbladder, common bile duct, choledocholithiasis, radiological anatomy, magnetic resonance cholangiopancreatography (MRCP)

PP-38

Abstract no: 6780

Abstract group: Clinical Anatomy /
Anatomical Variations

Rare nutrient foramen on the lateral surface of fibula: clinical and morphological evaluation of this anatomical variation

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Objective: Nutrient foramen serves as the entry point for arteries supplying medullary cavity of bones. Foramen is typically located in posterior or medial surface of middle third of fibular diaphysis. A nutrient foramen on the lateral surface of the fibula is exceptionally rare in literature. This study was conducted to highlight this anatomical variation, which has been reported in only a limited number of cases in the literature, to describe its morphometric details, and to discuss its clinical significance.

Case: Forty human fibulae were evaluated, and a prominent nutrient foramen was identified on the lateral surface in one cadaver. Total length of this fibula was 354 mm, and the distance from fibular apex to foramen was 215 mm. The foramen is located in the middle third of the diaphysis. The direction of the foramen is from inferior to superior. At the level of the foramen, the circumference of the fibula is 40 mm, the anteroposterior diameter is 12.0 mm, and the medial-lateral diameter is 13.5 mm. No pathological changes were observed around the foramen.

Conclusion: The lateral nutrient foramen variation in this case (2.5% prevalence) aligns with rare reports in literature and was thoroughly documented through morphometric analysis. Its lateral location underscores the need for technical modifications in surgical planning to preserve the nutrient artery. It also provides critical criteria for differential diagnosis in radiological examinations. This case presentation contributes to surgical anatomy and radiological diagnosis practice by supporting the clinical importance of rare anatomical variations with quantitative data.

Keywords: nutrient foramen, fibulae, lateral surface, variational anatomy, bone nutrition

PP-39

Abstract no: 3933

Abstract group: Anatomy Education and Terminology /
Anatomical Terminology

Eponymous nomenclature in cerebrovascular structures: a historical and clinical anatomical perspective

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Objective: Eponyms in medical terminology not only honor pioneering scientists but also enhance memorability of complex anatomical structures in clinical anatomy education. This study aims to investigate the eponymous arteries and veins within the cerebral circulation from an anatomical, historical, and clinical perspective.

Methods: Widely used textbooks in anatomy, histology, and embryology were reviewed. A literature search was conducted in PubMed and Google Scholar using keywords such as “anatomy”, “eponym”, “cerebral arteries”, “cerebral veins”, “cerebrovascular”, and “neurosurgery”.

Results: More than 25 eponymous vascular structures were identified within the cerebral circulation. Notable examples include the artery of Adamkiewicz, recurrent artery of Heubner, artery of Percheron, vein of Galen, and vein of Trolard. Each structure was examined in terms of its anatomical localization and clinical relevance. Historical background on the individuals commemorated by these eponyms was also included.

Conclusion: This study offers a systematic review of eponyms in the cerebrovascular system, aiming to improve medical students' command of anatomical terminology and support the integration of clinical knowledge. It also sheds light on the historical evolution of anatomical science and highlights the educational value of eponyms as tools to bridge morphology and function in both preclinical and clinical settings.

Keywords: anatomy, eponym, cerebral arteries, cerebral veins, cerebrovascular

PP-40

Abstract no: 8907

Abstract group: Anatomy Education and Terminology /
*Anatomical Terminology***Nomenclature of cranial nerves: a historical overview
and its relevance to anatomical science**Şule Dilara Alemdar¹, Ayşe Zeynep Yilmazer Kayatekin²,
Cenk Murat Özer²¹Department of Anatomy, Health Science Institute, Tekirdağ Namık
Kemal University, Tekirdağ, Türkiye; ²Department of Anatomy, Faculty
of Medicine, Tekirdağ Namık Kemal University, Tekirdağ, Türkiye**Objective:** Cranial nerves are twelve paired nerves that emerge from the brain and brainstem, primarily innervating structures in the head and neck. Their Roman numeral designations and descriptive names aid in understanding anatomical localization and clinical evaluation. This study aims to provide a systematic overview of the historical evolution of cranial nerve nomenclature within the context of anatomical science.**Methods:** Standard textbooks of anatomy, histology, embryology, and neurology were reviewed, focusing on chapters concern-

ing cranial nerves. Additionally, a literature search was conducted in the PubMed database using the keywords “cranial nerve”, “cranial nerve nomenclature”, “history of cranial nerve naming”, and “eponyms in cranial nerves”.

Results: Initially described as seven nerves in Antiquity, the number of cranial nerves has expanded to twelve pairs with scientific advancements. Galen referred to them as “nerves arising from the brain,” while modern terminology uses “nervi craniales.” Notably, the eighth cranial nerve was historically named “nervus acusticus,” but was later renamed “nervus vestibulocochlearis” to reflect its dual functional components in hearing and balance.**Conclusion:** The historical progression in the naming of cranial nerves reflects the evolution of anatomical science itself. By presenting a detailed and structured analysis of this development, the study contributes to enhanced terminological awareness in education and supports an integrated understanding of clinical neuroanatomy.**Keywords:** eponyms, nomenclature, cranial nerves

25th National Anatomy Congress

25–28 August 2025, Ordu, Türkiye

A		Aladağ T	OP-042 (4573)
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Açar Güdek M	OP-012 (9943), OP-051 (2780)	Alkan E	OP-092 (1755)
Açar Hİ	SS-09, OP-075 (7386)	Alkan Y	OP-024 (4906)
Adanır SS	OP-023 (5022)	Alp Mİ	OP-074 (1257)
Adıgüzel Şahin Z	OP-091 (8768)	Alpa Ş	PP-34 (1589)
Akbaba BN	OP-100 (9842)	Altukulaç İ	PP-31 (6390)
Akbaytürk N	OP-004 (3123), OP-002 (1504)	Altun G	OP-127 (4392)
Akcaalan M	OP-110 (9336)	Altıntaş HM	OP-061 (8254), OP-131 (1094)
Akça Andı Z	OP-032 (8576)	Altıntaş S	OP-133 (3537)
Akçiçek M	OP-097 (9742), OP-116 (5111), PP-35 (4728)	Altıparmak A	PP-35 (4728)
Akdemir Aktaş H	OP-142 (9334)	Altun A	OP-041 (7163)
Akın Saygın D	OP-063 (2059), OP-090 (2594), OP-105 (9093), PP-34 (1589)	Altunayoglu Çakmak V	OP-057 (5398)
Akın T	OP-061 (8254)	Altundaş E	OP-031 (9719), OP-012 (9943)
Akkan SM	PP-16 (6596)	Anadol E	PP-23 (8164)
Akmehmet NE	OP-096 (3895)	Ankaralı H	PP-20 (3155)
Akpınar YE	OP-115 (4993)	Arıcan Ü	OP-050 (1884), OP-081 (7438)
Aksoy L	OP-120 (9281)	Arık ŞB	OP-119 (8880)
Aktaş GD	OP-132 (2143)	Arıkan F	OP-120 (9281)
Aktaş S	OP-014 (5169)	Arıkan Z	OP-081 (7438)
Aktekin M	OP-019 (2737)	Arifoğlu Y	OP-038 (2930)
Aktepe R	OP-133 (3537)	Armangil M	OP-075 (7386)
Al Ö	OP-018 (9224)	Arpacı MF	OP-033 (9401), OP-097 (9742), OP-116 (5111)
Al ÖS	OP-019 (2737)	Arslan A	OP-033 (9401), OP-097 (9742)
Al S	OP-018 (9224)	Arslan M	PP-23 (8164)

Artaş A	OP-076 (2106), OP-140 (8375)	Balcı F	OP-020 (3568)
Aslan Baran Ş	OP-051 (2780)	Balcı M	OP-020 (3568)
Aslantaş HK	PP-07 (4201)	Balcı RS	OP-027 (8743), OP-058 (7399)
Aşantoğrol F	OP-076 (2106), OP-140 (8375)	Balıkçı Çiçek İ	OP-097 (9742), OP-071 (2804)
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Atasever A	OP-127 (4392)	Baş O	OP-012 (9943), OP-024 (4906), OP-118 (8827), OP-145 (2481)
Atay E	OP-037 (1113), OP-042 (4573), OP-062 (8778), OP-065 (1317)	Başar H	OP-031 (9719)
Ateş Ş	OP-008 (7223), OP-086 (4491), PP-07 (4201)	Başderici AT	PP-16 (6596)
Ateşoğlu Karabaş S	OP-121 (6691)	Batın S	OP-143 (7419)
Atıcı B	OP-027 (8743)	Batur M(e)	OP-079 (8662)
Aydar B	OP-030 (3033)	Batur M(u)	OP-079 (8662), PP-01 (2554), PP-13 (9431)
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Aydın A	OP-087 (4750)	Baysal T	OP-136 (5926)
Aydın Haklı D	OP-001 (1256)	Beger O	OP-076 (2106), OP-140 (8375)
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Aydın M	OP-010 (8766)	Bektaş M	OP-112 (9253)
Aydoğdu D	OP-060 (6809)	Berdan M	OP-027 (8743), OP-058 (7399)
Aydoğdu H	OP-064 (9372)	Berk N	OP-058 (7399)
Aygün A	OP-145 (2481), PP-03 (5233)	Biçim G	OP-040 (1240)
Aygün T	OP-003 (1693), OP-006 (4055), OP-029 (4090), OP-082 (9192), OP-004 (3123)	Bilecenoglu B	OP-061 (8254), OP-066 (7012), OP-126 (3749)
Aytürk BG	PP-06 (2648), PP-09 (4339)	Bilge D	OP-010 (8766)
B		Bilici B	OP-082 (9192)
Bağcı Uzun G	OP-033 (9401), OP-097 (9742), OP-098 (5096), OP-116 (5111)	Bilir A	OP-037 (1113), OP-042 (4573), OP-062 (8778), OP-065 (1317), PP-31 (6390)
Bahar B	OP-112 (9253)	Birişci S	OP-125 (1070)
Bakıcı RS	OP-109 (8689)	Bolat FS	OP-029 (4090)
		Bolathı G	OP-009 (1870), OP-026 (6729), OP-070 (7440), OP-125 (1070)

Bolatlı Z	OP-009 (1870), OP-125 (1070)	Çanakçı E	OP-015 (7118)
Bor TB	OP-048 (3444)	Çandır Gürses BN	OP-036 (7422), OP-095 (8894)
Bozkurt A	OP-064 (9372)	Çandır SN	OP-095 (8894)
Bozkurt G	OP-138 (5744)	Çatak C	OP-035 (6542)
Bozkurt Ö	OP-064 (9372)	Çavuş F	OP-026 (6729)
Bulut BS	OP-022 (4207)	Çayabatmaz B	OP-124 (8464)
Bulut H	OP-115 (4993)	Çelik B	PP-20 (3155)
Burulday V	OP-010 (8766)	Çelik H	OP-088 (4726)
Bülbül NG	OP-117 (8071), OP-135 (8369), PP-19 (9631)	Çelik İ	OP-123 (2361)
Büyükkertan M	OP-117 (8071), OP-135 (8369), OP-138 (5744), PP-19 (9631), PP-24 (2080), PP-28 (1225)	Çelik S	OP-096 (3895)
Büyükuysal EZ	OP-101 (8609)	Çetin CŞ	OP-076 (2106), OP-140 (8375)
		Çetinel A	OP-128 (4523)
		Çevik S	OP-038 (2930)
		Çınar M	PP-26 (4278)
		Çınaroğlu S	OP-087 (4750)
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Canbaloglu AE	OP-049 (1496)	Çiçek F	OP-053 (5408), OP-087 (4750), OP-124 (8464)
Canbay A	PP-12 (1195)	Çiçekcibaşı AE	OP-060 (6809)
Canbay Durmaz S	OP-009 (1870), OP-070 (7440), PP-12 (1195)	Çilengir AH	OP-132 (2143)
Canbolat M	OP-010 (8766), OP-073 (6394)	Çilingiroğlu Anlı S	OP-030 (3033)
Candar E	PP-32 (4636)	Çinpolat B	OP-051 (2780)
Cebeci Z	OP-088 (4726)	Çoban İ	OP-132 (2143)
Cenik G	OP-089 (5180)	Çoban Ö	OP-059 (1165)
Ceranoğlu FG	OP-087 (4750)	Çobur H	OP-018 (9224)
Cihan ÖF	OP-076 (2106), OP-102 (7044), OP-140 (8375), PP-25 (8841), PP-30 (5683)	Çolak T	PP-02 (8858), PP-15 (7334), PP-29 (9563)
Coşkun O	OP-089 (5180)	Çöllü İ	OP-085 (1395)
Cömert A	SS-08, OP-043 (7662), PP-21 (2532)		
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Çağlayan Duman N	PP-33 (5188)	Dağ E	OP-027 (8743)
Çakır Ö	OP-134 (8792)	Değermenci M	OP-145 (2481), PP-03 (5233)
Çalışkan Pala S	OP-026 (6729), OP-070 (7440)	Demir M	OP-114 (4981)
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Demir R(a)	OP-136 (5926)	Emekli E(m)	OP-046 (1858)
Demir R(u)	PP-39 (3933)	Emekli E(s)	OP-046 (1858)
Demircan NE	OP-144 (6566)	Emirali M	OP-037 (1113), OP-042 (4573)
Demirel BC	OP-046 (1858)	Emirzeoğlu M	OP-032 (8576)
Demirel BM	OP-008 (7223), OP-086 (4491), PP-07 (4201)	Emre E	OP-094 (1639)
Demirel E	OP-033 (9401), OP-097 (9742)	Erbek E	OP-026 (6729), OP-070 (7440)
Demiroğlu S	OP-099 (9538)	Erdem Altun C	OP-017 (9427)
Deniz G	OP-130 (6863)	Erdem ND	OP-110 (9336)
Depreli A	OP-106 (8961)	Erdem S	OP-099 (9538)
Derin O	OP-096 (3895)	Erdoğan H	OP-064 (9372)
Digilli Ayaş B	OP-060 (6809)	Erdoğan Koç S	OP-090 (2594)
Dikici R	OP-120 (9281), OP-123 (2361)	Eren ZB	OP-096 (3895)
Dikici TF	OP-120 (9281), OP-123 (2361)	Erkmen FY	OP-132 (2143)
Dirim Mete B	OP-132 (2143)	Ertas A	OP-036 (7422)
Diydem Yılmaz P	OP-063 (2059)	Ertekin T	OP-037 (1113), OP-042 (4573), OP-062 (8778), OP-065 (1317)
Dizman R	OP-136 (5926)	Ertemoğlu Öksüz C	OP-113 (2313)
Doğan B	OP-106 (8961)	Erten K	OP-057 (5398)
Doğan Ç	OP-015 (7118)	Eşkin Tanrıverdi MD	SS-11, PP-21 (2532)
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Doğanyigit Z	OP-014 (5169), OP-048 (3444)	Eyüboğlu İ	OP-057 (5398)
Doğmuş S	OP-060 (6809)		
Doğru H	OP-012 (9943)	F	
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Duyan Yüksel H	OP-059 (1165)	Fırat F	OP-037 (1113)
Dülger AC	OP-003 (1693)	Filik R	OP-069 (8020), OP-121 (6691)
		Filiz S	OP-100 (9842)
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Edis Ç	PP-17 (8836)	G	
Eghbalı A	OP-110 (9336)	Gayretli Ö	OP-089 (5180)
Ekici E	OP-058 (7399)	Gök H	OP-100 (9842)
Ekici TC	OP-032 (8576), OP-103 (9387)	Göker P	OP-059 (1165), OP-080 (9067)
Elmas MA	OP-038 (2930)	Göksülük MB	OP-110 (9336)

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Gönder N	PP-30 (5683)		
Gönülalan C	OP-018 (9224)	İncekaş C	OP-027 (8743), OP-044 (7799), OP-058 (7399), OP-110 (9336)
Gören H	OP-055 (6784)		
Gözil R	OP-119 (8880)	İnceoğlu F	PP-35 (4728)
Gül G	PP-02 (8858), PP-29 (9563)	İpek N	OP-049 (1496)
Gül Gür C	OP-028 (4903)	İsli MK	OP-040 (1240)
Gülekon N	OP-141 (8771)	İsmailoğlu AV	OP-019 (2737), PP-04 (2419)
Güler H	OP-098 (5096)	İsmailoğlu P	OP-002 (1504), OP-019 (2737)
Güler Kanter A	OP-067 (6733)		
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Gündoğdu O	OP-068 (1707)		
Günel MD	OP-022 (4207)	K	
Güner MA	OP-144 (6566)	Kabadayı B	OP-096 (3895)
Gür Y	OP-067 (6733)	Kaçamak P	OP-048 (3444)
Gürses İA	SS-02, OP-036 (7422), OP-091 (8768), OP-095 (8894), OP-096 (3895)	Kadırgan C	OP-090 (2594)
		Kahveci S	OP-014 (5169)
		Kalaycı D	OP-126 (3749)
		Kale A	OP-089 (5180)
H		Kaleci AO	OP-041 (7163)
Halıcıoğlu S	OP-099 (9538), OP-101 (8609), PP-20 (3155)	Kalkışım ŞN	OP-113 (2313)
Hallaç AA	OP-110 (9336)	Kanber Uzun Ö	OP-113 (2313)
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Haykar B	OP-096 (3895)	Karabacak B	PP-20 (3155)
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		Karaca Bozdağ Z	OP-114 (4981)
		Karaca BT	OP-038 (2930)
I-İ		Karaca EB	OP-115 (4993)
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Işıklar N	PP-30 (5683)	Karakoyun ZN	OP-034 (7184), PP-14 (9829)
İbiş EC	OP-091 (8768)	Karaoğlu MF	OP-067 (6733)
İçbudak F	OP-038 (2930)	Karapınar BO	OP-012 (9943), OP-024 (4906)
		Karataş T	OP-071 (2804)

Karbowniczek J	PP-32 (4636)	Kurtoğlu E	OP-093 (4130)
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Kasap A	OP-025 (5585)	Kuver MA	OP-040 (1240)
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Kaya G	OP-061 (8254)	Küçük B	PP-38 (6780)
Kaya MF	OP-016 (5939)	Küçükoğlu SN	OP-007 (6916), OP-008 (7223), OP-011 (8704), PP-18 (9436)
Kaygın E	PP-02 (8858), PP-29 (9563)	Kürkçüoğlu A	OP-030 (3033), OP-044 (7799), OP-119 (8880)
Kazancı S	PP-03 (5233)		
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Keleş P	OP-107 (5573)	L	
Kervancıoğlu P	OP-023(5022)	Löker N	OP-018 (9224)
Keskin A	OP-006 (4055), OP-003 (1693)		
Keskin Fİ	OP-114 (4981)	M	
Kılıç IE	OP-044 (7799), OP-110 (9336)	Macit P	OP-017 (9427)
Kılınç A	OP-015 (7118)	Madadzada E	PP-23 (8164)
Kıran S	OP-091 (8768)	Malas MA	OP-085 (1395), OP-108 (6930)
Kıratlıoğlu Y	OP-075 (7386)	Maral F	OP-038 (2930)
Kızıldeniz Ü	OP-058 (7399)	Medişoğlu MS	OP-139 (7899)
Kirazlı Ö	OP-038 (2930), OP-040 (1240), PP-05 (2649)	Mete FF	OP-017 (9427)
Koca FM	OP-011 (8704)	Mohamed MMA	OP-012 (9943)
Koca R	OP-050 (1884), OP-081 (7438)	Musayeva A	OP-122 (6541)
Kocabıyık N	OP-056 (7305), OP-100 (9842), OP-144 (6566)	Mutlu Çamlı F	OP-070 (7440)
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Koçer Kahrıman GN	OP-124 (8464)	Narin A	OP-096 (3895)
Koşar Mİ	OP-034 (7184), PP-14 (9829)	Nisari M	OP-011 (8704), OP-018 (9224), OP-097 (9742)
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Kösa Ç	PP-23 (8164)	Ocak H	OP-033 (9401)
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Ok ÜC	OP-088 (4726)	Öztürk C	OP-102 (7044), PP-25 (8841)
Okan Oflamaz A	OP-048 (3444)	Öztürk E	OP-110 (9336)
Orhan K	SS-12, OP-126 (3749), OP-128 (4523)	Öztürk Ö	OP-115 (4993), OP-137 (8434)
Orhan M	OP-129 (7427)	Öztürk Söylemez D	OP-094 (1639), OP-130 (6863)
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Otu E	OP-131 (1094)		
Öçbe M	OP-139 (7899)		
Öksüzler M	OP-059 (1165), OP-080 (9067)	P	
Öktem H	OP-083 (8224), OP-084 (6822)	Paksoy AE	OP-118 (8827)
Ömerli A	OP-020 (3568)	Palancı Ö	OP-016 (5939)
Öncü K	OP-123 (2361)	Paslı B	OP-072 (6921)
Öner Z	OP-109 (8689)	Payas A	OP-143 (7419)
Örmeci T	OP-052 (4942), OP-131 (1094)	Peker T	OP-141 (8771)
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Övet A	OP-040 (1240)	Pelin C	OP-044 (7799)
Özarslan A	PP-17 (8836)	Pelin İC	OP-028 (4903)
Özbay Z	PP-35 (4728)	Pınar KU	PP-10 (5279)
Özcan AG	PP-08 (4288), PP-11 (5684)	Pirinç B	PP-08 (4288), PP-11 (5684)
Özcan Erişgin BN	OP-031 (9719)	Polat B	OP-110 (9336)
Özcan S	OP-074 (1257)	Polat D	OP-077 (4774)
Özçat G	PP-22 (4538)	Polat S	OP-059 (1165), OP-080 (9067)
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Özer CM	PP-40 (8907)		
Özer G	OP-021 (3939)	S-Ş	
Özer İK	PP-10 (5279)	Sağlam L	OP-089 (5180)
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