

# NEUROANATOMY

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## ABSTRACT BOOK

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NEUROANATOMY is a journal in English, and publishes original research articles dealing with neuroanatomical sciences in animals (vertebrates and invertebrates) and humans. Papers in any of the following fields will be considered: molecular, cellular, histological and gross anatomical studies on normal and/or abnormal experimental animals and humans. Functional, morphological, biochemical, physiological and behavioral studies are considered if they include neuroanatomical analysis. Reports on techniques applicable to the above fields are also considered. Occasional reviews on subjects selected by the Editors will be published. Miscellaneous items, including essays, book reviews and commentaries may also be published on approval of the Editorial Board.

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All material for publication should be sent to M. Mustafa Aldur, MD-PhD, Department of Anatomy, Hacettepe University, Faculty of Medicine, 06100, Ankara, Turkey; e-mail: editor@neuroanatomy.org. For detailed instructions concerning the submission of manuscripts, please refer to the Instructions to Authors at the back of the journal.

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## 10th National Congress of Anatomy; 6th–10th September 2006; Bodrum–Turkey

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### HONORARY COUNCIL



#### Tuncalp Ozgen, M.D.

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Professor Tuncalp Ozgen was born in Kutahya, Turkey in 1946. He graduated Hacettepe Medical School in 1969, continued and completed the neurosurgical residency program in 1974. He got microneurosurgery fellowship at Zurich University Kantonsspital Department of Neurosurgery in 1977. He assigned as associate professor in 1978 and full professor in 1988. He was the founder vice president of the Institute of Neurological Sciences of Hacettepe University and became the president of this Institute in between 1988-1993. He has been very active in national and international organizations, being the president of Turkish Neurosurgical Society (1988-1989), Executive Council Member of European Association of Neurosurgical Societies and World Federation of Neurosurgical Societies (1989-1998) and vice president of European Association of Neurosurgical Societies (1995-1999). He is the member of the American Congress of Neurological Surgeons, German Neurosurgical Academia and also on the editorial board of numerous national and international journals. He is the author of over 180 articles which were published in national and international journals and a total of 217 citations to his work are recorded in the SCI.

He has been Chairman of the Department of Neurosurgery, Hacettepe University Faculty of Medicine and President of Hacettepe University since 1999. He gave 26 invited lectures at national and international conferences. Besides he was awarded by Turkish Neurosurgical Society Service Award in 2000, Ankara Young Businessmen Society Most Dynamic Director Special Award and Capital City Group 81st Golden Person of the Year in Medicine and Academic Branches in 2004.



#### Iskender Sayek, M.D.

Professor of Surgery, Department of Surgery, Hacettepe University Faculty of Medicine, 06100 Ankara, Turkey.

[isayek@hacettepe.edu.tr](mailto:isayek@hacettepe.edu.tr)

He was born in Iskenderun, Turkey in 1944. He was graduated from Tarsus American College in 1963 and from Hacettepe University Faculty of Medicine in 1970. He started his post-graduate training in Surgical Residency of Hacettepe University Faculty of Medicine in the same year, and continued his education in University of New York at Buffalo: Buffalo General Hospital in the years 1971 and 1972. After completing his education, he was attended as an instructor at Hacettepe University Faculty of Medicine in 1976. He received his associate professor degree in 1981 and he has been working in the same department as a professor since 1989. In 1991 he was chosen as the chairman of the department of surgery. In the same year he became as the associate dean of Hacettepe University Faculty of Medicine and he was chosen as the dean in 1999 and completed this obligation in 2006. In the years between 1981-1984 and 1996-1999 he was a member of "Executive Committee of Hacettepe University Faculty of Medicine". He is also a member of Ankara Surgical Society, Turkish Surgical Society, Turkish Cancer Society, Turkish Association for Medical Education, ANKEM, Turkish laparoendoscopic Surgical Society, Turkish Society for Emergency Surgery and Trauma, International American College of Surgeons and Surgical Infection Society – Europe.

He had been the president of Ankara Surgical Society from the year 1994, to 1996; the general secretary of Turkish Surgical Society from the year 1996, to 2000 and the president of the same society from the year 2000, to 2002. He had also been the president of Ankara Medical Chamber from the year 1998, to 2000, and also the president of Surgical Infection Society – Europe in the years 1997 – 1998.

He won the TUBITAK Scientific Encouragement Award in 1984 and Eczacıbaşı Science Award in 2002. He has more than 200 medical publications and more than 150 citations in indexed scientific journals. And he also made the editory of 5 books. His scientific fields of areas are surgical infections, surgical oncology, medical education and surgical research.



#### Serhat Unal, M.D.

Professor of Internal Medicine, Department of Internal Medicine, Hacettepe University, Faculty of Medicine, 06100 Ankara Turkey.

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He was graduated from "Kurtuluş High School" and "Hacettepe University Faculty of Medicine". He started his post-graduate training in Hacettepe University Faculty of Medicine Department of Internal Medicine and completed his education in 1985. He received his associate professor degree in 1989, and his professor degree in 1995. Between the years 1990 and 1992 he studied about infectious diseases in "New England Deaconess Hospital, Harvard Faculty of Medicine in Boston, USA". He won the "TÜBİTAK's 2nd Degree University Scholarship" in 1977, "Eczacıbaşı Medical Encouragement Award" in 1995, "TÜBİTAK Medical Encouragement Award" in 1996 and "KASAKOM's (Kadın Sağlığı Komisyonu, Women Health Society) Award" for his studies about HIV/AIDS disease in 2002. He was chosen as the dean of Hacettepe University Faculty of Medicine in 2006, June. He is still the chairman of Internal Medicine Department of Hacettepe University Faculty of Medicine. His scientific interests are "Methicillin Resistance in Staphylococcus", "Vancomycin Resistance in Enterococcus", "The Usage of PCR in Diagnosis of Infectious Diseases", "HIV Infection" and "Infections of Immunesupressed Patients". He has publications more than 100 and presentations more than 120.



#### M. Dogan Aksit, D.V.M., Ph.D.

Professor of Anatomy, Department of Anatomy, Hacettepe University, Faculty of Medicine, 06100 Ankara Turkey.

[daksit@hacettepe.edu.tr](mailto:daksit@hacettepe.edu.tr)

He was born in Denizli, Turkey in 1942. He was graduated from "Ankara Gazi High School" and then from "Ankara University Faculty of Veterinary Medicine" in 1965. He started his post-graduate training in "Ankara University Faculty of Medicine, Anatomy Department" and then "Hacettepe University Faculty of Post-graduate Education" and completed his education in 1969 as a doctor of anatomy. He was attended as an instructor in 1969. He received his associate professor degree in 1973 with the thesis which was prepared in "Neurology Clinic in Gülhane Military Faculty of Medicine". He received his professor degree in 1978 and began to work in Hacettepe University Faculty of Medicine Anatomy Department" as a professor in 1979. Between the years 1976 and 1988 he was the coordinator of phase II and then from 1988 to 1992 he made his obligation as a head-coordinator. He was a member of "Cumhuriyet University Faculty of Medicine Foundation Committee" from 1979 to 1982. And he was the chairman of "Gülhane Military Faculty of Medicine, Anatomy Department". He was also the coordinator of "İnönü University Faculty of Medicine Foundation Committee" from 1989 to 1994.

He was the wise president of "Main Medical Sciences" from 1992 to 2004 and he was the president of the same department from 2004 to 2006.

He was a member of "Clinical Anatomy and Association of Anatomy Foundation Committee and Administration Committee" from 1991 to 1995. He was the president of the same committee from 1995 to 2002 and in 2003 he was chosen for the honorary president of "Clinical Anatomy and Association of Anatomy". He was also a member of "Turkish Medical Education Society Administration Committee" from 1990 to 2002 and he was the president of the same society from 2002 to 2006. He has more than 100 publications.

#### INVITED SPEAKERS (in alphabetical order)



#### Gunnar Grant, M.D., Ph.D.

Professor, Karolinska Institute, Department of Neuroscience, Stockholm, Sweden.

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Gunnar Grant, born January 6, 1932. Studied medicine in Stockholm and Uppsala. MD 1959 and PhD 1962, School of Medicine, Uppsala University. Positions at the Anatomy Department, Uppsala University School of Medicine, from 1962 to 1970, Associate Professor (1970) and Professor (1979) of Anatomy at Karolinska Institutet, Stockholm. Chairman of the Department of Anatomy, Karolinska Institutet in 1971-1977, and in 1984-1992. Current position is professor emeritus in Karolinska Institute, Department of Neuroscience. Member of the American Association of Anatomists, European Neuroscience Association, International Brain Research Organization (IBRO), Norwegian Academy of Sciences and Society for Neuroscience and Norwegian Academy of Sciences. Professor Grant has published more than 100 scientific papers within the field of neuroanatomy, neurophysiology, and some papers on the history of neuroscience.



#### Georgi Marinov, M.D.

Department of Anatomy, Histology, Embryology, Medical University, 55 Marin Drinov Street, Varna-9002, Bulgaria.

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Date/Place of Birth: August 13, 1939, Dobritch, Bulgaria

Marital status: Married

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Professional career, teaching:

Medical University, Varna, Bulgaria: Rector (1987-2000), Vice-Rector (1985-1987); Department of Anatomy, Histology, Embryology: Postgraduate worker (1965-1967), Assistant/chief assistant professor (1968-1982), Associate professor (from 1982), Head of Department (2000-2005), Doctoral works supervision (morphology, biomaterials).

Publications: Author/co-author of 140 scientific papers and 163 scientific communications.

Invited Professor: Laval University, Quebec Biomaterials Institute Inc. Quebec, QC, Canada (1995-1996, 1997).

Annual Varna City Award.



#### İlber Ortaylı, Ph.D.

Director of Topkapı Palace and Professor at Galatasaray University Faculty of Law, Istanbul, Turkey.

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He was born in Vienna, Austria in 1947. He was graduated from "Ankara University Faculty of Political Science, Department of Newage History" in 1969. He studied Oriental and Slavic Languages at the University of Vienna and history at Ankara University. He received his MA degree in history from the University of Chicago. He received his Ph.D degree from the faculty of Political Science at Ankara University with the thesis about "The Local Managements After The Reforms (Tanzimat Sonrası Mahalli İdareler)" and in 1979 his Associate Professor degree with the thesis about "German Population In Ottoman Empire (Osmanlı İmparatorluğu'nda Alman Nüfuzu)".

In the year 1989 he received his Professor degree in Ankara University. He gave lectures at the University of Vienna, Cambridge, Paris, Oxford, Tunisia and many other universities as a guest instructor. Also he worked as an instructor in Bilkent University. His articles about "Ottoman Empire's History In 16. and 19. Century" and Russian History" were published in local and foreign scientific journals. He has been working in the Galatasaray University Faculty of Law as an instructor since 2001 and he has been the director of Topkapı Palace since 2005, June.

He is a member of administration committee of "International Ottoman Studies (CIEPO) (Uluslararası Osmanlı Etüdüleri)" and member of "European Persialogy Society (Avrupa İnanoloji Cemiyeti)".

In addition to numerous articles, papers and books he is the author of "Türkiye İdare Tarihi", "Osmanlı Kadısı", "İmparatorluğun En Uzun Yüzyılı", "Gelenekten Geleceğe", "Studies On Ottoman Transformation", "Osmanlı İmparatorluğunda Yerel Yönetim".



#### Gursel Ortug, D.D.S., Ph.D.

Osman Gazi University, Faculty of Medicine, Department of Anatomy, Eskişehir, Turkey.

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He was graduated from Istanbul University Faculty of Dentistry in 1968. He worked at Turkish Military's several departments as a military dentist and resigned from the military in 1975. At the same year he started to Ankara University Faculty of Medicine, Department of Anatomy as an assistant. He received his Ph.D degree with the thesis about "The angle differences between ramus of mandible and body of mandible and the relation between this angle and function of chewing" in 1975. He received his associate professor degree in 1980.

He gave lectures at Akdeniz University Faculty of Medicine, Ankara University Faculty of Dentistry, Gazi University School of Physical Education and Sport.

In 1983 he worked as the founder of the Eskişehir Anadolu University Faculty of Medicine Department of Morphology and Anatomy.

He gave lectures as a guest instructor at Innsbruck University Faculty of Medicine, Department of Anatomy (Austria) in 1986-1987 and at Lubeck University Faculty of Medicine Institute of Anatomy (Germany) in 1987-1988.

He received his professor degree in 1988 at Eskişehir Anadolu University Faculty of Medicine. He worked as the dean of Firat University Faculty of Medicine between the years 1994 and 1997. He is still working at Eskişehir Anadolu University Faculty of Medicine.

He published numerous articles, books and scientific papers. He is a member of American Association of Anatomist, German Association of Anatomist, Turkish Medical History Society, Turkish Electronmicroscopy Society and Turkish Kızılay Society.



#### Hasan Ozan, M.D.

Professor of Anatomy, Gülhane Military Medical Academy, Etlik, Ankara, Turkey.

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He was born in Merzifon in 1959. He studied elementary and secondary school in Istanbul and high school in Bandırma. He started his medical education in Gazi University Faculty of Medicine, in the name of Turkish Armed Forces in 1979. Later, he transferred to newly established Gülhane Military Medical Faculty and graduated in 1985.

He studied post-graduate education in Hacettepe University Faculty of Medicine Department of Anatomy in 1987, and get the specialist of anatomy degree in 1989. Dr Ozan held the degrees of assistant professor in 1992, and associate professor in 1994. He has been appointed to Chairmanship of Anatomy of Gülhane Military Medical Faculty in 1995, and to professorship in 2003. Dr. Ozan is married and has two children.

**Brita Robertson, M.Sc., Ph.D.**

Karolinska Institute, Department of Neuroscience, Stockholm, Sweden.

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Brita Robertson, born 28 November 1950. Basic training in biology and chemistry, Stockholm University. MSc in 1988 and PhD in 1992 at the Karolinska Institutet, Stockholm, Sweden. Neuroanatomical studies on the primary sensory system together with Professor Gunnar Grant, and on the invasion of trypanosomes into the rodent brain parenchyma together with Professor Krister Kristensson. Current position as staff scientist in Professor Sten Grillner's laboratory. Involved in studies on the lamprey locomotor network.

**Gert-Horst Schumacher, D.D.S., M.D.**

Institute of Anatomy, University of Rostock, Germany.

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Born 1925 in Berlin, lives in Rostock (Germany). State Diploma in Dentistry and Medicine, Dr. med., Dr. med. dent. Dr. med. habil. (Anatomy) University of Greiswald (Germany), Dr. sc. med. University of Rostock.

Professor of Anatomy and Head of Institute of Anatomy University of Rostock (1959-1990). Member of the German Academy of Sciences Leopoldina.

Editor in Chief of the Journal "Anatomischer Anzeiger" (1977-1990),

President of the International "Anatomische Gesellschaft" (1975/76).

About 20 monographs and textbooks of anatomy, embryology, teratology, dental anatomy, medical history in: German, English, Japanese, Korean (South), Polish, Russian, Slovak, Spanish, Turkish. About 600 publications in scientific journals, 650 verbal presentations on scientific meetings.

Honorary member of Anatomical Societies: Bulgaria, CSSR, German Democratic Republic, Japan, Yugoslavia, Poland, Russia (GUS) and UdSSR.

Professor h. c. The Chinese University of Hong Kong.

Visiting Professor in Universities: Brasil, Canada, Cuba, Estonia, Finland, Germany (Mainz, Marburg,) Latvia, Lithuania, USA.

**Ahmet Sinav, M.D.**

Columbia University, College of Physicians & Surgeons, Department of Anatomy & Cell Biology, New York, USA.

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Ahmet Sinav, M.D. is an Associate Professor of Human Anatomy (since 1995) and Medical Illustrator with the expertise in the application of computer technologies to

Clinical Anatomy education.

He was born in Duden koyu / Yesilova / Burdur / Turkey in 1961. He received his M.D. degree from Gulhane Military Medical School in 1986, and trained as Human Anatomist at Hacettepe university Medical School in Ankara / Turkey.

Currently, he is teaching Clinical Anatomy to medical and dental students at the College of Physicians and Surgeons of Columbia University in New York / USA. His research interests include developing interactive web based anatomy curricula. He is a professional member of the Association of Medical Illustrators and the American Association of Clinical Anatomists.

**Yasar Yildiz**

Bodrum Museum of Underwater Archaeology, Bodrum, Mugla, Turkey.

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Yaşar Yıldız has been involved with underwater archaeology since his appointment to the Bodrum Museum of Underwater Archaeology since 1979. Since that time he has participated as both team member and government representative on six ancient shipwreck excavations ranging in date from the 14th-century B.C. Bronze Age Uluburun shipwreck to the late 17th-century A.D. Yassiada Ottoman shipwreck.

Since 1980, Mr. Yıldız has participated in many underwater surveys, both as government representative and team member. He has given many lectures on the subject of ancient shipwreck excavations, surveys and their display at the Bodrum Museum, as well as having published widely on the subject. He currently serves as the Director of the Bodrum Museum of Underwater Archaeology.

**M. Ibrahim Ziyal, M.D.**

Hacettepe University, School of Medicine, Department of Neurosurgery, Ankara, Turkey.

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Dr. M. Ibrahim Ziyal was born in Istanbul, Turkey. He graduated Cerrahpaşa Medical School in 1980, completed the neurosurgical residency program in Şişli

Etfal Hospital in 1996. He got microneurosurgery and skull base surgery fellowship at George Washington University Department of Neurosurgery in 1996 and 1997, and Sao Paulo Neurosurgical Institute in 1999. He began to work in Hacettepe University Department of Neurosurgery as assistant professor in 2001. He assigned as associate professor in 2002. He is the member of Turkish Neurosurgical Society, The American Association of Neurological Surgeons and Congress of Neurological Surgeons. He is in the editorial board of numerous journals. He is the author of over 100 articles which were published in national and international journals, and over 120 citations to his work are recorded in the SCI. He gave 28 invited lectures at national and international conferences. He was awarded by The Turkish Neurosurgical Society Scientific Award in 1999.

**MEMBERS OF ORGANIZING COMMITTEE****Ruhgun Basar, D.D.S., Ph.D.**

Professor of Anatomy, Department of Anatomy, Hacettepe University, Faculty of Medicine, 06100 Ankara Turkey.

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Dr. Basar was born in Izmir in 1954. She began her Academic career in the Hacettepe University Faculty of Medicine, Department of Anatomy. Dr. Başar became

Associate Professor in 1990 and full Professor in 2000. She worked as a member of the executive board of the Turkish Anatomical Society between 1992-1999. In 2002 she was elected as Chairperson of the Department of Anatomy, an executive task which she is carrying on at the present. She is the author of many National and International Publications. She is married and is the mother of two.

**Hakan Hamdi Celik, M.D., Ph.D.**

Professor of Anatomy, Department of Anatomy, Hacettepe University, Faculty of Medicine, 06100 Ankara Turkey.

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Dr. Hakan Hamdi Celik was born in Ankara, Turkey in 1961. He was graduated from T.E.D. Ankara College in

1979 and from Ankara University Faculty of Medicine in 1985. He started his doctorate in Hacettepe Medical Faculty, Department of Anatomy in 1991 and gave his thesis about "Examination of dimensions of ventricular system by CT" in 1992. After his military service, he was attended as assistant professor at Hacettepe Medical Faculty, Department of Anatomy in 1994. He received his associate professor title in 1996. He has been working in the same department as professor since January 2003. He has more than 80 international publications, more than 120 international presentations in international congress and more than 270 citations in indexed international scientific journals. He has 2 international and 5 national scientific awards. His scientific fields of interest are neuroanatomy, scanning electron microscopy of biologic materials (advanced SEM techniques), radiological anatomy and computer aided three dimensional reconstruction techniques.



### Mustafa F. Sargon, M.D., Ph.D.

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He was born at Ankara in 1965. He was graduated from "T.E.D. Ankara College" in 1983 and from "Ankara University Faculty of Medicine" in 1990. He started his doctorate in "Hacettepe Medical Faculty, Department of Anatomy" in 1991 and gave his thesis about examination of joint space by Magnetic Resonance Imaging in anatomically normal knees in 1994. After his military service, he was attended as assistant professor at "Hacettepe Medical Faculty, Department of Anatomy" in 1996. He received his associate professor title in 1999. He has been working in the same department as professor since March 2005. He has more than 85 publications and more than 200 citations in indexed scientific journals. His scientific fields of interest are gross anatomy, ultrastructural examination of nervous tissue in traumas, electron microscopy of biologic materials and radiological anatomy. He has one international and 6 national scientific award.



### H. Selcuk Surucu, M.D., Ph.D.

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### ORAL PRESENTATIONS

#### O1

##### Anatomy and history of medicine

Ortaylı I.

Topkapi Palace, Istanbul, Turkey.

The author will give an improvisational lecture. Abstract is not available.

#### O2

##### The Nobel Prizes in Physiology or Medicine 1932 and 1944. Awards for ground-breaking studies in neurophysiology

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In 1932 Sherrington and Adrian were awarded the Nobel Prize in Physiology or Medicine “for their discoveries regarding the functions of neurons” and in 1944 Erlanger and Gasser were awarded the same prize “for their discoveries relating to the highly differentiated functions of single nerve fibres”. Together these discoveries created the basis for classical neuro-physiology.

Sherrington, who was professor in physiology at Oxford, made important discoveries regarding the reflex functions of the spinal cord. He formulated the conception of the “synapse” and its influence on the conduction of the nerve impulse within the central nervous system. He studied the “reciprocal innervation” and showed that inhibition was an active phenomenon. Depending on the location of the receptors involved in the initiation of a reflex he distinguished three types of receptors: extero-, intero- and proprioceptive.

He studied the proprioceptive reflexes in the decerebrate animal, which showed “decerebrate rigidity”, and demonstrated the location in the spinal cord of the pathways related to this mechanism. These studies led to the definition of tonic and phasic reflex systems. Nociceptive reflexes, including the “scratch reflex” were also analyzed and their pathways in the spinal cord mapped out. He defined the principle of the “final common path”.

In addition to these important contributions he made experimental studies on spinal sensory and motor fields and added to previous knowledge on cerebral localization.

Adrian was research professor at Cambridge, when he shared the Nobel Prize with Sherrington. He made fundamental discoveries regarding the function of single nerve fibers, motor as well as sensory, from different animal species. This was made possible by dissecting nerve bundles into few or single units and by developing new techniques for the amplification of the weak signals. He attacked the problem of the “all-or-none” character of the nerve impulse, analyzing the refractory period of the nerve fiber after stimulation, discovered that increased stimulation resulted in increased frequency of the impulses, the amplitude being unaffected, and that nerve fibers from different types of peripheral receptors had different speeds of adaptation, and identified a group of nerve fibers that he inferred were nociceptive. His contributions meant that he carried the functional analysis to an analysis dealing specifically with the individual neurons.

Erlanger and Gasser, American physiologists at Washington University, St. Louis and the Rockefeller Institute for Medical Research in New York, respectively, made fundamental discoveries on the function of axons. This

was made possible by their introduction of the cathode-ray oscillograph. They discovered the existence of three main groups of nerve fibers, named A, B and C, with different physiological functions. The conduction velocities of these fibers were in approximately linear relationship with the fiber diameter, the A-fibers being the fastest and thickest and the C-fibers the slowest and having the finest diameter. The C-fibers were found to dominate in sensory nerves and it could be inferred that pain messages were carried both by A- and C-fibers.

#### O3

##### Web based interactive curricula in anatomy education

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The internet is an international communication network that is composed by computers connected to each other throughout the world. It can facilitate the sharing, storing, and accessing of information. Consequently, the internet can serve as a means of transferring knowledge and this is most evident in academia where students can draw on information throughout the world without leaving their rooms.

One area that has been greatly influenced by the internet is the teaching of Anatomy and web-based interactive anatomy atlases have attracted a lot of attention. Numerous commercially produced anatomy atlases are available on line, and many anatomy departments are developing their web sites that contain resources tailored specifically for the medical and dental students.

The main goal in designing web-based curriculum should be to make the course material easier to understand in a shorter amount of time at reduced cost. To achieve this goal, it is important that the information must be retained by the students, and this is best accomplished by designing programs that are both interactive and attractive. Illustrations and other visual materials should be of sufficient professional artistic quality to attract the students' attention.

It is also well known that students learn most efficiently when they interact with the material. So, interactive animations are especially useful because they promote the learning of difficult concepts and maintain enthusiasm for learning.

On the other hand, the data transfer speed of the internet is limited, which means that the amount of information and details in visual materials have to be in balance with artistic necessities and the file size of interactive materials must be easily downloadable.

It is crucial in the development of web-based interactive curriculums that professional collaboration should never be undervalued, student comments should be always valued, and the programs must be tested properly before use.

#### O4

##### Theatrum Anatomicum in history and today

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The first sections of human body were arranged in small makeshift rooms. Early designs of anatomical theatre were prepared by Alexander Benedictus from Padua 1497 and Carolus Stephanus from Paris 1564. A new era of anatomy arose with Andreas Vesalius (1514-1564), who published the first systematic textbook of human anatomy. This replaced the dominating theories of Galen (130-201), who had gained his knowledge from animal

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sections. The 1st temporary anatomical theatres arose in Italy in the 16th century, where the term THEATRUM ANATOMICUM came from. The 1st permanent anatomical theatre, opened in Padua 1594, became the model for many anatomical buildings. A most representative type was built in Bologna 1649, the 1st solitary anatomical theatre originated from Paris 1694. Progress of anatomical knowledge gave birth to the foundation of anatomical institutes, which arose in different architecture during the 18th century. Common to all of them was the separation between teaching and research facilities. The stylistic elements came from the axial type, that grew up as Senckenberg institute in Frankfurt 1776 and Sömmering type, in Kassel 1779. The University of Dorpat adopted the axial type with a rotunda (1803/5) and wing buildings (1825/27), it was in use till 1999, today as a cultural heritage in Tartu. Progress of sciences in the 19th century gave impulses for many architectural solutions, this was the German-European type and the Anglo-Saxon-American type. The auditory was displaced from its central position and changed to a cinema with audio-visual equipment. This was the end of the traditional THEATRUM ANATOMICUM.

## O5

### One of the most famous Turkish treasures: Bodrum Museum of Underwater Archeology

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The Bodrum Museum of Underwater Archeology, Turkey, is situated in a medieval castle of the 15th century, built by the knights of Saint Jean, who had arrived from the island of Rhodos. In 1960 George F. Bass, an American archaeologist, excavated the first underwater shipwreck in Cap Gelidonya, dated 1200 B. C.. The artifacts of this shipwreck were brought for storage to the castle. From then the idea has started to establish a museum in the castle, which was finally opened in 1964.

After the Cap Gelidonya excavation George F. Bass and the Institute of Nautical Archaeology, founded by him, have started to make surveys and further excavations of ancient shipwrecks. Nowadays in the museum the artifacts of several shipwrecks are exhibited, dated from the 16th century B.C. to 16th century A.D. From one shipwreck, located in the Serce Limani natural harbor, even the wooden parts are on display. By the time sponge divers brought a lot of amphoras to the museum, so that the museum has also got a very rich collection of ancient amphoras.

Nowadays the Bodrum Museum of Underwater Archaeology is in charge of all Turkish sea areas and is regularly undertaking surveys in cooperation with INA in the Mediterranean, Black Sea and Marmara Sea areas. The aim of the museum is the research and the location of ancient shipwrecks, furthermore of sunken ancient sites and harbors.

Beside of the point of research of ancient ships the museum plays an important role in the modern city of Bodrum, as a centre for cultural activities with art exhibitions, concerts and workshops. It is a great tourist attraction and finally of importance for the local economy.

## O6

### Dimensions of insula

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The insula, also known as the island of Reil, is a part of the cerebral cortex that is submerged deeply on the supero-lateral surface of the cerebral hemisphere during development. It is surrounded by an almost circular sulcus and is visible only when the lateral sulcus is opened artificially. Hardly any literature is available on the morphometry of the insula. In this study an attempt is made to assess the shape, size and morphological variations of the insular surface with an emphasis on its antero-posterior length, height and depth of the insular cortex and to correlate it with its development.

## O7

### Large cava septi pellucidi: Morphological features and forensic implications. A post mortem study

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The enlarged cava septi pellucidi (CSP  $\geq 6$  mm in length) have been reported as a reliable marker of an underlying neuropsychiatric disease or disorder. Differences in the dimensions of cava longer than 6 mm associated with a neuropsychiatric impairment could be of possible clinical and forensic significance. We obtained 479 brains from autopsied persons (310 males and 169 females, aged 22 to 89 years) and observed that 110 brains (75 males and 35 females) had CSP out of which on 69 (49 males and 20 females) of them length of CSP was equal or longer than 6 mm. These cava were classified into four groups depending on the past medical histories of the autopsied person: 5 without neuropsychiatric history (asymptomatic CSP), 25 schizophrenic patients, 22 alcoholics and 17 with a past head trauma (symptomatic CSP). The linear parameters of CSP (i.e., length, width) of the symptomatic and asymptomatic groups were measured and were statistically analyzed. Analysis revealed that the cava in the group of schizophrenic patients were significantly longer and wider. Discriminant function analysis was used to derive a mathematical formula to classify CSP into one of the groups obtained based on width measurements of the cavum.

## O8

### Long GABAergic projections to the optic tectum and locomotor command regions in the lamprey

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The lamprey, which has a phylogenetically important position in evolution, has been developed as a model for brainstem control of locomotion, orienting, eye and postural control. Although the role of the tectum and the diencephalic and mesencephalic locomotor regions (DLR, MLR) in these movements has been elucidated, we know little about the forebrain control of these motor centres. In mammals, it is known that GABAergic cells from the output nuclei of the basal ganglia tonically inhibit the motor centres that they target. The distribution of the GABAergic neurones in the forebrain and brainstem was studied in *Petromyzon marinus* and *Lampetra fluviatilis* and found to be virtually identical and very similar to that observed in other vertebrates including mammals. In order to identify forebrain GABAergic projections to the optic tectum, the DLR and the MLR we combined neurobiotin tracing and GABA immunohistochemistry. In every case, GABAergic projections were found to originate from a population of neurones in the caudoventral portion of the medial pallium. A population of double-labelled neurones located in the thalamic regions projected to tectum and MLR. The optic tectum additionally receives GABAergic input from the torus semicircularis, whereas the DLR and the MLR receive GABAergic projections from the lateral pallium and the striatum. In the pallium of amniotes GABAergic neurones, in general, serve as interneurones and not as output neurones with long axons. The GABAergic projections from the pallium might thus be analogous to the mammalian output nuclei of the basal ganglia.

## O9

### Anterior cingulate volume in never treated compared to extensively treated people with unipolar depression

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Reduced volume of the anterior cingulate cortex (ACC), a region implicated previously in mood regulation, has been reported in patients with major depression relative to healthy controls. Total ACC volume has been reported as smaller in unmedicated depressed and unmedicated remitted patients when compared with healthy controls (Caetano et al., 2006), and in elderly depressed patients (Ballmaier et al., 2004). Volume changes in the subgenual region of the ACC have also been reported (Coryell et al., 2005; Botteron et al., 2002; Drevets et al., 1997; Hastings et al., 2004) although there are also negative findings for subparts of the ACC in remitted patients [Brodman

areas (BA) 24, 25, 32; Bremner et al., 2002). It is possible that clinical factors, such as treatment history and course of illness contribute to the heterogeneity in reported studies. In our analysis we focused on volumes of three subregions of ACC as defined by their corresponding BA ; BA 24 (subgenual), BA 25 (subcallosal), and BA32. The subjects were patients experiencing first episode of major depression (n=24), a recurrent episode of depression (n=24) and healthy controls matched for age and sex (n=24). We acquired T-1 weighted images at 1.5 and 3.0 T MRI Signa; the measurements were performed primarily on the coronal plane, while simultaneously checking the sagittal and axial planes. We defined the first slice of BA25 anteriorly on the coronal plane as the slice at which the anterior limb of the internal capsule separating caudate and putamen is visible. The most posterior slice of BA25 was defined as the first slice anterior to the anterior commissure. BA24 was defined as extending anteriorly from the most anterior tip of the genu corporis callosi to the first anterior slice of BA25 posteriorly. BA 32 was defined as the second gyrus from inferior to superior in medial prefrontal cortex. The results of our comparison of these volumes in controls and patients with major depression will be presented and the clinical consequences discussed.

## O10

### Neuroanatomy in surgical practise: The surgical neuroanatomy is addressed

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Dissection of cadaveric heads filled with latex or microphile enables the neurosurgeon not only to learn the neuroanatomy, to practise also different neurosurgical approaches. To have a good cadaveric specimen, the preparation of the specimen with perfusion, fixation and filling of the arteries and veins should be performed meticulously. New surgical approaches may also be planned during the dissections which can be applied later in the operating theatre.

The author worked on more than 70 heads bilaterally and practiced several routine and skull base approaches such as transoral, transbasal, transsphenoidal, pterional, orbitozygomatic, subtemporal, presigmoid (retro-, translabyrinthine), far lateral, combined supra- and infratentorial transsinus and subtonsillary transcerebellomedullary approaches. Some special anatomical structures such as ligaments, arteries, nerves may also be studied more detailed. During cavernous sinus dissections, a new approach, the transtrigeminal approach was born which was later applied on a patient with a cavernous sinus meningioma. Some vascular variations or anomalies such as the extradural posterior inferior cerebellar artery and the persistent trigeminal artery were also encountered during dissections. Approaches to reach the brain stem, and fiber dissection to enter the brainstem were also performed. Even though some safe entry zones were described to enter the brain stem, it was obvious that further studies should be performed to approach intrinsic lesions of the brain stem.

An experienced anatomical view may attempt to create new classifications or change an old classification after an evidence based criticism. The author proposed also a new classification of segments of the internal carotid artery and the trigeminal nerve. In conclusion, to study the anatomy as a surgeon, as well as to study the neuroanatomy as a neurosurgeon, will strongly update the knowledge and the skill, and will also help to apply the surgical technique more easily in surgical practice.

## O11

### Bilateral hippocampal volume increase in patients with bipolar disorder and a known history of lithium treatment

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The hippocampus, a key component of the fronto-temporal networks involved in memory and emotional regulation, has been implicated in behavioural and affective abnormalities commonly observed in mood disorders. Two meta-analyses reported that the hippocampus is smaller in patients with recurrent major depression compared to healthy controls. There is more heterogeneity

in the reports of hippocampal volume differences in bipolar disorder that may in part be accounted for by heterogeneity in the patients studied (e.g., variable illness history and treatment status). In our study, we controlled for treatment history, by comparing hippocampal volumes in bipolar patients with no prior medication use with those of age- and sex- matched healthy controls (n=30; mean age of 25.3±7.8 years). Patients were divided into two groups; the first was comprised of bipolar patients with 1-8 weeks of lithium treatment at the time of scanning (Li group; n=12, mean age=25.7±6.2 years), and the latter included patients who were either unmedicated or treated with valproic acid or lamotrigine over the same window of time (non-Li group; n=18, mean age=25.3±8.5 years). The patient groups did not differ significantly from each other according to the number of past manic and hypomanic episodes at enrollment, age at onset of first depressive manic or hypomanic episode, duration of illness or total cerebral volume. The mean volumes of the right hippocampi for healthy comparison subjects were=2748.646 mm<sup>3</sup>, the non-Li group=2592.067 mm<sup>3</sup>, and the Li-group=2966.815 mm<sup>3</sup>. The mean volumes of the left hippocampi were for the control group=2626.356 mm<sup>3</sup>, the non-Li group=2564.822 mm<sup>3</sup>, and the Li-group=2851.086 mm<sup>3</sup>. One-way analysis of variance revealed significant differences in left (p=0.045) and right (p=0.011) hippocampi volume among the three groups. Post-hoc analyses indicated that both left and right hippocampal volumes in the non-Li group did not differ significantly from controls. There was a bilateral increase in hippocampal volumes in the Li-group when compared to controls and the non-Li group (p=0.05 for right hippocampus, and p<0.05 for left hippocampus). The clinical and etiopathogenetical consequences of our findings will be discussed. [Supported by the Ontario Mental Health Foundation]

## O12

### The protective effect of fish n-3 fatty acids on global cerebral ischemia in rat hippocampus

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Fish n-3 essential fatty acids contain eicosapentaenoic acids (EPA) and docosahexaenoic acids (DHA). DHA is an important component of brain membrane phospholipids and necessary for continuity of neuronal functions. EPA prevents platelet aggregation and inhibits arachidonate conversion into thromboxane A2 and prostaglandins. They have been suggested to be protective agents against neurological and neuropsychiatric disorders. In this study, the protective effect of fish n-3 essential fatty acids on global ischemia and reperfusion injury was investigated in Sprague rats.

Six rats were used as control (Group I). Cerebral ischemia was produced by ligation both of the common carotid artery for 45 min, followed by reperfusion for 30 min, in rats either on a standard diet (Group II) or a standard diet plus fish n-3 fatty acids (Marinacp®, 0.4 gr/kg/day, by gavage) for 14 days (Group III). At the end of procedures, the rats were sacrificed and brains were removed immediately. The activities of superoxide dismutase (SOD) and catalase (CAT), and levels of malondialdehyde (MDA) and nitric oxide (NO) were measured in left hippocampus. Also number of apoptotic neurons was counted by Tunnel Method in histological samples of right hemispheres.

We found that SOD activities and MDA levels increased in Group III rats compared with Group II rats. On the other hand, CAT activities and NO levels were found to be decreased in Group III rats compared with Group II rats. Additionally, number of apoptotic neurons is lower in Group III in comparison with Group II rats.

The present findings suggest that n-3 essential fatty acids ameliorate oxidative status and apoptotic changes in ischemic rat hippocampus. Dietary supplementation of n-3 essential fatty acids may be beneficial to preserve or ameliorate on ischemic cerebral vascular disease.

## O13

### A neurosurgical view to the anatomy of the distal middle cerebral artery: An anatomical study

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The anatomical pattern of the middle cerebral artery anatomy is still a disputable subject. The study aimed to provide detailed information about middle cerebral artery and to shed light on the issues, which have not been adequately discussed.

Twenty seven (27) adult human brains (54 hemispheres) were obtained in routine autopsies. Cerebral arteries were separately cannulated and injected with latex. Then, the brains were fixed in %10 formaldehyde. The dissections were carried out using a surgical microscope (Zeiss OPMI 9 FC). The diameter of the branches of the middle cerebral artery at their origin, the exit angles of the arteries from main trunk, vascularization areas of the cortical branches, relation among the vascularization patterns of the cortical branches and the variations of the arteries were investigated.

Middle cerebral artery supplied about two thirds of all outer surfaces of hemispheres. Vascularization area of the cortical branches, their number and their relations with their origin from trunks were evaluated during dissections and in the base of this data a new classification about currently disputed intermediate trunk has been made. The largest cortical branch was angular artery and the smallest was temporopolar artery.

The number of early cortical branches affected the vascularisation pattern of hemispheres. Variations of the trunks, their relationship and their effects on cortical branches were indicated and gave us new reasons to re-evaluate classification.

In each hemisphere, more or less, the anatomical pattern of distal part of the middle cerebral artery is different. Therefore, awareness of this fact will contribute a great value to surgical interventions to pathologies and especially in arteriovenous malformations in the region supplying by middle cerebral artery.

#### O14

##### High resolution MR assessment of the eye in glaucoma

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Sixteen patients with glaucoma and sixteen age-matched healthy controls had high resolution MRI of the eye. 1.6 mm thick T1 weighted fast spin-echo images were acquired with a 1.5 Tesla imager (GE Medical Systems, Milwaukee, USA) using a 3-inch circular coil. The distance between the angles formed by iris and ciliary muscle, anterior chamber depth, lens thickness and diameter, distance between the anterior and posterior poles of the globe and cross-sectional area of the optic nerve were measured and compared between patients and controls. The results of the measurements are discussed in the light of the literature.

#### O15

##### Defining the macroscopic and microscopic findings of experimental focal brain ischemia in rats from a forensic scientist's point of view

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Stroke is the third leading cause of death in the Western world and approximately 10 % of all deaths occur as a result of stroke in the world. Determination of the time schedule of the occurrence of pathologic events in a stroke patient is invaluable for a forensic specialist. The aim of this study was to define the schedule of macroscopic and microscopic changes occurred in an experimental animal model of permanent focal ischemia.

Male Wistar rats weighting 250- 350 g were used in this study. Animals were anesthetized with ketamine and medetomidine. Permanent focal ischemia was applied by the suture occlusion method. The animals were divided in to 7 experimental groups (n=4) with time schedules including 1.5, 3, 6, 12, 24 and 72 hours and the sham. Brains were harvested at the end of the determined time schedule. Harvested brains which had visible well-demarcated infarcts were used for the study. Images of the brains were recorded. Later, brain samples were fixed in formalin 10 % solutions for 24 hours and routine paraffin procedure was applied. 5 µm sections of frontoparietal cortex were

prepared and stained with hematoxylin-eosin (H.E.) and evaluated under light microscope.

Lesions were observed as pink areas in frontoparietal cortex. The impression of the authors by the evaluation of the brains with naked-eye was the enlargement and the darkening of the infarct area until 24 hour period but there were great variations among the animals for proposing an accurate definition of time from the area and colour of the infarct. At 72 hour the infarct was seen pale. Edema couldn't be observed in 1.5 hour and 72 hour periods with naked eye. It was apparent at 6, 12 and 24 hours. Maximum edema was at 24 hour according to the authors' impression.

Microscopically, the infarct core was evaluated in the cortex. Layers III to V was affected prominently in all animals. Two types of neurons with swelling of the cytoplasm and shrinkage of the cytoplasm and nucleus were observed together at 1.5 hour. Swelling of glial cells and astrocytic processes were other observations in this time point. Triangulation of neurons were observed at 3 hour in addition to the previous findings. Pyknosis and karyorhexis of the nucleus of some neurons were discriminated at 6 hour. There was a diffuse pallor of the eosinophilic background. A few polymorphonuclear leukocytes (PNL) infiltrating the area were present. Neurons with eosinophilic cytoplasm and pyknotic nucleus (red neurons) appeared at 12 hour. Axonal swelling and the prominent increase in the the number of PNLs was observed. The number of neurons was decreased and red neurons were increased prominently at 24 hour. Vacuolation of dendrites were observed. PNLs were more abundant in the region. Astrocytes were increased. Pannecrosis was observed at 72 hour. Red neurons were still present. The number of astrocytes were prominently increased. Histology of the brain tissues of sham operated animals were evaluated as normal.

The results of this study provide clues which can be used by a forensic scientist for the determination of the time of death of stroke.

#### O16

##### The vascularization pattern of superior cerebellar artery: An anatomical study

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The SCA or its branches are exposed in surgical approaches to the basilar apex, tentorial incisura, trigeminal nerve, cerebellopontine angle, pineal region, clivus, and the upper part of the cerebellum. The vascularization pattern of the superior cerebellar artery (SCA) is still a controversial subject. The study aimed to provide detailed information about superior cerebellar arteries and to shed light on the issues, which have not been adequately discussed.

Forty adult human brains (80 hemispheres) were obtained in routine autopsies. Basilar artery was cannulated and injected with colored latex. Then, the brains were embalmed in formaldehyde. The dissections were carried out using a surgical microscope. The diameter of the superior cerebellar artery and their main branches at their origin, relation among the vascularization patterns and areas of the branches (perforating arteries, precerebellar branches and cortical arteries) and the variations of the arteries were investigated.

Superior cerebellar arteries supplied some parts of brainstem and tentorial surface of the cerebellum. They have different vascularization pattern.

In each cerebellum, more or less, the vascularization pattern of the superior cerebellar arteries is different. Therefore, awareness of this fact will provide a great contribution to surgical interventions.

#### O17

##### Anatomy of the circulus arteriosus cerebri in rabbits

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The aim of this study is to search the anatomy of circulus arteriosus cerebri and to make contribution to the studies about this matter. The brain vessels of

15 New Zealand white adult male rabbits are examined with plastic enjection and corrosion method.

According to our examination in rabbits anterior cerebral artery, joined with each other, formed median cerebral artery. Again median cerebral artery separated to callosal artery. Callosal artery fulfill the duty of anterior cerebral artery (14/15). In animals like horse and monkey, median cerebral artery fulfills the duty of communicans artery in people as in rabbits. It is notified that in sheep and goat there is vessel net between two anterior cerebral artery.

In rabbits internal carotid artery piece between a. communicans posterior and a. cerebri media is added to structure of circulus arteriosus cerebri (14/15). Anterior cerebellar artery (rostralis) come out posterior cerebral artery (caudalis) being the last peak branch of basillar artery. It is determined that numbers of median cerebral artery, posterior cerebral artery and superior cerebellar artery, forming the vessels of circulus arteriosus, are mostly more than one. Very few variation is seen in rabbits' circulus arteriosus cerebri that does not fit definitions. It is determined that circulus arteriosus cerebri of the rabbits does not resemble person and monkey but resemble some animals completely and the others partly. Our results are discussed on the light of literature.

### O18

#### Giant astrocytes in C6 glial cells culture surviving Cisplatin treatment

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When treated with a single dose of Cisplatin, the majority of C6 glioma cells in culture died by apoptosis within 48 to 96 h. Most of the surviving cells in this experiment performed phagocytosis of dead cells and, when cultured further up to 10 days, they grew into giant cells.

C6 glioma cells were cultured for one to six days in Eagle's MEM at 37°C in a humidified air atmosphere with 5% of CO<sub>2</sub>. On day 3, the cells were exposed to 1.66 x 10<sup>-5</sup> M or 3.32 x 10<sup>-5</sup> M Cisplatin for 90 min. After brief washing, the cells were re-fed by a fresh medium and cultured for another 9-10 days in vitro (DIV). For electron microscopy, the cultures on coverslips were fixed in 2.5 % phosphate-buffered glutaraldehyde and postfixed in 2% buffered OsO<sub>4</sub>, dehydrated in ethanol, and embedded in Araldite CY212 resin. Semithin, 1 µm-thick sections were stained with 1% toluidine blue and used for targeting the cells. Ultrathin sections were double stained with uranyl acetate and lead citrate and examined in a transmission electron microscope JEM-1200EXII (JEOL) at 80 kV. Propidium-stained cells were measured by Becton Dickinson flow cytometer for DNA content.

Most of the hypertrophic C6 glial cells surviving Cisplatin treatment in culture had their sizes between 40 and 80 µm, with some cells growing up to 140 µm large. These cells possessed very voluminous cytoplasm with several long radial processes and large, highly lobulated or fragmented nuclei with micronuclei. Flow cytometric evaluation of DNA showed that in Cisplatin-treated cultures, the cells were inhibited in cycling and were blocked in late-S and G2 phases. In ultrastructure, some of the nuclear lobes, including micronuclei, were interconnected with a very narrow strip of nuclear structure ("nuclear bridge"). Nucleoli were active, reticulated, or with a various degree of their component dissociation. Small micronuclei were located close to nuclear blebs of the main part of the nucleus and contained either lose pale, or dense and compacted chromatin. No signs of excessive (apoptotic) chromatin condensation, or its peripheral accumulation were observed in the main nuclei.

The voluminous cytoplasm contained elongated worm-like mitochondria with dense matrix and intact cristae. Vesiculated Golgi apparatus was surrounded with excessive network of smooth endoplasmic reticulum which propagated also into processes. Large accumulations of lipid droplets were found elsewhere in the cytoplasm. Autophagic vacuoles and degraded residues of micronuclei were also observed in hypertrophic C6 glial cells. Widespread phagocytic activity was a principal feature in this long-term, Cisplatin-treated culture.

Cells, surviving mitotic arrest by Cisplatin, developed into hypertrophic cells with up to 4C contents of DNA. Ultrastructure revealed morphological signs of complex, although probably altered (aberrant), metabolic activation. Morphology features of these cells resembled the in situ occurring large tumor cells – gemistocytes.

### O19

#### Differentiation of hippocampal stem cell into photoreceptors in rat

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Vision is one of the important organ in the body. Damage to this organ cause sever disability in human. In disease of retinitis pigmentosa photoreceptors degenerate and result blindness in patient. Now there are more than 100 mutation in photoreceptors to result in malfunction of opsin.

In this study stem cells of hippocampal obtained from Embryonic day 18 (E18). Pregnant female rats were killed, embryos heads separate and then hippocampus isolated by the method of Backer, then their cells dissociated by the methods of Fishbach, and plated in flask 25 cm, after 3 days cells separated by tripsin, counted with tripan blue and hemocytometer, divided into two density (high 200000) and (low 20000 cells). Before transplantation of cells, 6 well plates coated with poly L lysin & inactivated astrocyte, then cells transplanted into 6 well plate for 4 days with medium DMEM/F12 supplemented with FBS10%. After 4 days different doses of ARTA and 9 – CIS RA added per well for 6 days, and then immunocytochemistry were done.

After 6 days treatment with above factors, doses of 100nm 9-cis RA and 500 nm ATRA have the more staining cells with monoclonal antibody. But in 100 nm 9 – cis RA we saw maximum differenced cells. All of differentiation were done on wells with inactivated astrocyte layer and high density cells.

Inactivated astrocyte as a feeder layer and extrinsic factors such as All Transe Retinoic Acid (ATRA) and 9 – cis RA can cause differentiation in hippocampal stem cells into photoreceptors.

### O20

#### The effect of vincristine on cerebellar Purkinje cells at during lactivorous in neonate mice

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Vincristine is a vinca alkaloid which is a cell-cycle-specific agent and blocks. Vincristine is a drug to treat certain types of cancer. Although genital neoplasia can be suppressed soon after vincristine treatment, its side effects, although uncommon, may prevent the drug from becoming a standard of therapy. Laboratory tests have failed to demonstrate conclusively that this drug is mutagenic. At lactation period, it is not known whether this drug is excreted in breast milk.

In this research we studied the effect of vincristine on cerebellar Purkinje cells at during lactivorous in neonate mice.

50 female mice at lactation period divided randomly to control and experimental groups. Mices of experimental group were injected by vincristine (0.05 mg/kg IV for one dose on days 1<sup>th</sup>, 8<sup>th</sup>, 15<sup>th</sup> of lactation period. One week after the injection, neonate brains (21days old) fixed with perfusion procedure and removed from skull. Then cerebellum embedded in 10% formalin solution. The 5-micrometer sections taken from cerebellum of neonate were stained by H and E, gold chloride.

Density and volume of Purkinje cells and distance of cells from each other studied with light microscopy and digital camera. One other way, ANOVA test were used for analysis (P<0.05).

The body weight in experimental group reduced in contrast to control group. The volume of purkinje cells in experimental group was increased than the control group. The number of cells was a few decreased and the distance of cells in experimental group a few increased.

Vincristine effect on neonate purkinje cells is excreted in breast milk with decrease the number of cells.

## O21

**Does DRG degeneration in somatosensory cortex lesions cause ileus? An experimental study**

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Bowel motility disorders have always been attributed to otonomic nervous system disorders. The anatomy and relation between intestinal reflexes and DRG (dorsal root ganglia) is certain. The cell bodies of spinal primary afferent neurons are located in DRG and their central processes end in the dorsal horns of the spinal cord whereas their peripheral axons pass via sympathetic ganglia to the intestine. The suppressed reflex responses of dorsal root ganglia cause distension of the intestines. The impulses started by intestinal wall dilatation is also conveyed via somatosensitive nerve fibers of DRG and transferred to spinal cord and turns to a reflex arch to stimulate the intestinal muscles. In lesions of somatosensory cortex, descending sensitive fiber degeneration leads to neurodegeneration in DRG mainly at hemiplegic side, partially on the contrary side. Somatosensitive fibers which bring the pulses from dilated bowels, blocked by the degeneration of DRG after somatosensory cortex lesion. This causes an interruption for bowel movements. In this study, we tried to investigate if the somatosensory cortex lesions are related with ileus.

This study was conducted on 20 male hybrid rabbits. 4 animals did not undergo surgery. The remaining 16 subjects were operated by a burr-hole at their left parietal bones in order to inject autologous blood of 0.25 ml into their sensory-motor region. All rabbits were followed-up for two months. Clinically; we noticed marked bowel distention in some specimens. After the sacrifice, all the DRG between T10-S1 levels were extracted bilaterally and examined histopathologically. Degenerated and living neurons were counted by stereological method. Cytoplasmic condensation, nuclear shrinking, cellular angulations and pericytoplasmic halo formation were accepted as the neuronal degeneration criteria. At hemiplegic side we observed degeneration in all levels but neurodegeneration was seen at some of the levels of non-hemiplegic side. The number of degenerated neurons was higher than neurons that were located at non hemiplegic side because of somatosensitive nerve crossing to the other side through the spinal cord. Results were analyzed by nonparametric Mann Whitney-U Test.

The interruption of neural circuit among spinal ganglia, brain stem, thalamus, sensorial and motor cortex may be responsible from ileus which develops after intracerebral hemorrhage. In this study we tried to prove that the sensory-motor reflex arch of intestines is disrupted in centrally axotomised DRG model.

In summary; by creating a centrally axotomised DRG model through creating hemorrhagic sensory-motor cortex lesion, DRG degeneration is possible. Sensitive reflex arches of intestinal muscle are disturbed due to degeneration may result in ileus which is attributable to clinical studies.

## O22

**The lunate bone types**

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The lunate bone plays an important role in the static's and biomechanics of the wrist joint complex. 100 lunate bones were studied scopically and anthropometrically (Martin and Saller, 1957). 34% of lunate bones had one facet on the distal joint surface for the capitate bone (lunate type I, according Viegas et al., 1990) and 66% had two facets - for the capitate and the hamate bones (lunate type II).

All indicators after Martin and Saller (1957) except indicator No. 6 were greater at the lunate type II. The width of the facet for capitate bone in lunate type I was greater than the same of lunate type II. The width of the facet for capitate bone in lunate type II was always greater than the width of the facet for hamate bone.

26% of lunate bones had one facet on the proximal joint surface, and 74% had two separated joint facets for both the radial bone and discus articularis. Based on the number of facets on both the proximal and distal joint surfaces, we classify four types of lunate bone - adjacent bones relationships:

1. Lunate bone type I (-) with one facet on the proximal and one facet on the distal joint surface for the capitate bone – 10%.
2. Lunate bone type I (+) with two borderline facets on the proximal and one facet on the distal joint surface for the capitate bone – 24%.
3. Lunate bone type II (-) with one facet on the proximal and two facets on the distal joint surface for both the capitate and hamate bones – 16%.
4. Lunate bone type II (+) with two borderline facets on the proximal and two facets on the distal joint surface for both the capitate and hamate bones – 50%.

The lunate bone is pressed from the proximal and the distal direction. The pressure from the distal direction on the lunate bone type II comes not only from the capitate and respectively from the second and third metacarpal bones, but also from the hamate and respectively from the fourth and fifth metacarpal bones. Thus, there is probably a significant pressure increase on a unit area of the lunate bone type II.

## O23

**An evaluation of medial and lateral meniscus thicknesses in early osteoarthritis of the knee with MR imaging**

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Osteoarthritis (OA) of the knee is a condition that damage menisci. Therefore meniscal changes are important in OA progression. The aim of this study was to evaluate early changes occurring in both medial and lateral meniscus thickness from the knees of patients with OA.

In this study, we measured the thickness of the medial and lateral meniscus a group of 36 (50 knees) consecutive patients with chronic knee pain and clinical findings of early OA and 10 (20 knees) control subjects by using magnetic resonance imaging. The thickness of the posterior horn of the medial meniscus and anterior horn of the lateral meniscus were significantly higher in the OA patient compared with the control subjects. This study showed that meniscal degeneration in early stage of OA is not evenly distributed in the knee. Thickening of menisci in some areas may occur due to their own localization and biomechanics.

## O24

**The topographic location and the relation of the piriformis muscle and the sciatic nerve**

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As the piriform syndrome poses pressure on the sciatic nerve, it is one of the situations, which must be taken into consideration during the distinctive diagnosis of the radicular pains related with the disc. While this situation requires careful examination and electrophysiologic and radiologic examination on one hand, it requires the knowledge of the location of the sciatic nerve and its relation with the piriformis muscle in the infrapiriform foramen on the other hand. The aim of this study is to examine this relation in morphometric aspect.

On 10 adult male cadavers, 20 right and left lower limbs were examined. The deep plan of the gluteal region was dissected. The sciatic nerve and the piriformis muscle were made visible. The location of the sciatic nerve was evaluated with the trochanter major and the trochanter minor, which belong to femur and with the tuber ischiadicum, spina ischiadica, spina iliaca posterior inferior and the spina iliaca posterior superior which belong to os coxae. The measurements were done by Mitotoyo digital caliper accurate to 0.01 mm. and the measurements of the angle were done by goniometer accurate to 1 degree.

The width of the notch of the incisura major was 63.09±13.59 mm, the transverse distance between the lateral edge of the sciatic nerve and the apex of the trochanter major was 48.60±8.92 mm, the transverse distance between

the medial edge of the sciatic nerve and the apex of the of the spina isciadica was  $17.33 \pm 4.89$  mm, the AP distance between the point where it intersects the sciatic nerve piriformis muscle and the apex of the trochanter minor was  $85.62 \pm 17.23$  mm, the angle between the sciatic nerve and the transverse plane was  $66.4^\circ \pm 6.68$ , the angle between the beneath the sciatic nerve trochanter minor and the sagittal plane was  $10.6^\circ \pm 4.67$ . The diameter where it emerged from the sciatic nerve infrapiriforme was  $17.00 \pm 3.70$  mm. The length of the lower edge of the piriformis muscle was  $95.49 \pm 6.21$  mm, the nearest distance between the apex of the spina ischiadica and the lower edge of the piriformis muscle was  $17.81 \pm 5.31$  mm, and the medial thickness of the piriformis muscle was  $37.60 \pm 11.18$  mm.

The second part of the measurements was done when the hip joint was 30 degree in adduction and 60-degree flexion position. The distance between the lateral edge of the sciatic nerve and the apex of the trochanter major was  $42.63 \pm 5.90$  mm the distance between the medial edge of the sciatic nerve and the apex of the spina ischiadica was  $15.84 \pm 4.63$  mm, the Anteroposterior distance between the point where the sciatic nerve intersects the piriformis muscle and the apex of the trochanter minor was  $90.51 \pm 15.78$  mm, the angle between the sciatic nerve and the transverse plane was  $71.90 \pm 8.49^\circ$ . The nearest distance between the apex of the spina ischiadica and the lower edge of the piriformis muscle was  $15.34 \pm 5.21$  mm, the distance between the trochanter major and the spina iliaca posterior superior was  $125.91 \pm 15.17$  mm the distance between the trochanter major and the tuber ischiadicum was  $74.16 \pm 5.04$  mm.

We consider that defining the course and the location of the sciatic nerve in the gluteal region will be helpful in surgical interventions in that region. The infrapiriform foramen gets narrower and the angle between the sciatic nerve and the transverse plane increases in the measurements, which the femur is 30 degrees adduction and 60 degrees flexion (test position). The sciatic nerve gets closer to the trochanter major. The sciatic nerve becomes closer to the spina ischiadica. In test position the sciatic nerve is trapped in infrapiriform foramen.

## O25

### Precise localization of motor branches of tibial nerve in deep posterior compartment of the leg: points of caution regarding clinical applications

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Fibula is known to be an appropriate bone that can be used as bone grafts and together with the flexor hallucis longus muscle, serves as a perfect muscular bone graft. These surgical procedures regarding the upper third of the fibula may cause weakness in flexion of the big toe and dropped foot by causing weakness of the muscles located at deep posterior compartment of the leg. This study aims to identify distribution of the motor points of flexor hallucis longus (FHL), tibialis posterior (TP) and flexor digitorum longus muscles (FDL) in relation to bony landmarks. For this aim, 16 limbs of 8 cadavers were dissected. The range of branches of the tibial nerve and the terminal motor points of each muscles were identified and measurements were made by a digital caliper in relation with the head of fibula as a bony landmark. The motor points of the FHL muscles were observed to distribute in two types. In type 1 (62.5%), the muscle was innervating with 2-3 distal branches. The average distance between the closest branch and the head of fibula was measured as 12.4 cm. In type 2 (37.5%) the muscle was innervating by 4-5 branches which were diffusely distributed along the longitudinal muscle bulk. In both types the nerve branches were innervating the muscle close to fibula. The TP was innervating by 3-4 nerve branches with proximal and distal separating branches. The FDL muscle was innervating distally from the tibial side with 2-3 branches with an average distance of 17.6 from the fibular head. As conclusion, type 2 innervation of FHL puts the muscle under risk in graft operations. The proximal part of the TP is also under risk since its nerve branches are too close to the fibula. But the FDL carries no risk in terms of innervation. We believe that the findings of the present study will be useful for the surgeons and anaesthetists by providing precise localization of motor nerves at the deep posterior compartment of the leg.

## O26

### Study on the Turkish adult cranial capacity using computer tomography and linear dimension

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It is natural that there is close relationship between Cranial Capacity (CC), and the size of brain, several studies have estimated the cranial capacity which indirectly reflects the brain volume in different countries. This study was carried out on 22 normal 19-50 years old (men 13, women 9) individuals. By using linear dimensions of the head the mean and SD of cranial capacity in men and women were  $1418.6 \pm 69.7$  cm<sup>3</sup> and  $1238 \pm 137$  cm<sup>3</sup>, respectively. By using planimetric method of the head the mean and SD of CC men and women were  $1519 \pm 97$  cm<sup>3</sup>,  $1302 \pm 58$  cm<sup>3</sup>, respectively. Between men and women, this difference was significant ( $p < 0.05$ ). This investigation was shown that the cranial capacity is higher in men than women.

It may be perhaps helpful in medico legal and anthropological examination to find the relations between cranial capacity and age, height, body weight, BMI which could also be applied for the dementia, brain atrophy and other neurodegenerative diseases in living subjects.

## O27

### Morphometry and variations of the auricle in Turkish adult population

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In this study, the morphometrical analyses of auricle were performed as well as the variations were noted. 313 healthy subjects were included to the study, aged between 18 and 44 years. The ones who had any malformation, hearing problem either, were excluded. Two photographs of the subjects were taken from two lateral sides. The pictures; were taken by the same researcher, from a standard distance, with the same camera, at the same zoom degree. A scale was present in each photo. After the photography, the distance between the helix and the temporal scalp was measured with a digital caliper compass, at supraaural and tragal levels. The digital photos then studied with the digital measurement software Image J. All the measurements were recorded as millimeters with two decimal. And then, statistical analysis of the data was held. Quantitative data was obtained to contribute to establish the standards for adult Turkish population in general, and also for male and female individuals. The length of the auricle was  $62.49 \pm 4.62$  mm in general,  $62.65 \pm 4.61$  mm for the right ear,  $62.34 \pm 4.65$  mm for the left, in Turkish adult population. The width of the auricle was  $37.57 \pm 3.02$  mm for males,  $34.51 \pm 2.23$  mm for females. The ear width showed a statistically significant difference between males and females ( $P < 0.05$ ). The position of the auricular tubercle was defined as angular data for the first time in literature. The angle between the auricular tubercle and the line drawn from the lateral canthus and to the upper point of the external acustic meatus was between  $28.36^\circ$  and  $43.98^\circ$ .

## O28

### Eagle syndrome in early Byzantium and its antropological significance

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Eagle syndrome or Elongated Styloid Process is an illness encountered in 2-28% of the population. It generally occurs due to mineralization or ossification of styloid ligament complex. A 20-30 mm long styloid promontory is considered normal, lengths greater than 40 mm are accepted as elongated. Our case was exposed during anthropological excavations of Andabalis Church performed in Aktaş Village, Niğde in 2002. He was a male about 50 years old and dated 9th century A.D. The average of left and right measurements of length of bilateral elongated styloid processes detected in the cranium was 77 mm. Both left and right styloid processes had one chain. Osteoarthritis, TMJD, sacralization and in addition high degree of bone

erosion in both maxilla and mandibula were observed. A GPM caliper having 1/10 cm accuracy was used in the measurements.

This case is important archeologically and anthropologically as being the oldest and the longest record of elongated styloid process, excluding the living people.

### O29

#### Lumbar vertebrae: Anatomical and radiological perspectives related to surgical procedures

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The present study was undertaken to determine the surgically relevant parameters of the lumbar vertebrae including interpedicular distance and vertebral body width. The anteroposterior radiographs of the lumbar vertebrae of 551 (315 females, 236 males) healthy, adult people aged 25-50 years with an electronic digital caliper. The mean values of interpedicular distance were found between  $21.2 \pm 1.2$  mm and  $26.1 \pm 1.9$  mm from the levels of L1 to L5 in females and between  $21.9 \pm 1.1$  mm and  $27.3 \pm 1.9$  mm from the levels of L1 to L5 in males. Additionally, the mean values of vertebral body width were between  $36.5 \pm 2.6$  mm and  $43.7 \pm 2.8$  in females and between  $39.8 \pm 2.6$  mm and  $47.2 \pm 2.8$  mm in males from the levels of L1 to L5.

### O30

#### The first decade of the oldest anatomy society in Europe and the place of Ottoman – Turkish medical anatomy in this formation

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This subject is thought to observe the condition of anatomy of Ottoman – Turkish Medical Education as a discipline in the west medical platform and to compare with the other nations in time. In the Ottoman – Turkish Medicine, it can be seen that there are traces about human structure and functions in every phase and the importance of this knowledge is emphasized. However, in the year 1839 it was tried to be settled down in a western method and with this thought many important works were done. Fundamentally, for the modernization of anatomy in the Ottoman – Turkish Medicine and to start the education seriously, in the beginnings of 19th century the relations with western science experts were increased and guest doctors were invited for this reason. Because of this, the comparement of education and scientific researches of 19th century Ottoman – Turkish Medicine anatomy education and the western anatomy education is important. For this reason, the scientific activities in the first decade of the oldest anatomy society in Europe which still continues working, is studied in this subject and also the Ottoman – Turkish Medical Anatomy at this phase is examined.

However, the efforts to be western started in 1827, the real modern medical education started with the foundation of “Galatasaray School of Medicine” in 1839. It is also known that in the new founded school the reforms were followed and practiced. We think that in the 19th century for the scale of anatomy in Europe, the scientific assemblies of anatomy society and the communications of those meetings were important. In the scientific activities of anatomy society there were science experts and researchers from Europe, America and also Far East Countries but we should pay attention to that there weren't any scientists to represent The Ottoman Medicine which was modernizing and targeting to resemble The Western Science. Therefore a few important points arised. The Viennese science experts who were invited with great hopes and whom were given very serious material and moral opportunities, couldn't have done enough scientific research and experimental studies or Ottoman Medicine couldn't have integrated the seriousness, mentality and discipline of them, yet. And also, the Ottoman Medicine only targeted the modernization in education but the scientific researches and practices were rather neglected. It shouldn't be forgotten that the doctors who came to Galatasaray School of Medicine for scientific reforms were educated with Viennese medical way. However the Viennese anatomists who were educated with the same way could find place in the scientific activities of anatomy society, it should be examined the absence of Ottoman – Turkish Medicine and anatomy.

### O31

#### Are the anatomical structures defined properly in Terminologia Anatomica and do we pay attention to the anatomical terms when using them?

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The anatomical terms are of importance in medical education, however some of them need to be investigated whether they are properly defined in Terminologia Anatomica.

When carefully examined, it is seen that there are some faults in naming some anatomical structures. For example:

- Arcus plantaris profundus (deep plantar arch); in the sole of the foot there is only one arterial arch (it is distinguished from the palm of hand with lack of superficial arterial arch), however, maybe because of its deep localization this arch is improperly named as “Arcus plantaris profundus”. In my opinion it should be named as “arcus plantaris” (plantar arch) or “arcus arteriosus plantaris” (plantar arterial arch).
- Trigonum nodi sinuatrialis (triangle of sinu-atrial node); this triangle where the artrioventricular node is located, serves as a surgical landmark. Nevertheless, it is named as the triangle of sinu-atrial node, I think the correct term should be “trigonum nodi atrioventricularis” (triangle of atrioventricular node).
- M. flexor digiti minimi brevis (flexor digiti minimi brevis muscle); although the “m. flexor digiti minimi longus” (flexor digiti minimi longus muscle) does not exist, what is the role of the term “brevis” in this nomenclature?

It is possible to give further examples, so because of other reasons the Terminologia Anatomica should be examined.

The proper writing and pronunciation of anatomical terms is important in education; especially the anatomists and the other academicians in clinical or biological sciences should pay special attention on this subject. However, in our country, the degeneration and irregular writing and pronunciation of anatomical terms are already increasing. The anatomists and clinicians have a great role in the establishment of these misusages.

For example:

- In Latin the letter “J” is pronounced as “Y” in Turkish. However, this misspelling is very frequent; like in the terms “jejunum”, “foramen jugulare”, “major”.
- In Latin, the letter “G” is pronounced like the letter “G” in Turkish. However, as a result of the influences of Western languages this letter is pronounced as “J” in Turkish, like in the terms “vagina”, “gingiva”, “genus” and “gigantocellularis”.
- In Latin the letter “I” is pronounced as “i” in Turkish, if it is before consonant. But in Turkish there are faulty pronunciations like “Enfeksiyon” or “Enfarktüs”.
- Like all the European languages, in Latin, the capitals “J” and “I” are not dotted. However, a faulty usage again, when used as capitals in Turkish, the terms like “Ileum” or “Ilium” are frequently dotted.
- The Latin vowels (a, e, o, u) are pronounced like they are written in Turkish. But as a misspelling, especially the letter “o” is pronounced and written as “ö”. However in Latin the letters (ö, ü, ğ, ş) do not exist.

Unfortunately these faults are increasing and are being more frequently used. In order to eliminate these misusages, a commission including anatomists and clinicians should be gathered and a “National Medical Terminology” should be established. Furthermore, the Anatomy and Medical Education departments should pay a special attention on the application of this terminology.

### O32

#### Investigation and clinical follow-up comparison of different ventilation tube surfaces by using scanning electron microscopy

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Like all biomaterials, a ventilation tube is subject to formation of bacterial biofilm on its surface. Furthermore, there might be surface deformations due to use. This increases the risk of complications associated with ventilation tubes.

In this study, we examined two groups of ventilation tubes using a scanning electron microscope to investigate biofilm growth and surface deformations. The tube samples included those that were either removed after treatment or those that displaced themselves into the ear canal. The first group consisted of thirty silicon tubes and the second group consisted of sixteen ionized, processed silicone tubes. We investigated the relation between scanning electron microscope findings and the complications that developed due to the application of ventilation tubes.

As a result of our study, we saw that the ionized, processed silicone tubes are superior to other silicon ventilation tubes in regard to biofilm growth and surface deformations. Furthermore, we observed that as the duration of the ventilation tube application increases, bacterial biofilm growth and surface deformations increase. We also observed that biofilm growth and occurrence frequency were, but surface deformations were not related to “otorrhea” and “plugging” complications.

In this study, we show that ionized, processed silicone ventilation tubes are more robust to bacterial biofilm growth compared to other silicone ventilation tubes used in this study and that the “otorrhea” and “plugging” complications are reduced with the decrease of bacterial biofilm growth.

### O33

#### Which advantages are provided by stereological methods in anatomical studies on radiologic images?

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On digital images, recently one of the popular research techniques is unbiased stereology. This method is used to make accurate estimates of size, number, length, surface area and volume in complex three-dimensional structures.

These methods provide very important advantages to the researcher. These advantages may be listed briefly; i) researcher don't need precondition about structure. In other words, it is a design based method but not a modal based approach, ii) it is disregarded with this method the real features of structure as thickness, and iii) the sampling or estimating procedure can be easily changed to obtain appropriate coefficient variation. In some laboratory, validity of stereological methods has been demonstrated that estimated size of structures by stereological methods well-matched with real calculated-morphometrical features of these structures. For example, volume of any object was estimated by Cavalieri method is not statistically different from real volume of the object, received via fluid displacement method. Unfortunately, it is possible that neither any organ volume is calculated by fluid displacement method in vivo or to evaluate morphopetrically interesting part of a complex anatomical structure such as cortex of cerebellum in vitro.

That is unbiased stereology may be a powerful tool for anatomists in researches of macroscopical and microscopical quantification. A knowledge of stereology (i.e. proper sampling), the opportunities provided by computers for image analysis (i.e. image segmentation, image registration, data base exploration, 3D reconstruction), and the strengths (i.e. non-invasive) and limitations (i.e. finite resolution, image artefacts) of medical imaging equipment must all be combined for reliable quantitative magnetic resonance imaging (MRI), the goal of which is to obtain a deeper understanding of the structure, function, life cycle and evolution of the human body, especially the brain, and a more objective diagnosis of disease and assessment of its response to treatment.

### O34

#### Innervation of the palmar surface of the hand in human fetuses: an anatomic study

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Median and ulnar nerves innervate palmar surface of the hand. The median nerve enters the hand through the carpal tunnel. The ulnar nerve enters the hand with the ulnar artery. The purpose of this anatomic study was to determine the course and variations of the median and ulnar nerves and the relationship between these nerves in palmar surface of the hand. In this study, median and ulnar nerves in 200 hands of 100 fetuses whose gestational ages ranged from 13 to 40 weeks were dissected under an operating microscope. The median nerve divided into four palmar digital nerves in 135 hands (67.5%) and five palmar digital nerves in 65 hands (32.5%) to innervate first, second, third and fourth fingers. The ulnar nerve divided into two palmar digital nerves in all hands to innervate fourth and fifth fingers. A communicating branch between ulnar and median nerves in palmar surface of the hand, was found in 59 hands (29.5%). Additionally, in this study, the morphology of the flexor retinaculum and the relationship of the flexor retinaculum to the course of the median and ulnar nerves and the morphology of the tenar branch of the median nerve were determined. This study may provide additional detailed information related with the innervation of the palmar surface of the hand, relation between ulnar and median nerves, and morphology of the tenar branch of the median nerve which thought to be useful especially for hand surgeons.

### O35

#### Shortage of FcγRII molecules on follicular dendritic cells leads to reduced immunity in the elderly

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As immune responses wane with advancing age, changes in follicular dendritic cell (FDC) structure and function also occur and these may play a role in weak host responses to infections in aging. The age-related changes seen in the functions of FDCs include the impairment of immune complex (IC) entrapment and long term retention, inability to block apoptosis, enhance specific B cell survival, and promote potent high affinity recall response generation. Since the capture and retention of ICs are mediated by an array of cell surface receptors including FcγRII and CR1&2, we postulated that this defect was owing to altered regulation of IC trapping receptors. To determine whether age-related reductions in expression of FcγRII or CR1&2 exist, the level of FDC-M1, CR1&2, FcγRII, and FDC-M2 on FDCs was immunohistochemically quantitated in draining lymph nodes of actively immunized mice for 10 days after Ag challenge. Initially, FDC FcγRII levels were similar but by day 3 a drastic reduction in FDC-FcγRII expression was apparent in old mice. FDC-M2 labeling, reflecting IC trapping, was also reduced and correlated with a dramatic reduction in germinal center (GC) B cells as indicated by reduced GC size and number. Nevertheless, labeling of FDC-reticula with FDC-M1 and anti-CR1&2 was preserved indicating that FDC number was normal. FDCs in active GCs normally express high levels of FcRs that are thought to bind exposed Fc portions of Abs in ICs and minimize their binding to FcRs on B cells. Thus, cross-linking of BCR and FcR via IC is minimized thereby reducing signaling via the immunoreceptor tyrosine-base inhibition motif (ITIM). Old FDCs taken at day 3, when they lack FcγRII, were incapable of preventing ITIM signaling. The abnormal regulation of FcR expression correlates with a reduced IC-retention and with a reduced capacity of FDCs to present ICs in a way that will activate GC B cells promote high affinity antibody production.

### O36

#### Anatomical assessment of the bile duct of Luschka in human fetuses

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Ducts of Luschka are small, glandlike tubular structures between the wall of the gallbladder and the liver. They communicate with the biliary tree. Incidence of these ducts is 10% in adults. The aim of our study was to assess the number, localization and diameter of the ducts in fetuses.

We performed this study on 30 fetuses between 17 to 32 weeks. We found incidence of these ducts 60% in fetuses (in 18 cases). Numbers of the ducts varied 1 to 3. They located on the margin (6 cases), corpus (6 cases), margin and corpus (5 cases), margin-corporum-fundus (1 cases) of gallbladder. The diameter of the ducts ranged from 0.2 to 0.7 mm and the length ranged from 1.5 to 15 mm. Furthermore, cystohepatic ducts were presented between the liver and cystic duct in 5 cases. Two of them had short course towards the lateral, three of them had long course from cystic duct to fundus. Six cases had bile ducts with smaller diameter, including artery and vein. While in one case we found two cystic ducts, in another no gallbladder was present.

Finally, ducts of Luschka were found more frequent in fetuses than adults. This rate was shown most of these ducts got lost in advancing periods while in some cases it persists. It usually closes by itself, but occasionally developing biloma and/or biliary peritonitis need to be operated on. We think that this study will provide additional data to anatomical descriptions and researches related to this subject.

### O37

#### The effect of ligation of the uterine artery and early postnatal food restriction-animal models for growth retardation on the rat

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The present study was designed to examine the effects on craniofacial growth, using rats. The effect of protein restriction and of the craniofacial growth rats fed a diet containing 4% protein [Low protein diet, (LPD)], 12% protein [middle protein diet, (MPD)], 24% protein [(Intrauterine growth restriction (IUGR)], the offspring of the rats whose arteries of uterus were lightened during pregnancy), and 24% protein [control protein diet (CPD)], were studied. A growth model was used for each individual rat for body weight and 22 measurements of the craniofacial skeleton, producing parameters that described the rate and timing of growth. The dorsal-ventral plane and the lateral plane radiographs of the offspring rats were taken from the weaning period to the adulthood. At postnatal days IUGR, LPD and MPD animals have a body weight that was significantly lower than the weights of CPD rats. Differences in allometric scaling in the skull for sex and diet (CPD/LPD/MPD/IUGR and CPD) factors were analyzed. We demonstrated that ligation of the uterine artery gestational day-17 shows persistent growth restriction until day 80. When facial width, one of the most important variants in viscerocranium, was compared with other groups of newborn female rats, those results were held; LPD female rats, (0.60±0.01), MPD female rats (0.95±0.52), control female rats (1.00±0.10), control female rats whose mothers' uterine arteries were ligated at day 17 of gestation bilaterally, and which was fed with CPD 24%, (0.95±0.12) (p<0.001). We observed that both late prenatal and early postnatal periods are critical periods for the regulation of postnatal growth. There was an increased chance of being affected by epigenetic factors such as dietary protein and IUGR. Lowest growth was observed in especially LPD rats and highest growth was seen in control rats.

### O38

#### Incidence and morphology of the Zuckerkandl's tubercle: An anatomic dissection study

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The purpose of this study was to investigate incidence and morphology of the Zuckerkandl's tubercle. Forty specimens (80 sides) were examined for this project, including 24 males and 16 female Turkish cadavers between the ages of 40 and 89 years at death. Unnoticeable tubercle (grade 0) was observed in 9 sides (11.25%), while grade 1 was found in 16 sides (20%). Grade 2 was observed in 45 sides (56.25%). Its shape was circular, similar to a pea or triangular. The tubercle extended postero-lateral to the thyroid lobe in 3 sides, while posterior to it in most sides. Grade 3 was found in 10 sides (12.5%). Its shape was also triangular, like a large arrowhead, or quadrangular. The grade 3 tubercle was generally located at lateral of the thyroid gland and between the trachea and esophagus. Retro-esophageal location was found only in two sides. We found grade 2 and 3 Zuckerkandl's tubercle in 68.75% sides of 40 cadavers. They were generally located posterior to the thyroid lobe, while

a few postero-lateral. To be understood the position and morphology of the Zuckerkandl's tubercle, we have been documented our findings in the form of high-resolution photographs.

### O39

#### Cellular identification of the Lugaro cells, Golgi neurons and unipolar brush cells in the rat cerebellar cortex by extracted dye of rubia tinctorum

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Less cerebellar theories gave consideration to the function of the granular layer interneurons. Objectives of the present study are cellular identification of the Lugaro cell, Golgi neurons and unipolar brush cells in the rat cerebellar cortex by routine histological method and extracted dye of rubia tinctorum. Rubia tinctorum has red color and used for stain carpet.

Rubia tinctorum collected, dried, powdered added into boiling water, concentrated juice cooled, filtered. Whole brain of rats removed, immersed in formalin, dehydrated and cleared in xylene and embedded in paraffin. 7-10 µm sections from cerebellum collected and divided to three groups. First sections stained by cresyl fast violet. Second sections stained by rubia and last sections stained by Rubia and light green methods. Also Estimation of Unipolar brush cells, Golgi and Lugaro neurons performed.

Granular cells stained green. Unipolar brush cells were appeared larger deeply yellow. Purkinje cells were pale green and detected by large nucleus. Lugaro cells were neighboring purkinje cells and stained pale green and paler cytoplasm. Golgi neurons were appeared larger and paler from granular cells. Distributions of Golgi, Lugaro and Unipolar brush cells were different in various part of cerebellum.

Results of present study revealed that Cellular identification of the Lugaro cells, Golgi neurons, and unipolar brush cells in the rat cerebellar cortex by extracted dye of rubia tinctorum is completely and clearly possible.

## POSTER PRESENTATIONS

### P1

#### Volume estimation of brain and medulla oblongata using MRI and stereology

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The purpose of this study, it was to separately estimate volumes of brain and medulla oblongata and evaluate these data together. The Cavalieri method and point counting were used to estimate the volumes of brain and medulla oblongata on magnetic resonance (MR) images.

Ten healthy adults' (n=5 female and n=5 male, at the age of 40-50) transfer MR brain images (5 mm section thickness and 1.5 gap, approximately 16-17 sections for brain and 5-7 section for medulla oblongata) were used for estimation. Stereological software (version 6.0, Microbrightfield, Colchester, VT) was used to estimation volumes. The size of the point counting grid was predicted to receive a coefficient of error (CE) in an appropriate range which was less than 5%. Obtained data was analyzed statistically by SPSS for Windows version 13.0 (independent samples T test). Two volumetric values were evaluated both separately comparison with each other.

The mean volume of brain and medulla oblongata in male and female were 1567.37 cm<sup>3</sup> (CE=0.03) - 787.8 cm<sup>3</sup> (CE=0.04) and 1105.26 cm<sup>3</sup> (CE=0.03) - 949 cm<sup>3</sup> (CE=0.04) respectively. Mean brain - medulla oblongata volume ratios in male and female were 1.99 and 1.16. There were significant differences between both brain and medulla oblongata volume of male and female individuals and mean brain - medulla oblongata volume ratios (p<0.05).

It is concluded that MRI estimated brain and medulla oblongata volumes in vivo may be help of understanding and evaluating both normal structure and clinical situation of patients.

**P2****Three dimensional MRI analyses of cerebellum in healthy humans: Volumetric and surface area estimations**

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In this study, it was defined normal anatomical structures on digital cerebellum images in healthy male and female individual using stereological methods which is a sampling technique whereby the object of interest is sectioned into a series of two-dimensional slices and subsequently sampled to produce estimates of required geometric features, such as length, surface area and volume.

Ten healthy adults' (n=5 woman and n=5 man, at the age of 30-40 and 40-50) transfer MR brain images (5 mm section thickness and 1,5 gap, approximately 9-10 sections for cerebellum) were used for estimation. Stereological software (version 6.0, Microbrightfield, Colchester, VT) was used to estimation volume and surface area. The size of the point counting grid (0.5 cm) for volume estimation and length of cycloid (0.53 cm) for surface estimation were predicted to receive a coefficient of error (CE) in an appropriate range which was less than 5%. Obtained data was analyzed statistically by SPSS for Windows version 13.0 (independent samples T test).

The mean volume (V), surface area (S) and surface density (Sv) of cerebellum in male and female at 30-40 ages were 125.612 cm<sup>3</sup> (CE=0.0597), 115.171 cm<sup>2</sup> (CE=0.0597), and 0.000092 -  $\mu$  (CE=0.134) and 109.363 cm<sup>3</sup> (CE=0.0448), 109.657cm<sup>2</sup> (CE=0.0448), and 0.0001-  $\mu$  (CE=0.1185).

The mean volume (V), surface area (S) and surface density (Sv) of cerebellum in male and female at 40-50 ages were 150.475 cm<sup>3</sup> (CE=0.0719), 113.333 cm<sup>2</sup> (CE=0.0719), and 0.000075 -  $\mu$  (CE=0.1024) and 122.688 cm<sup>3</sup> (CE=0.0354), 121.297 cm<sup>2</sup> (CE=0.0354), and 0.000099 -  $\mu$  (CE=0.1568).

There are significant difference between both male and female cerebellum volume and surface area at 30-40 age (p<0.05). In male we determined difference statistically between volume and surface area (p<0.05) but not in female.

At 40-50 age group, there is only significant difference between cerebellum volume and surface area in male (p<0.05) but not in female (p>0.05). It was determined differences between male and female volume (p<0.05) but not in surface area.

**P3****Protective effect of  $\omega$ -3 fatty acids in a rat focal cerebral ischemia-reperfusion model**

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This study investigated possible neuroprotective effects of dietary supplementation of fish oil in a brain ischemia-reperfusion (I/R).

In brain ischemia, cerebral blood flow is reduced in regions of the brain perfused by the occluded vessels. In addition to the cessation of blood flow and oxygen delivery, the restoration of blood flow has also been suggested to contribute to cell damage due to the generation of free radicals. The essential fatty acids (EFA) are important for normal cerebral development and brain function of vertebrates.

The study was carried out in 12 male Wistar rats; divided into 2 groups: I/R (control) and I/R +  $\omega$ -3 EFA. The rats in I/R group received only ordinary rat food. The I/R +  $\omega$ -3 EFA group received omega-3 fatty acid daily via intragastric gavage (300 mg/kg Marincap capsule) with normal food before middle cerebral artery occlusion (MCAO) for 30 days. Structural alterations in the brain tissues were semi-quantitatively analyzed (0: absent, +: slight, ++: moderate, +++: severe).

There was evident severe (+++) edema, vacuolization and eosinophilic degeneration in I/R group, while only slight (+) edema and eosinophilic degeneration in the I/R +  $\omega$ -3 EFA group in which no vacuolization was determined. These findings are consistent with the available studies in this field.

In conclusion, results from this study indicate beneficial effects of  $\omega$ -3 EFA supplementation in prevention of I/R - induced damage in rats.

**P4****The effects of rose essential oil aroma on the learning behaviors of rats as an aromatic stimulus**

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In this study, the effects of rose oil aroma on the learning of rats were investigated. The study was carried out on male Wistar rats. For this purpose, primarily labyrinth test was applied to 12 rats. After training period passing duration was recorded of the rats that were habituated to labyrinth for finding the food which is in target compartment. Then, the rats were randomly selected, divided into experimental and control groups, and then experimented by aroma test in the labyrinth. During aroma test, while the rats in the control group were kept under normal atmosphere conditions, the rats in the experimental group were exposed to rose oil aroma. Labyrinth test was performed to rats of all groups through experiment duration for 10 days. The experimental group needed shorter period for finding the food in the target than control group. This result shows that rose oil aroma is effective on the learning behaviors of rats as an aromatic stimulus. From these findings, it may be said that rose oil aroma may have an important role in increasing attention level, enhancing memory and supporting cognitive learning as an aromatic stimulus during the learning process.

**P5****The temporal lobe of human brain: Macroscopic perspective of lateral and inferior surfaces**

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Different from others regions of the brain, the temporal lobe lateral and inferior surfaces are an important region and site of a wide variety of lesions.

Ten adult human cadaveric right temporal lobes were investigated. The specimens were fixed in formalin solution at least 6 months before examination. The pial-arachnoid membrane was removed from the brain surface under operating microscope. The specimens were topographically examined and dissected, identifying major sulci and gyri, the depth of major gyri in terms of surgical access, and detailing the anatomy of the temporal horn of the lateral ventricle.

The temporal lobe lateral and inferior surfaces present features that are often recognized in most of the dissected brain and can be useful for the planning and performing surgery in this area of the brain.

**P6****The relationship of the posterior inferior cerebellar artery to the cranial nerves VII-XII**

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The largest branch of the vertebral artery is the posterior inferior cerebellar artery. The PICA arises at the anterolateral margin of the medulla oblongata close to the lower cranial nerves. The PICA had the most complex relationship to the cranial nerves of any artery and it is frequently exposed in approaches directed to the fourth ventricle. The aim of this study is to describe the anatomical relationship of the PICA to the lower cranial nerves. In this study 10% of the PICA passed between the glossopharyngeal and vagus nerves, 22.5% between the vagus and accessory nerves and 65% through the rootlets of the accessory nerve. The lateral medullary segment of the PICA showed a lateral loop compressing in 20% specimens the inferior surfaces of the facial and vestibulocochlear nerves. The lateral medullary segment of the PICA is passed in 20% specimens above the hypoglossal nerve, in 47.5% through the rootlets of the hypoglossal nerve and in 30% below the hypoglossal nerve.

These findings of the vascularization of the lower cranial nerves could be helpful in microsurgery of this region.

#### P7

### The perimicrovascular edema in hippocampal CA1 area in a rat model of sepsis

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Sepsis and septic shock commonly progresses to multi-system organ failure. Both result from a massive, uncontrolled systemic inflammatory response, affecting primarily vascular endothelial cells. Encephalopathy is a common complication of sepsis. However, little is known about the morphological changes that occur in the brain during sepsis. Faecal peritonitis was induced in Wistar rats which have been monitored for 4 hours before their brains were removed and samples from CA1 area were taken. In addition to the apparent drop in the blood pressure and rectal temperature, increased heart rate and marked respiratory failure were observed. The tissue was investigated using light microscopy and compared with corresponding hippocampal samples taken from sham-operated and un-operated control groups. Significantly more perimicrovascular edema has been found in the hippocampal CA1 area in septic group ( $p < 0.001$  for both comparisons). The percentages of the perimicrovascular edema were  $158.57 \pm 3.6\%$ ,  $122.84 \pm 1.5\%$  and  $120.24 \pm 1.9\%$  in the faecal peritonitis group, sham-operated and un-operated control groups, respectively. The results may suggest that the edema observed around the microvessels may participate in the pathogenesis of the septic encephalopathy probably by causing in the microvascular permeability characteristics.

#### P8

### Volume estimation of brain and pons using MRI and stereology

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The purpose of this study, it was to separately estimate volumes of brain and pons and to evaluate these data together. The Cavalieri method and point counting were used to estimate the volumes of brain and pons on magnetic resonance (MR) images.

Ten healthy adults' ( $n=5$  woman and  $n=5$  man, at the age of 40-50) transfer MR brain images (5 mm section thickness and 1.5 gap, approximately 16-17 sections for brain and 3-5 section for pons) were used for estimation. Stereological software (version 6.0, Microbrightfield, Colchester, VT) was used to estimation volumes. The size of the point counting grid was predicted to receive a coefficient of error (CE) in an appropriate range which was less than 5%. Obtained data was analyzed statistically by SPSS for Windows version 13.0 (independent samples T test). Two volumetric values were evaluated both separately comparison with each other.

The mean volume of brain and pons in male and female were  $1567, 37 \text{ cm}^3$  ( $CE=0.03$ )- $126 \text{ cm}^3$  ( $CE=0.04$ ) and  $1105, 26 \text{ cm}^3$  ( $CE=0.03$ )- $153, 14 \text{ cm}^3$  ( $CE=0.04$ ) respectively. Mean brain-pons volume ratios in male and female were 12.43 and 7.21 respectively. There were significant differences between both brain and pons volume of male and female individuals and mean brain-pons volume ratios ( $p < 0.05$ ).

It is concluded that MRI estimated brain and pons volumes in vivo may be help of understanding and evaluating both normal structure and clinical situation of patients and provide a simple index of anatomical structures,

#### P9

### Absence of adhesio interthalamica on a female cadaver

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The adhesio interthalamica is a midline structure with about 1cm dimension that connects each thalamus at the medial surface. It has been thought whether there is correlation between absence of the adhesio interthalamica or pathological conditions. Therefore various clinical and postmortem

studies carried on related with the absence or presence of the adhesio interthalamica.

In this case, absence of adhesio interthalamica was observed in cerebral hemisphere belonging to a 39-year-old female cadaver that was donated to our university for scientific research. It is aimed to present our case with absence of the adhesio interthalamica to contribute to postmortem investigations.

#### P10

### Effects of caffeic acid phenetyl ester (CAPE) on structural changes in the prefrontal cortex induced by cigarette inhalation in rats

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In this study, neurotoxic effects of cigarette on prefrontal cortex and protective effects of caffeic acid phenetyl ester (CAPE) against these toxic effects were investigated at light microscopic level. For this purpose, 21 male Wistar rats were divided into three groups. Animals in Group I were used as control. Rats in Group II were exposed to cigarette smoke. The rats in Group III were exposed to cigarette smoke and injected daily with CAPE. At the end of the 60-days experimental period, all rats were killed by decapitation. Then the brains of rats were removed. Following routine histological procedures, the prefrontal cortex tissue specimens fixed in 10% formaldehyde were examined under a light microscope. Light microscopic examination of prefrontal cortex specimens from rats exposed to cigarette smoke revealed that vacuolization, neuroglial cell infiltration and pycnotic cells in the molecular layer. Whereas, exposure of cigarette smoke-induced structural changes were decreased in rats exposed to cigarette smoke and injected with CAPE, but only pycnotic cells were seen similar to the cigarette smoke group. In conclusion, It was determined that exposure to cigarette smoke caused damage in prefrontal cortex of rats and this damage was prevented by administration of CAPE.

#### P11

### Fish n-3 fatty acids decrease global brain ischemia induced apoptosis in the rat cerebellum

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Fish oil is rich in n-3 fatty acids composed of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). EPA and DHA are essential and necessary for maintenance of neuronal functions. The aim of this study was to evaluate the effects of fish n-3 essential fatty acids on the apoptotic neurons in the cerebellum of rats subjected to global brain ischemia.

Three groups each with 6 rats were formed. Group I rats were used as control. In group II (ischemic rats), cerebral ischemia was produced by ligation of the bilateral common carotid arteries for 45 min, followed by reperfusion for 30 min, in rats fed with a standard diet. In Group III, fish n-3 fatty acids (Marincap®, 0.4 gr/kg/day, by gavage) were given for 14 days before ischemia and reperfusion in addition to Group II procedures. Upon the completion of the experiments, the rats were sacrificed and their cerebellums were removed immediately. Number of apoptotic neurons was counted by Tunnel Method in histologic samples of right cerebellum.

The number of apoptotic cells was found to be increased significantly in Group II rats compared with Group I (control) rats. In Group III, the number of apoptotic cells was significantly lower than Group II rats.

Our preliminary findings suggest that global brain ischemia causes increase in the number of apoptotic cells in rat's cerebellum. Fish n-3 fatty acids inhibit this adverse effect and may provide strong support for the protection from the ischemic cerebral vascular diseases.

#### P12

### Effects of testosterone on leptin production in anterior pituitary cells of rats: An immunohistochemical study

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Leptin is produced primarily by adipose tissue and has important effects on the regulation of metabolic efficiency, energy expenditure, food intake and neuroendocrine functions. Although leptin is produced mainly by adipose tissue, a growing number of tissues including the anterior pituitary (adenohypophysis) gland have been shown to produce low amounts of leptin. The aim of this study was to immunohistochemically examine the effects of orchidectomy and administration of testosterone hormone on leptin production in the rat anterior pituitary. For this purpose, 21 male Wistar rats were divided into three groups. Group I and group II were designated as control (sham-orchidectomized) and orchidectomized rats, respectively. Rats in group III were orchidectomized and injected daily with testosterone propionate for 1 month. At the end of experimental period, all animals were killed by decapitation. The pituitary glands of all rats were removed and processed for semi-quantitative evaluation for immunohistochemical leptin staining. Intensity of immunostaining was determined on a scale between 0 (no staining) and 5 (heavy staining). Immunostaining of leptin was moderate (3+) in control rats, heavy (5+) in orchidectomized rats and low (1+) in testosterone-treated orchidectomized rats, respectively. The present findings indicate that orchidectomy increases leptin secretion in anterior pituitary cells, and this increase of leptin synthesis can be prevented by administration of testosterone propionate. Thus, testosterone seems to have effects on leptin production in the anterior pituitary of male rats.

**P13**

#### **A quantitative study of brain and lateral ventricle volumes using stereology on MR images**

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The object of the present study is to estimate brain and lateral ventricle volumes on magnetic resonance imaging (MRI) using Cavalieri volume estimation method, which is one of stereological approaches, consist of a sampling technique used to generate mathematically unbiased estimates of geometric properties of three-dimensional structures based on two-dimensional slices of the object.

Ten healthy adults' (n=5 female and n=5 male, at the age of 40-50) transverse MR brain images (5 mm section thickness and 1.5 mm gap, approximately 15-17 sections) were used for estimation. For volume estimation, a stereological software (version 6.0, Microbrightfield, Colchester, VT) was used. Handled data was analyzed statistically by SPSS for Windows version 13.0 (independent samples T test).

At the end of our stereological estimations, mean cerebrum volumes in male and female were 1676.67 cm<sup>3</sup> and 1005.26 cm<sup>3</sup>, respectively. Also mean lateral ventricle were 313.853 cm<sup>3</sup> in male and 162.630 cm<sup>3</sup> in female. The ratio between volume of cerebellum and lateral ventricle in men and women were 6.18 and 5.34, respectively. There was found statistical differences in terms of both cerebrum and lateral ventricle volumes and also it was determined a significant difference the ratio between volume of cerebellum and lateral ventricle (p<0.05).

In the measurement of a three dimensional structure, volumetric data supply more reliable information than do non-volumetric. As a result, this study suggests that not only size of cerebrum and lateral ventricle in men different from those of the women but also ratio between cerebrum and lateral ventricle volume was different from each other.

**P14**

#### **Comparison of shape of corpus callosum between genders using EDMA shape analysis**

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Euclidean Distance Matrix Analysis (EDMA) is a landmark-based method that uses landmark coordinate data to calculate all possible linear distances

among landmarks, creating a form matrix for each object. Corpus callosum is the greatest commissural tract connecting the two hemispheres. There are numerous factors affecting the shape of corpus callosum including gender, age, and hand preference. Midsagittal MRI scans of 80 individuals (40 male, 40 female) were evaluated retrospectively. All analyses were performed with the line connecting anterior commissure and posterior commissure parallel to the horizontal plane. Nine landmarks on the corpus callosum were chosen for the study: 1=anteriormost point of CC; 2=CC–fornix junction; 3=interior notch of splenium; 4=inferior tip of splenium; 5=posteriormost point of CC; 6=splenium topmost point, 7=topmost point of CC; 8=posterior angle of genu; 9=posterior tip of genu. After marking landmarks gender differences in general shape and the distances between landmarks were evaluated using EDMA statistical shape analysis. In addition, the deformation of the corpus callosum in both genders was also determined using Thin Plate Spline (TPS) method. There were not any statistical significant differences in general shape between genders while certain distances between landmarks showed statistically significant differences (p<0.05). 25% of the distances between landmarks were higher in females whereas 28% of them were higher in males (p<0.05). Higher distances measured in females were located in the posterior part of the corpus callosum and they were located in the anterior part of the corpus callosum in males.

**P15**

#### **Morphology of neurons of pyramidal layer in human subiculum**

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Subiculum is archicortical structure of subicular complex which presents the place of origin of great majority of axons of the whole hippocampal formation. Subiculum consists of three layers: molecular, pyramidal and polymorphic. In contrast to hippocampus which was intensively studied, the data about human subiculum are quite limited.

The aim of our research was defined in manner to describe neuron's morphology in pyramidal layer of human subiculum.

The study was performed on 10 brains of adult persons (20 hemispheres) of both genders by using Golgi impregnation and Nissl staining.

The neurons of human subiculum were divided in two groups, pyramidal and nonpyramidal, based on their morphology. The group of pyramidal neurons consists of the neurons with pyramidal shape of soma, which is a place of origin of one dominant thick apical dendrite and two or three dendrites mainly. This group of neurons is placed only in pyramidal layer and these neurons are rich with spines. Nonpyramidal neurons have not typical shape of soma (multipolar, oval, piriform), with great number of dendrites which are less rich in spines than pyramidal neurons and they reside in all layers.

Presence of pyramidal neurons only in pyramidal layer and their absence in other layers of human subiculum, is the hallmark of this brain structure, which is considered to play very important role in memory processes.

**P16**

#### **The interaction of opioidergic and noradrenergic receptors and pathways in mice central nervous system (CNS)**

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Several studies showed that morphine is a very potent and valuable agent in decrease of pain, but produces physical dependency and its abrupt cessation can lead to a withdrawal syndrome. On the other hand, clonidine (an alpha-2 adrenergic receptor agonist) has been used in treatment of hypertension. On the basis of our studies, physical dependency in clonidine dependent mice observed by precipitating an abstinence syndrome with both yohimbine (an alpha-2 adrenergic receptor antagonist) and naloxone (an opioidergic receptor antagonist).

Therefore we studied cell anatomy and physiology in this matter. Although, the symptoms of morphine and clonidine withdrawals are remarkably similar; both drugs act on different receptors. It seems that, there is an overlap

between the distribution and effects of certain opioid receptors and alpha-2 adrenoceptors in CNS, and some effect of morphine as well as withdrawal symptoms, may be mediated by hyperactivity of noradrenergic neurons and increased noradrenergic secretion in certain brain areas. Also some effect of clonidine may involve, direct or indirect, activation of opiate receptors, probably by the release of endogenous opiates.

Considering the overlap between the distribution of certain opioid receptors and alpha-2 adrenoceptors, and the similarities of their transduction mechanisms, it is possible that, there are common mechanisms and similar pathways underlying the development of opioid and clonidine withdrawals.

#### P17

##### **Estimation of astrocytes number in different subfields of rat hippocampus**

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The hippocampal formation is present in all mammalian species, and it consists of the subiculum, the hippocampus and the dentate gyrus. Apart from principal neurons, the hippocampal formation contains glial cells and various types of interneurons.

Glial cells in hippocampus contain the astrocytes, microglia and oligodendrocytes. Astrocytes play a more active role in neuronal activity, including regulating ion flux currents, energy production, neurotransmitter release, and synaptogenesis. Astrocytes are the only cells in the brain that contain the energy molecule glycogen.

In this study 5 male albino wistar rats were used. After histological processing, the slides of the brains were stained with PTAH staining for showing the astrocytes.

We showed differences in number of astrocytes in different compartment of hippocampus. There is significant difference between CA1 and CA3 and also between CA2 and CA3 areas.

We concluded that functional differences could be due to structural differences.

#### P18

##### **Evaluation of risk and protective factors in Parkinsonian patients in neurology clinic of Southern Khorasan UMS during 2002-2004**

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Demographic and environmental factors are effective in the pathogenesis and protection against Parkinson Disease (PD). Sex, family history of PD, farmership, education, stress, history of head trauma, smoking, well water supply, oil seeds using, contact with herbicides and pesticides has been recorded in this regard.

100 patients with PD and 200 age matched controls referring to Neurology clinic, Birjand UMS, Southern Khorasan enrolled in this case-control study during 2002-2004. A neurologist diagnosed PD and above-mentioned demographic and environmental factors were recorded in a questionnaire. Fisher and Chi-Square tests were used for statistical analysis and  $P < 0.05$  was declared as significant.

68% of cases and 53% of controls were male,  $p = 0.08$ . Family history of PD ( $p = 0.12$ ), farmership ( $p = 0.021$ ), education ( $p = 0.03$ ), stress ( $p = 0.013$ ) and well water ( $p = 0.021$ ) supply were significantly more frequent in PD group. Smoking ( $p = 0.007$ ) and oil feeds using ( $p = 0.0001$ ) were more frequent in control group. Frequency rate of contact with herbicides, pesticides ( $p = 0.255$ ) and history of head trauma ( $p = 0.08$ ) were not significantly different between PD and control groups.

Family history of PD, farmership, education, stress and well water supply are risk factors of PD, while smoking and oil seeds using could be protective factors against PD.

#### P19

##### **Tremor in the right hand as a most common initial presentation of Parkinson disease**

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Parkinson Disease (PD) is a common cause of disability in geriatrics. PD patients need life long drug therapy and rehabilitation.

Objectives is to determine initial presentation of Parkinson disease in geriatrics.

100 consecutive geriatric patients with PD diagnosis enrolled in a prospective case-series observational study in Valie Asr neurology clinic, Birjand during 2002-2004. Diagnosis of PD was made by a neurologist based on the criteria developed by British Parkinson association. Age of the PD initial presentation and first clinical manifestations of the geriatric PD patients were kept in a data base.

68 males and 32 females with PD were evaluated. Mean age of the patients at initiation of PD was 63.6, SD: 9.6. Resting tremor consisted 76% of PD initial manifestation in our geriatric patients. Right hand, left hand and both hand tremor were the initial presentation of 50%, 14% and 12% of our geriatric PD patients respectively. Hypokinesia-bradykinesia, rigidity and dementia consisted 18%, 4% and 2% of initial PD presentations, respectively.

Resting tremor in the right hand is the most common initial manifestation of PD in geriatric PD patients and therefore should be considered.

#### P20

##### **A new division of the human claustrum basis on the anatomical landmarks and morphological findings**

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The subdivision of claustrum into parts in some species exists in literature. Those are mainly based on a pattern of its connections with various cortical areas, method of staining, immunoreactivity of its neurons etc. The aim of this study was the division of the human claustrum into different parts, for the first time, based on morphology, density, arrangement of claustral neurons as well as shape of the structure on coronal sections studied with Klüver-Barrera.

Ten human brains (5 males, 5 females), who died of non-neurological causes and had no history of long term neurological illness were selected. The samples, after fixation in formaldehyde and embedding in paraffin, were coronally cut into 25- $\mu$ m-thick serial sections. Every 20th section was stained with Klüver-Barrera, with a random position for the first section. The human claustrum was divided using anatomical landmark and morphological findings of neurons.

We have distinguished in the human claustrum three parts cap, dorsal and ventral in dorso-ventral direction. The circular insular and rhinal sulci are the upper and lower borders of dorsal part. Cap is the smallest and ventral part largest part. We have also found three parts anterior, central (middle), and posterior in antero-posterior direction. The central part is alongside of globus pallidus nucleus, whereas anterior and posterior parts are referred to parts of claustrum that lie in front and behind this nucleus, respectively. The central and posterior parts are the largest and smallest parts, respectively. Mean diameter of antero-posterior of the human claustrum was about  $28.06 \pm 5.25$  mm.

This study demonstrate that human claustrum consists of three anatomical parts in both dorso-ventral and antero-posterior directions. Each part has its specific connections, development, function, and neuron density and morphology.

#### P21

##### **Comparative study of neurodegeneration in transgenic PDAPP and non transgenic mice**

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Alzheimer's disease (AD) is a uniquely human disorder. Although the pathogenesis of AD is not fully understood, growing evidence indicates that the deposition of beta-amyloid and the local reactions of various cell types to this protein play major roles in the development of the disease. In the present study transgenic mice expressing mutant amyloid precursor protein (APP) have been used. These mice exhibit selective neuronal death in the brain regions that are most affected in AD, suggesting that amyloid plaque formation is directly involved in AD neurons loss. Brains from 12 transgenic animals and 12 age-matched non-transgenic littermate controls (1 and 2 years old) were examined histopathologically. One-year-old transgenic animals (n=6) exhibit deposits of human amyloid peptide in the hippocampus, corpus callosum and cerebral cortex. By 2 years of age, a great number of diffuse and mature plaques were present in the cortex and hippocampus, and subcortical regions like thalamus and striatum. Another major finding was reduction of cholinergic cells in the medial septum, striatum and diagonal band of Broca. The present data are consistent with the hypothesis that the neuropathology begins in the cerebral cortex and hippocampus before spreading in a retrograde fashion to subcortical regions.

## P22

### Correlation between vitamin E and development of Alzheimer's disease in a mouse model of AD (transgenic mice)

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Alzheimer's disease (AD) is the most common type of dementia (75%), manifesting as a severe deterioration of mental functions. The brains of people with Alzheimer disease exhibit deposition of amyloid beta peptide and progressive degeneration of nerve cells. Scientists are studying ways that may help decrease or prevent neurodegeneration and may help injured neurons to regrow. We determined whether the antioxidant vitamin E affected the presence of amyloid plaques in brain of aged PDAPP transgenic mice. Beta amyloid precursor protein (APP), is important for the pathogenesis of Alzheimer's disease (AD), which is characterized by progressive decline of cognitive functions, formation of amyloid plaques, and neurofibrillary tangles, and loss of neurons. In the present study we have examined that treatment by vitamin E in PDAPP aged mice compare with control groups is able to decrease 20% in AB plaques levels of cerebral amyloidosis in neocortex. Moreover, our results suggest that treatment by vitamins is able to prevent the disruption of basal cholinergic forebrain system and prevent of loss of cholinergic basal forebrain neurons (Ms+HDB.VDB).

## P23

### Morphology of neurons of the human bed nucleus of the stria terminalis: Golgi study

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The morphology of neurons of bed nucleus of the stria terminalis (BNST) wasn't completely investigated even in animals, despite its strategical position at the crossroad of amygdala, hippocampus, septum and hypothalamus and its integrative role in cognitive and neurovegetative functions.

The aim of our research was defined in manner to describe cellular morphology of human BNST.

The study was performed on 10 brains of adult persons (20 hemispheres) of both genders by using Golgi impregnation, Nissl and Kluver-Barrera methods of staining. The maximum length (Dmax) and width (Dmin) of the somata, as well as the total dendritic length (TDL), were measured by using Zeiss Axiovision 3.0.6. software.

The neurons of human BNST were classified into three types, based on its cellular morphology. Type I – bipolar neuron, with soma mainly fusiform in shape, presents predominant type in human BNST, particularly in its dorsomedial part (Dmax=30.46  $\mu\text{m}\pm 4.1$ ; Dmin=19.64  $\mu\text{m}\pm 2.32$ ; TDL=500.74  $\mu\text{m}\pm 63.7$ ). Type II – pyramidal neuron, was numerous in central and lateral parts of dorsal BNST. Their cell bodies varied in shape (oval, triangular), had one dominant, thick, apical and two thinner dendrites (Dmax=30.55  $\mu\text{m}\pm 3.52$ ;

Dmin=21.52  $\mu\text{m}\pm 1.53$ ; TDL=715.98  $\mu\text{m}\pm 72.70$ ). Type III – multipolar neuron, presents predominant type in ventral parts of BNST, with oval soma and dendrites radiated out in all directions (Dmax=27.36  $\mu\text{m}\pm 2.86$ ; Dmin=22.13  $\mu\text{m}\pm 2.37$ ; TDL=1303.51  $\mu\text{m}\pm 140.09$ ). The dendritic spines of all types of neurons were higher in density as distance from the soma increased.

The BNST represents cytologically complex limbic structure, and its complexity is consistent with its very important role in behavioral responses to stress and anxiety states.

## P24

### Medium spiny neuron diversity between core and shell of human nucleus accumbens

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According to well known functions of nucleus accumbens, it can be considered like pleasure center or drug addicted region of central nervous system. Many papers describe especially role of medium spiny neuron morphology diversity in relation to the drug or agent type used. Furthermore, there are supplementary morphology differences between two major regions, core and shell of nucleus accumbens.

The aim is to study medium spiny neuron differences between core and shell of human nucleus accumbens.

We investigated medium spiny neuron morphology discrepancy between core and shell parts of nucleus accumbens by Golgi method. We used 20 hemispheres of human brain, both sexes, from 32 to 67 years.

Peripheral regions, shell of nucleus accumbens, had a higher density of impregnated neurons than central part core. Predominantly containing two types of neurons, fusiform type (also with lateral dendrite subtype) and smaller piriform type neurons, which all were rich in spines on secondary and third dendrite branches. Contrary to the shell, central part of nucleus accumbens, core, had a lower density of impregnated neurons with predominant pyramidal-like type neurons enriched with spines on secondary branches.

Expected drug related differences between two functional parts of human nucleus accumbens, core and shell, could be established through neuron morphology. Functional consequences coherent to the morphological changes of neurons, not only to medium spiny but to the others, suggesting more clarifying experimental and clinical significance of this important brain region in drug addiction.

## P25

### Golgi morphology of parvocellular parts of human paraventricular nucleus

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Parvocellular subnucleuses of hypothalamic paraventricular nucleus (parvocellular PaP, anterior parvocellular PaAP, and some parts of the posterior PaPo, Koutcherov 2000) are seat of small CRH neurons. Contribution of CRH neurons to process of stress control is mainly related to the hypothalamus, but CRH neurons are dispersed in extended amygdala as well. It is well known that stress control and allostasis are widely regulated by many organ systems, but principal control of allostasis belongs to many regions of central nervous system including hypothalamus.

The aim is to establish Golgi morphology in parvocellular parts of human hypothalamic paraventricular nucleus.

We investigated Golgi morphology of small, parvocellular neurons human paraventricular nucleus by Golgi method. We used 26 hemispheres of human brain, both sexes, from 30 to 72 years.

We delineate examined neurons Dmax below 15  $\mu\text{m}$  as parvocellular. In parvocellular subnucleuses we found three types of neurons. Small bipolar neuron (Dmax=10.34 $\pm$ 1.52  $\mu\text{m}$ , Dmin=4.38 $\pm$ 0.78  $\mu\text{m}$ , TDL=180.62 $\pm$ 23.49  $\mu\text{m}$ , Vol=96.56 $\pm$ 10.34  $\mu\text{m}^3$ ), represents dominant parvocellular type.

Small multipolar neuron ( $D_{max}=9.34\pm 0.89 \mu\text{m}$ ,  $D_{min}=4.56\pm 0.56 \mu\text{m}$ ,  $TDL=156.67\pm 18.76 \mu\text{m}$ ,  $Vol=89.62\pm 10.89 \mu\text{m}^3$ ) is often in parts of posterior subnucleus PaPo. Unipolar type is extremely rare, mostly situated in dorsal subnucleus, ( $D_{max}=12.67\pm 0.67 \mu\text{m}$ ,  $D_{min}=3.23\pm 0.43 \mu\text{m}$ ,  $TDL=120.34\pm 15.45 \mu\text{m}$ ,  $Vol=74.55\pm 6.55 \mu\text{m}^3$ ).

According to the finding of medium sized neurons of human paraventricular nucleus, classical partition to magno and parvocellular is losing former morpho-functional significance.

These findings are expected considering variety of functions either in parvocellular or in magnocellular parts of human paraventricular nucleus.

## P26

### Syntopy of structures in the optic canal and its potential clinical consequences

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The main objective was to specify syntopic relations between the ophthalmic artery and the optic nerve and the origin of the mentioned artery from the internal carotid artery as far as the posterior pole of the eyeball in the orbit and to answer the question whether there exists any clinical correlation with damage to the structures located here. The authors carried out a literature search of textbooks and atlases of the normal and topographic anatomy by different authors and focused on the description of the origin and passage of the ophthalmic artery with regard to the optic nerve in the optic canal and the posterior third of the orbit, as well as a literature search of the recent specialist clinical journals concentrated on the findings in the region of the optic canal in relation to the disorders of vascularization or the vision. Dissection was performed to 52 orbits and optic canals (27 left and 25 right) on the fixed cadavers of the Institute of Anatomy. Detailed specimens were obtained from the optic nerve and the ophthalmic artery and the sites of the origin of the ophthalmic artery from the internal carotid artery as well as the course of the ophthalmic artery in relation to the optic nerve were described. Diameters of the optic canal, the optic nerve and the ophthalmic artery were measured using the micrometer. The findings were consulted with clinical specialists. The literature search revealed that description of the origin of the ophthalmic artery from the internal carotid artery and description of the mutual relation between the ophthalmic artery and the optic nerve in the optic canal if described at all, vary in studies by different authors. The most frequent in our group of patients was the craniomedial origin. The most frequent location of the passage was before the entry into the canal below the optic nerve similarly as inside the canal and at the exit of the canal where the artery was subsequently crossing the optic nerve from the lateral side medially. Measuring of calibers of individual structures revealed that depending on the canal size is the caliber of the artery rather than the diameter of the nerve that was less variable. On the basis of the literature search of specialist clinical literature and consultation with specialists, the authors described the situations and diseases in which the above mentioned specified relations may be important for the diagnosis or therapy.

## P27

### The effect of spatial learning on the astrocytes number in CA2 subfield of rat hippocampus

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The hippocampal formation is a part of limbic system that plays an important role in memory and learning. The hippocampus is divided to three subfields: CA1, CA2 and CA3. In addition to pyramidal neurons and interneurons, the astrocytes play important roles in hippocampus, probably in memory and learning. In fact, the learning needs some instrument for information storage and information maintenance mechanisms resemble to memory. In the other hand, the memory always accompany with learning.

In this study, with usage of Morris Water Maze and two technique (Reference and Working memory methods), we used 15 male albino wistar rats. 5 rats in

control group and 5 rats in each other groups. After histological preparation, the slides were stained with PTAH staining for showing the astrocytes.

Our results showed significant difference in astrocytes number in CA2 area between control and Reference m. groups. Also the difference between control and working m. groups was significant. Then we compare two learning groups and we found significant difference between them.

We concluded that the number of astrocytes increased due to spatial learning and this increase can be affected to the term of learning.

## P28

### Coexistence of an axillary foramen, formed by unusual axillary arch, and pectoralis quartus muscle

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During the dissection of the left side of thoracoaxillary region of a 55-year-old male cadaver, a “pectoralis quartus muscle” and an “axillary arch” and insertion variation of the latissimus dorsi muscle were encountered. Because both of the complete and incomplete forms of arch was together in the same case, the axillary arch was unique. The foramen, bordered by the axillary arch was named as axillary foramen. The space covered by the two layers of fascial expanding from the arch was named as “axillary fascial pouch”. The axillary arch, found in 7% of the population, has clinical importance for regional surgery. In addition, this variation should be kept in mind as it can cause to entrapment of the axillary nerves and vessels at the narrow axillary foramen.

## P29

### Anatomic features of fossa navicularis and its clinical significance

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The basilar (basiooccipital) part of the occipital bone is the quadrilateral part of this bone in front of the foramen magnum. The inferior surface of the basilar part has a small pharyngeal tubercle for attachment of the fibrous pharyngeal raphe about 1 cm anterior to foramen magnum. The fossa navicularis is a rare anatomic variation of the skull base. It is located anterior to the pharyngeal tubercle.

The purpose of present study was to determine the incidence and morphometric features of the fossa navicularis. The study was carried out on 95 specimens. The fossa navicularis was investigated in 6.3% of the specimens. The depth of fossa navicularis was  $1.58\pm 0.84$  mm. The transverse diameter was  $4.66\pm 1.43$  mm. The sagittal diameter was  $6.50\pm 1.73$  mm. The distances between fossa navicularis and other anatomic landmarks such as most anterior point of pharyngeal tubercle ( $4.36\pm 2.14$  mm) and vomer ( $6.53\pm 3.77$ ) were also measured to define the position of the fossa.

An awareness of the existence of this variation will be especially helpful during surgical approaches to the skull base. It will also keep the clinicians misinvestigations during the observations of radiological images.

## P30

### Comparison of women's external genital organs at premenopausal and postmenopausal term

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In this study, we aimed to determine the changes which might occur at external genital organs of women at premenopausal and postmenopausal term. Patients, who applied Gynecology Department of Medical Hospital in Zonguldak Karaelmas University, were included in this study. The study started after a permission taken from the ethical committee for the measurements. Patients, 49 of them at premenopausal term, 45 at postmenopausal term did not have any external genital abnormalities. Following measurements were applied: Length of clitoris, width of clitoris, length of clitoris-urethrae, length of labium majus, length labium minus,

width of labium minus, length of perineum and length of vaginae. Disposable measure and hysterometry were used during these measurements. Statistical analysis showed that the measurements of the width of labium minus and the length of vaginae were different significantly between the two groups. Labium minus was wider at postmenopausal women (1.34±0.62, 1.82±0.76 cm), while vaginae was also longer at postmenopausal women (8.86±1.48, 8.12±1.14 cm). As a result, we observed that labium minus hanged loosely and vaginae underwent atrophy at postmenopausal term. We suggest that ageing and lack of oestrogen might cause the differences at the length of vaginae and the width of labium minus.

### P31

#### An abnormally situated sigmoid colon

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We encountered a rare case of the sigmoid colon in a 39-year-old Turkish female cadaver during routine dissection practice for medical students. The Sigmoid Colon was excessively long and formed a wide loop which was in direct contact with the gall-bladder. It consisted of four parts. The first part began in the left iliac fossa, turned the right, passed across left psoas, and then reached in front of the promontory of the sacrum; the second turned upward and ascended along anterior surface of the ascending colon to inferior surface of the liver. It then curved on itself and turned forward. The third part descended along the anterior surface of the second part to the promontory; the fourth curved left and downward and ended in the rectum. Colon was normal at other positions. The sigmoid colon was completely surrounded by peritoneum, which forms the sigmoid mesocolon. The inferior mesenteric artery divided into four branches, the left colic, two sigmoid, and the superior rectal arteries. First part of the sigmoid colon was supplied by the left colic artery. The sigmoid arteries, two in number, supplied the other parts. This anomalous colon was measured morphometrically and its clinical importance was also assessed.

### P32

#### The superficial palmar communications between the ulnar and median nerves in Turkish cadavers

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The superficial palmar communicating branch between the ulnar and median nerves, the ramus communicans, has been investigated by anatomical dissections in 30 hands of 15 cadavers in the Turkish population. A communicating branch between the ulnar and median nerves was found in 18 hands (60%). Twelve of them were type 1 (40%), one of them type 2 (3.3%), two of them type 3 (6.6%) and three of them (10%) were type 4. Knowledge of the anatomical characteristics of this branch is important for surgical interventions, especially in carpal tunnel release operations.

### P33

#### Anthropometric facial analysis of Turkish young adults

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Anthropometric data show differences among races and genders. In this study, a population of 65 female and 33 male Turkish young adults whose ages were ranging 18-20 years were examined. All data was obtained from standardized digital photographic images. For each subject, twenty four landmarks were marked on the digital photographs. Nineteen standard craniofacial measurements were obtained. Significant differences were found for nasal root width, morphological width of the nose, anatomic nose width, nostril floor width, nasal tip protrusion, intercanthal width, eye fissure length, eye fissure height, philtrum width, philtrum length between female and male ( $p<0.05$ ). The obtained results were compared to other results in the literature.

### P34

#### Statistical shape analysis of nose in Turkish young adults

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Nose shape gives information about race, ethnicity, age and sex. The size, shape, and proportions of the nose provide a visual basis suggesting the character of the person. There are several anthropometric studies related with the nose, however none of them is involving data about a statistical shape analysis. In this study, a landmark-based geometric morphometric technique was used to analyze the nasal shapes in young Turkish adult population.

A population of 75 female and 75 male volunteer Turkish young adults whose ages were ranging 18-39 years (24.82±5.64 year) were examined. All data was obtained from standardized digital photographic images taken from anterior, lateral and inferior aspects by using standard anthropometric measurement methods. Regarding the nasal shape formation at both of anterior, lateral and inferior aspects, there were statistically significant differences found between males and females ( $p<0.05$ ). The overall measures of shape variability from anterior, lateral and inferior aspects were similar in both sexes. At the anterior aspect, the inter-landmark distances playing role in nasal width were found to be larger in males and the inter-landmark distances that take part in nasal length were found to be longer in females.

### P35

#### Carcinoma originating from ectopic breast tissue: A case report and review of the literature

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Ectopic breast tissue results from a failure of regression of the mammary ridges during embryogenesis. It can be present anywhere along the "milk line" from the axilla to the inguinal region. Axilla and vulva are the most common sites that this tissue occur, but may also occur in other sites, including cheek, neck, shoulder, flank, hip, thigh. Ectopic breast tissue is subject to all of the pathologic changes of the normal breast, including carcinoma. Carcinoma of ectopic breast tissue is extremely rare. Ectopic breast tissue without presence of a nipple is frequently misdiagnosed as a subcutaneous lesion.

Here, we report a case of carcinoma originating from ectopic breast tissue, presenting as a subcutaneous nodule on the inframammary fold region of the right breast.

### P36

#### Innervation features of the extraocular muscles

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Several surgical approaches have been used for exposure of lesions within the orbit. Most authors have not focused on the exposure of specific structures within the orbit, such as retroorbital region, optic nerve and deep orbital apex. Many large lesions especially tumors, arteriovenous malformations, hematomas can cause damage on the orbital part of the oculomotor nerve. During surgical approaches are important detailed anatomy knowledge regarding neural, muscular, vascular and neighboring structures.

A total of 44 formalin fixed cadavers were dissected for this study. The vascular structures were perfused with colored latex to facilitate their definition. In this anatomic study, orbit was investigated at two divisions as superior and inferior. In the superior division, the levator palpebrae superioris muscle, the superior rectus muscle, the superior oblique muscle were examined. In the inferior division, the medial rectus muscle, the lateral rectus muscle, the inferior rectus muscle, the oblique inferior muscle and the ciliary ganglion were examined. The diameter of the oculomotor nerve within the superior orbital fissure was measured as 2.10 mm on the right and 2.09 mm on the left. The diameter of branch innervating the superior rectus muscle

was measured as 1.0 mm on the right and on the left. The area nervosa of the inferior rectus muscle was 2.42 mm on the right and 2.64 mm on the left. The area nervosa of the lateral rectus muscle was 3.55 mm on the right and 3.43 mm on the left. In this study, detailed knowledge regarding the innervation features of the extraocular muscles was attained.

### P37

#### Importance of the anatomic features of the lacrimal artery for orbital approaches

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Knowledge of variations in the possible patterns of origin, course, and distribution of the lacrimal artery are necessary for the diagnosis and important for the treatment of orbital disorders. The vascularization of 38 lacrimal glands was studied by orbital dissection subsequent to injection of the arterial bed with red-dyed latex. The origin, calibration, and branches of the lacrimal artery and its topographic relations were investigated. In all subjects, arteria lacrimalis originated from ophthalmic artery. On the right, the lacrimal artery sprang from the angle of the ophthalmic artery in 63.15% of the cases, from the curve of the ophthalmic artery in 26.31%, and from the first part the ophthalmic artery in 5.26%. The outer diameter of the lacrimal artery was measured as  $1.02 \pm 0.17$  mm on the right and  $1.03 \pm 0.16$  mm on the left. In 68.42 of the cases on the right and in 52.63 of the cases on the left, the lacrimal artery was present, and the lacrimal nerve was seen in a superolateral position with respect to the origin of the artery. Variability of the glandular branch in its course toward lacrimal gland was observed. Recurrent meningeal branch was seen in six cases on the right and in five on the left. On the right, of the six cases, two passed through meningoorbital foramen, and four passed through superior orbital fissure and entered middle cranial fossa. On the left, of the five cases, two passed through meningoorbital foramen, and three passed through superior orbital fissure and entered middle cranial fossa. In this case, the lacrimal gland is the site of an intraorbital anastomosis between internal and external carotid systems. This article confirms the well-known variability of the lacrimal arterial branches and their relation to the lacrimal gland. These variations have been discussed and described with respect to the embryonic development. A better understanding of the vascular anatomy of the lacrimal gland should allow modification of surgical techniques to reduce bleeding during biopsy or excision of the lacrimal gland.

### P38

#### Normative values of thumb length in young adults

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The aim of the present study was to determine the normal values of thumb length respect to the index finger in young adults. In the direction of this purpose, measurements of the hands were taken from dorsal and palmar sides by using an electronic digital caliper. Relative thumb length, girth, and nail width were taken from one hundred and sixty-four normal hands in 82 volunteers (47 male and 35 female) aged 17-21 years. The relative thumb length was measured against 2 parameters: the length of proximal phalanx of the index finger and the distance between the proximal digital crease and proximal interphalangeal crease of index finger. The values were classified as the thumb-phalanx (TPP) index and the thumb digital crease (TDC) index, respectively. The mean percentage of the thumb length relative to the proximal phalanx was found to be 76% on the right hand and 71% on the left hand and the length of the index finger from the metacarpophalangeal joint to adducted thumb tip reached an average of on the right and left hand 35% and 34%, respectively. The thumb girth and nail width as a percentage of corresponding levels of the index finger girth and nail width were found to be 75% and 108% on the right hand and 75%, 105% on the left hand, respectively. The mean values of TPP and DCC indexes were found to be 0.82 and 0.59 on the right hand; 0.74 and 0.49 on the left hand, respectively. There were no statistically significant differences between the right and left hand.

### P39

#### Anatomy of the coronary veins in sheep

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The aim of this study is to search coroner vein anatomy in the hearts of sheep. In our study between 3-6 aged, 25-30 weighed, in a number of 17 female Akkaraman sheep's hearts were used. Anatomy of hearts coroner veins were examined with plastic injection and corrosion method. In all hearts, azygos vein was opened to coronary sinus. It was determined that in one of the hearts (1/17) between entrance areas of great cardiac vein and middle cardiac vein to coronary sinus there was a vein that was not specified in literature and in another heart (1/17) it was determined that two veins were opened to coronary sinus. It was determined that in all hearts great cardiac vein was opened to coronary sinus and in most of the hearts there were variations in the branches of great cardiac vein. It is found that in 13/17 hearts left marginal vein was opened to great cardiac vein and in 4/17 it was opened to coronary sinus. In two of the hearts there were two left marginal vein and they were opened to great cardiac vein. It was found that in most of the hearts (11/17), right coronary vein was opened with coiling the heart's right edge and in some of the hearts it was opened (6/17) to right atrium in the right edge of the heart. It is found that in 3/17 of the cases v. distalis ventriculi dextrii was opened to right coronary vein and in 2/17 of them it was opened to coronary sinus. We could not observe this situation in other hearts. It was determined that in all hearts middle cardiac vein was opened to coronary sinus and the branches of this vein showed variations. Among the heart veins there was very much anastomosis.

### P40

#### Echocardiographic examination of right ventricular internal dimension in children

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Echocardiography is the most widely used noninvasive method in pediatric cardiology to diagnose congenital heart malformations. Because it has an excellent temporal and spatial resolution, the dimensions of the various anatomical structures, as well as of many malformations can be assessed. To evaluate the quantitative echocardiographic data, cardiac dimensions have to be compared with normal values. So the reference range of values of each cardiac dimension has to be assessed from normal hearts. Imaging the right ventricle by echocardiography is challenging because of the very particular crescentic shape of the right ventricle wrapping around the left ventricle, but it is important and ought to be part of the standard echocardiographic examination of the heart. The purpose of this study is to examine the normal values of right ventricular end-diastolic internal dimension (RVIDd) in healthy infants and children by echocardiography. Two hundred twenty-eight subjects, aged 1 days to 14 years (mean age:  $74.6 \pm 50.01$  months), who had no cardiovascular disease were studied. They included 77 girls and 151 boys. The RVIDd values were determined by echocardiographic examination. Ages of the subjects were calculated by months and were divided into 15 groups: <6; 7-12; 13-24; 25-36; 37-48; 49-60; 61-72; 73-84; 85-96; 97-108; 109-120; 121-132; 133-144; 145-156 and 157-168 months. Mean values of left RVIDd were  $1.53 \pm 0.35$  cm in boys and  $1.42 \pm 0.28$  cm in girls. The difference between RVIDds of boys and girls was not significant statistically. The RVIDds were found increasing progressively with the age. The study let us to know the normal RVIDds assessed with echocardiography in Turkish children. We think that these reference values will be useful in clinical practice while evaluating left ventricle by echocardiography.

### P41

#### Persistent left vena cava superior: The anatomical and surgical importance

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The persistence of left superior vena cava (PLSVC) is a congenital anomaly resulting from the failure of the left cardinal vein degeneration. The prevalence of this anatomical variant is approximately 0.3% in the general population. The aim of this study was to determine the prevalence of the persistence of left superior caval vein in order to avoid the potential complications. The study was conducted during a 5- year period on 152 patients (64 males, 88 females) aged 1-65 years who underwent cardiac surgery for congenital heart diseases. The persistence of left superior vena cava was found in 5 of 152 patients (3.3%). All persistent left superior vena cavae were opening to the coronary sinus. Furthermore, coronary sinus was enlarged in all patients. In addition, right superior caval vein was absent in 1 of 5 cases (20%) in this study. This anatomical variant must be recognized to avoid the potential complications like removing the catheter, damage to the coronary sinus during the surgical interventions.

#### P42

##### Variation of the cervical spinal Torg Ratio with gender

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The Torg ratio is an indicator of cervical canal stenosis determined by dividing the sagittal spinal canal diameter by the corresponding sagittal vertebral-body diameter. The Torg ratio may help identify patients at risk for cervical spine cord injuries. It was reported that male and female subjects showed differences in Torg ratios when measured. The aim of this study was to determine the differences between genders. The subjects were 45 women and 45 men with neck pain. The mean ages of male and female precipitants were 30 and 33, respectively.

We measured the sagittal spinal canal diameter and vertebral body diameter on the radiographs of the cervical spine. Lateral radiographs were taken with a 180 cm film to tube distance. We measured the sagittal spinal canal diameter and vertebral body diameter in mm by using a Vernier caliper. Women had smaller sagittal spinal canal diameters and also smaller vertebral body diameters at all levels. The vertebral body diameter was significantly larger in men across all the vertebral levels. The sagittal canal diameters in men were larger than those in women. The Torg ratios were larger in females except C2 level. At C2 level we found larger values of Torg ratios in men. The narrowest sagittal spinal canal diameters measured in men were at C4 level. The Torg ratio was 0.73 at C4 in men and the narrowest sagittal spinal canal diameters were at C2 level in women and the Torg ratio was 0.80. The average Torg ratio was 0.82 in men and 0.85 in women.

#### P43

##### Variation in the formation of the median nerve combined with a communicating branch from the musculocutaneous nerve

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The brachial plexus has a complex anatomical structure from its origin in the neck, through its course in the axillary region. It is formed by the union of the ventral rami of the spinal nerves from C5 to T1. Anomalies in the formation of the cords of brachial plexus and the communications between its branches are common. It is important to be aware of these variations when planning surgery and regional anesthesia of the axilla or upper extremity. In addition, the presence of anatomic variations of the peripheral nervous system is often used to explain unexpected clinical signs and symptoms.

Anomalies of the brachial plexus in terms of the formation of the median nerve were observed during routine dissection of the right upper limb of the cadaver of a 55-year-old male. The branches of the lateral and medial cords of the brachial plexus were dissected carefully and the variation from the usual pattern was noted. The lateral root of the median nerve arose from the lateral cord and bifurcated after 2 cm. The upper part united with the medial

root of the median nerve and the lower part united with the median nerve approximately 0.5 cm past the aforementioned unification. There was also a communicating branch originating from the musculocutaneous nerve that arose 6 cm distal to the origin of the lateral root. This communicating branch coursed medially and united with the median nerve. The clinical importance of such variation is discussed.

#### P44

##### A case of bifid reversed palmaris longus muscle

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Normally, palmaris longus is a slender fusiform muscle medial to flexor carpi radialis. It arises from medial epicondyle by common flexor tendon, from adjacent inter muscular septa and antebrachial fascia. It's long slender tendon passes anterior to the flexor retinaculum and is attached to its distal half and centrally to the palmar aponeurosis often sending a tendinous slip to the thenar muscles. The palmaris longus is one of the most variable of muscles. One of variations is agenesis of the muscle. Moreover it can be digastric (proximal and distal muscle bellies connected by central tendon), duplicated (two origin and two insertion), or bifid (two-headed muscle belly or tendon), very rarely this muscle is completely reversed the muscle belly arise from palmar aponeurosis and the tendon running proximally to the medial epicondyle of humerus. During the routine dissections for the educational purposes of the forearm and hand, a bifid reversed palmaris longus muscle was observed on the left side of an adult male cadaver. The present case was discussed in the light of available information in the literature.

#### P45

##### A variation of the sural nerve

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Sural nerve is formed by the junction of the medial sural cutaneous with the peroneal anastomotic branch, passes downward near the lateral margin of the tendo calcaneus, lying close to the small saphenous vein, to the interval between the lateral malleolus and the calcaneus. It runs forward below the lateral malleolus, and is continued as the lateral dorsal cutaneous nerve along the lateral side of the foot and little toe, communicating on the dorsum of the foot with the intermediate dorsal cutaneous nerve, a branch of the superficial peroneal nerve. Variations of sural nerve anatomy have been described based on anatomical dissections. During the routine dissections for the educational purposes, a variation of the sural nerve was found in the right lower extremity an adult male cadaver. In this case, peroneal communicating and medial cutaneous nerve do not unite. Medial sural cutaneous nerve continues onto the foot as a lateral cutaneous nerve. Lateral sural cutaneous nerve courses in posterolateral aspect of the leg as far as the ankle.

#### P46

##### Morphometry of head and face in children with beta-thalassemia major

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Thalassemia major is a disease, appearing in infancy or childhood in which normal hemoglobin A is absent, characterized by severe anemia, enlargement of the heart, liver, and spleen, and skeletal deformation. Despite the presence of many growth abnormalities in patients with beta thalassemia major, BMI, head and face morphometry have not been adequately studied. All of the thalassaemic patients between 7-12 years of age, registered in thalassemia center of Muğla Hospital, were studied. Height, weight, head length, head width, head height, head circumference, face height-width, nose height-width of 25 patients (12 male, 13 female) and control group were measured. BMI (weight/height<sup>2</sup>) index were calculated and compared with standardized percentile curves of BMI for children. It should be mentioned that the

observed difference between patients and control subject is statistically significant ( $p < 0.005$ ) some parameters.

#### P47

### Investigation of cranial morphometric measurements in 0-12 months old babies

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This study was planned to examine the head development of babies of 0-12 months. 100 babies (52 female, 48 male) applying to District health Center of Mugla were studied. Body weights of baby, heights and measurements of head (head length, head height, head width and head circumference) were properly measured. Data were evaluated with SPSS 11.0 program. A positive correlation was indicated between age and ratios of growth in baby period. As a conclusion, we believe that the consideration of the information obtained in our study would be helpful in the evaluation of babies for cranial dysmorphogenesis.

#### P48

### Navigation for percutaneous repair of the ruptured Achilles tendon: Anatomical study of the posterior part of the ankle joint

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This study aims to navigate the surgeon regarding the localization of the main anatomical structures at the posterior part of the ankle joint, in order to find easily the safest anatomical landmarks with reference to the neurovascular structures, in particular for percutaneous repair of the ruptured Achilles tendon. The study was carried out on 22 legs of 11 adult cadavers fixed in 10% formaldehyde. In all specimens we examined the posterior ankle in 5 different zones and noted (1) the width, length and the localizations of the Achilles, flexor hallucis longus, flexor digitorum longus, tibialis posterior, fibularis longus and brevis tendon, the distance between the Achilles and (2) the sural nerve, (3) the small saphenous nerve, (4) the tibial nerve, (5) the malleolar arteries. All the measurements were made in relation to the lateral-medial malleolus axis and the talocrural joint and the results were compared statistically. The results were as follows: In 77.3%, the sural nerve was located in Zone 2 and in 90.9% the tibial nerve in Zone 4. According to our study, the risk of neurovascular injury is maximal in the 2.0 cm lateral and 1.7 cm medial and 2.8 cm deep to the Achilles tendon. No statistical significance was found between the measurements made in relation to the malleoli and the talo-crural joint. Knowing the exact localization of the anatomical structures under the guidance of the defined anatomic zones may provide a safer percutaneous surgery.

#### P49

### The development of muscular layers in the wall of fetal urinary bladder during the fetal period

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In our study, the development of muscular layers in the wall of urinary bladder was investigated during the fetal period.

This study was performed on 130 human fetuses aged between 9-40 weeks of gestation. At first, the bladder was removed from its localization in the pelvic cavity. Then, the specimens were obtained from anterior wall of body of bladder. After the routine histological procedure of the specimens, the obtained specimens were embedded in paraffin. Serial 5  $\mu$ m sections were taken from the paraffin blocks and sections were stained with hematoxylin-eosin. Thicknesses of total wall, longitudinal and circular muscular layers were measured and the development of these layers was evaluated in the light microscope.

When the data were evaluated, there was no significant difference between sexes for the parameters ( $p > 0.05$ ). All parameters were increasing with gestational age ( $p < 0.001$ ). In the first trimester, 33% of the cases had two-

layered muscular structure and 67% of the cases had three-layered muscular structure. 86% of the cases in the second trimester and 97% of the cases in the third trimester had three-layered muscular structure. All cases had three layers in the full term. While the percentage distribution of two layered cases was decreasing, the percentage distribution of three layered cases increased through the full term.

#### P50

### The symmetrical features of foramen ovale and foramen rotundum in human dry skulls

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The rotundum and ovale foramina are crossed by maxillary and mandibular nerves, respectively, and are the nerves most affected in Trigeminal Neuralgia (TN). Previous anatomical and radiological studies have shown that entrapment of the maxillary and mandibular nerves when they cross the ovale and rotundum foramina is a primary cause of TN.

The goal of this report to define size range for rotundum and ovale foramina and to determine in which paired foramina asymmetry is commonly found. For this study, 45 dry skulls were randomly selected from the collection of the University of Gaziantep, The Faculty of Medicine, Anatomy Department. The first examiner used a dividers and a compass to measure foramina. Values were recorded by second examiner. The size and asymmetry were determined.

The results were summarized that:

#### Foramen ovale (mm):

	average	largest	smallest
Left	5.9x3.2	8.0x3.2	4.6x2.1
Right	6.7x3.5	8.7x4.3	4.6x2.1

#### Foramen rotundum (mm):

	average	largest	smallest
Left	2.2x2.0	3.3x3.3	1.1x1.1
Right	2.4x2.2	3.6x3.5	1.2x1.1

The difference greater than 0.5 mm in size of ovale foramina in 18/45 (40%) skulls were observed. We found the foramen rotundum consistently symmetrical. The difference in size was  $> 0.5$  mm in 6 of 45 (13%) skulls. When foramen ovale asymmetry existed the right was more likely to be wider side (14/18 [78%]). As right ovale foramina were, right rotundum foramina were wider in 4/6 (67%) skulls. Based on these findings we thought that the left side of the face may be affected more often than right side for TN. However, this condition may vary depending on population, origin, and/or sex.

#### P51

### A complex variation of branches of the femoral artery

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The femoral artery, a continuation of the external iliac artery, begins behind the inguinal ligament, midway between the anterior superior iliac spine and the pubic symphysis, descends along the anteromedial part of the thigh in the femoral triangle and becomes the popliteal as it passes through the adductor canal, an opening in the adductor magnus near the junction of the middle and the distal thirds of the thigh. Its first 3 or 4 cm is enclosed, with its vein, in femoral sheath. It is the main artery blood supplier of the lower limb. The arteria profunda femoris, is the largest branch of the femoral artery and is the main artery to the thigh. The medial and lateral circumflex femoral arteries, which are branches of the arteria profunda femoris, supply the thigh muscles and the proximal end of the femur. During our routine dissection course for students, we found a complex variation of branches of the femoral artery's on

the right side of a 65-year-old male cadaver fixed in 10% Formaldehyde. The arteria profunda femoris (width; 5.3 mm) originated from femoral artery after 38 mm to the inguinal ligament. The medial circumflex femoral artery (width; 6.2 mm) was arised from posterior side of the femoral artery after 17.1 mm to the inguinal ligament. The lateral circumflex femoral artery (width; 6.2 mm) was originated from lateral side of the femoral artery after 47.3 mm to the inguinal ligament and it was divided into ascending, transverse and descending branches after 50.9 mm. It is essential knowing the course and variations of femoral artery and its branches because of the clinical importance to avoid complications during surgical approaches.

## P52

### The assessment of the orbital surface of the maxilla on dry skulls

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Nasal bone, zygomatic bone, mandible are frequently affected from facial traumas. Besides, frontal bone and maxilla are involved to more powerful facial traumas. Maxillary fractures usually occur due to traumas on the antero-posterior direction. The impactions affecting the eye may cause the fractures on the orbital surface of the maxilla, named as “blow-out” fractures. These type of fractures usually tend to occur on the thin sections of the bone. During reconstruction of blow-out fractures, autografts, alloplastic materials and special-designed metal plates can be used to restore lining and orbital support. The knowledge about the thickness and the area of the orbital surface of the maxilla is crucial during applications of the materials aforementioned. In the study, the thickness and area of the orbital surface of the maxilla were measured.

Sixty maxillae of 30 adult dry skulls of West Anatolian people were measured. Three sagittal lines were created between the lateral border and medial border of the orbital surface and; four horizontal lines were created between the posterior border of the lacrimal groove and the posterior border of the orbital surface. After establishing the lines, the thicknesses on the intersection points of these were measured by using a caliper sensitive to 0.01 mm. The area of the orbital surface of the maxilla was measured by stereological methods. Any relation between the thickness and the area was evaluated by Pearson correlation test.

The thickness map of the maxilla was prepared depending to the data obtained after measurements. The thinnest point of the bone (h4s2: 0.60±0.36 mm) was the intersection of sagittal line passing from infraorbital foramen and horizontal line passing from the most posterior border of the orbital surface. The thickest point (h1s1: 2.36±1.61 mm) was on the anterolateral corner of the orbital surface. When the statistical correlation between the thicknesses and the area measurement of the orbital surface of the maxilla was assessed, no correlation was existed.

This data showed the thickness and the area of the orbital surface is very important on selecting dimensions of autografts, like cartilage or bone; alloplastic materials, like silicone sheet or expanded-polytetrafluoroethylene (Medpor®) during reconstruction of the orbital floor following the traumas. The thickness map obtained from this study may help to the surgeons on the reconstruction of the orbital surface of the maxilla.

## P53

### Evaluating hand morphology and hand performance in boxers

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An individual's genes and genetic structure affect the development and differentiation of the hand. External factors and occupational factors are believed to affect not only the morphology of the hand, but also its performance. This study evaluated hand morphology and performance

in boxers. Thirty-nine male boxers participating in a national university boxing tournament and 42 age-matched male controls participated in the study. Hand length, hand width, third finger length, and palmar length were measured using a digital compass with a resolution of 0.01 mm. The shape index, digit index, and palmar length/width ratio were also assessed. Grip strength and finger-tapping tests were used to evaluate hand performance. The independent samples test and Pearson correlation analysis were used for statistical analysis. The right hand shape index and grip strength for both hands of boxers were significantly higher than those of the control group ( $p<0.05$ ). The right hand single-finger-tapping test results were significantly higher in boxers ( $p<0.05$ ). There were no significant differences between the study groups for the left hand single-finger-tapping test and right and left hand double-finger-tapping tests ( $p>0.05$ ). There was a moderate, positive, significant correlation between right grip strength and right hand length, hand width, and third finger length in boxers ( $p<0.05$ ). There was a strong, positive, significant correlation between left grip strength and left hand width ( $p<0.05$ ) and a moderate, positive, significant correlation between left grip strength and third finger length ( $p<0.05$ ) in boxers. These results may bring insight into the relationship between the morphology and functional aspect of the hand in future studies in different sports.

## P54

### The variations of vertebrobasilar arterial system: A preliminary study

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The vertebrobasilar arterial system (VBS) is formed by branches of vertebral (intracranial part) and basilar arteries. VBS shows a great deal of variations in the populations. In this preliminary study, variations of VBS were investigated on human cadavers in Afyonkarahisar region.

Twenty brains obtained from human cadavers were included in this study to investigate VBS of the brains. Some morphometric measurements such as width of vertebral (VA), basilar (BA), superior cerebellar (SCA) and posterior cerebral (PCA) arteries, as well as angle and positions of vertebrobasilar junction were recorded. Results are presented as mean±standard deviation. Also, variations were examined and photographed.

We found that the mean widths for VA were 2.63±1.18 mm (left) and 2.46±0.56 (right), width for BA was 3.39±0.84 mm, widths for SCA were 1.27±0.36 mm (left) and 1.15±0.37 mm (right), widths for PCA were 1.61±0.59 mm (left) and 1.34±0.46 mm (right). Except two cadavers, the position of VBS junction for all cadavers was inferior to the medullopontine sulcus with mean value of 4.9±0.7 mm in distance. The mean value for angle of the VBS junction was 56.67±23.570. Left VA predominated in 80% cadavers. Also, many variations such as anterior inferior cerebellar artery (AICA) originated from VA (10%), two descending anterior spinal arteries (ASA) without any communication on medulla (15%), unilateral origin of ASA (10%) and very thin PCA (10%) or VA (20%) were observed.

These results show that since there is a great deal of variations in VBS in such a small number of samples, we hope to confirm these findings on 200 or more cadavers. This should contribute to the clinical sciences immensely.

## P55

### Portal placements in the safe zone during ankle arthroscopy: A cadaveric study

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Neurovascular injury may occur during ankle arthroscopy. The majority of the complications were neurological injuries however vascular injuries do exist.

Neurovascular structures are especially vulnerable during portal placement and debridement of anterior structures.

Routine anteromedial and anterolateral portals were generally accepted to be safe different from anteroventral portal which is associated with higher risk of injury. However injuries may occur in these relatively safe portals. The purpose of this cadaver study was to examine other relatively minor

neurovascular structures such as medial and lateral malleolar arteries and to determine how these portals can be more safely placed.

The distance between standard anteromedial, anterolateral portals and the medial and lateral malleolar arteries were measured in 18 ankles of 9 cadavers. These distances varied with the position of the ankle during portals placement and measurements were obtained in both flexion and extension.

The average distance in flexion and extension were 6.41 - 2.47 mm in lateral side and 4.73 - 1.58 mm in medial side. The distances significantly increase with ankle flexion and decrease with extension ( $p < 0.005$ ).

The current study demonstrated that there were other minor vascular structures at risk other than anterior tibial artery and proper positioning of the ankle during portal placement and injury risk may be associated with ankle position.

Ankle flexion may decrease the risk of damage to malleolar arteries and decrease minor vascular complications such as postoperative bleeding and hematoma.

#### P56

##### **A case of iliolumbar artery originating from common iliac artery and its clinical relevance**

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Iliolumbar artery is usually the first branch of the posterior division of the internal iliac artery and ascends laterally anterior to the sacroiliac joint and lumbosacral nerve trunk. Iliolumbar artery may be injured as a result of pelvic trauma or iatrogenic traumas, and may cause major bleedings. The precise knowledge of the origin of the iliolumbar artery, its relationship with L5-S1 intervertebral disc, and the area it supplies are important for the surgeons during far-lateral approach to vertebra or iliac flap preparation for vascularized bone grafts. Ascending lumbar vein and iliolumbar vein must be both identified and protected during surgery of this area. Although variations of ascending lumbar vein and iliolumbar vein have been reported, literature describing the origin of iliolumbar artery or its relation to vertebra is lacking. In this case report, a rare variation of iliolumbar artery and its relation to important anatomic landmarks are reported.

During routine anatomical dissections in the laboratory of Department of Anatomy in Dokuz Eylül University Medical Faculty, it was noticed that right iliolumbar artery was originated from common iliac artery in a male cadaver fixed with formaldehyde. There was no such variation in the left iliolumbar artery. The iliolumbar artery in this case was originating from common iliac artery at the level of L5-S1 disc 15.7 mm proximal to the bifurcation, and continued in the lateral direction. Diameter of the artery at the origin was 3.6 mm.

We think that, the described variation of the iliolumbar artery and its relation to L5-S1 disc is important during surgical approaches to this area and traumatic hematoma formation.

#### P57

##### **Volumetric changes on the distal part of humerus in male handball players**

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In sportsmen, intensive athletic training affects not only muscles and tendons but also the bone tissue. Handball is a physically demanding sport which probably imposes the highest impact and weight on skeleton and especially in handball players movements like dribbling, pass and shoot that are made with dominant extremity related to mechanical loading and bone mass increasing. The aim of this study is to determine if the mechanical loading during pass, shoot and dribbling make a morphological change on the distal part of humerus.

The handball playing group consisted of 15 male handball players (mean age 20.47±4.29) playing handball for about 8.66 years, training for about 12 hours a week in last 3 years. The control group consisted of 15 male non-active

sportsmen (mean age 20.47±4.29). Anthropometric determinations (height, weight, limb length, girth of arm and forearm) were made on each subject. Comparative plain films of both elbows were obtained in an anteroposterior projection. The volumes of the medial epicondyle and lateral epicondyle in comparison with the distal end of humerus were determined by the principle of Cavalieri which is an effective stereologic volume calculation method.

In this study, the handball players were taller and their lower and upper extremities were longer and arm and forearm circumferences were thicker than those from the control group. The medial epicondyles on left and right arms of the handball players were bigger than that of the control group. In our study, we evaluated that the reason of increasing volume of the medial epicondyle in the handball players is related to mechanical loading that emerges as the result of strains of the flexor muscles upon bone structure during playing handball.

#### P58

##### **Volumetric determination of medial epicondyle and lateral epicondyle of humerus in male basketball players**

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In sportsmen, intensive athletic training affects not only muscles and tendons but also the bone tissue. Intensive athletic training causes new bone formation and it causes bones to get strong by increasing the density of bone. The aim of this study was to assess the volume of the medial epicondyle and lateral epicondyle in comparison with the distal end of humerus volume in male basketball players.

The basketball player group consisted of 15 male (age range, 18-27); training for about 4 hours/week. The control group consisted of 15 non-active male (age range, 20-29). Anthropometric determinations (height, weight, limb length, girth of arm and forearm) were made on each subject. Comparative plain films of both elbows were obtained in an anteroposterior projection. The volumes of the medial epicondyle and lateral epicondyle in comparison with the distal end of humerus were determined by the principle of Cavalieri which is an effective stereologic volume calculation method.

In the basketball players, increased medial epicondyle volume was recorded in the dominant and non-dominant arms as compared with the control subjects. But it wasn't meaning statistically. In conclusion, the differences in volume of medial epicondyle in comparison with the distal end of humerus can be related to the type of loading the skeleton undergoes while playing basketball. Because the flexor muscles originating from medial epicondyle active by smashing, dribbling and shoot during playing basketball.

#### P59

##### **The course of axillary nerve underneath the deltoid and reliable landmarks of its distal part in respect of shoulder surgery**

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Deltoid is a muscle that is occasionally used in the surgical approaches to shoulder and surrounding structures. Axillary nerve lying under deltoid can be injured during these approaches. Our object in this study was to establish the route on the surface corresponding to the course of axillary nerve under deltoid, so to minimize the risk of axillary nerve injury in procedure aimed at shoulder and proximal part of humerus. The dissections were carried out on 20 cadavers upper extremities embalmed with 10% formaldehyde.

The horizontal plane passing through anterolateral corner of acromion was admitted as a reference plane. The vertical distances from the axillary nerve to this plane at the point which anterolateral and posterolateral corner of acromion and middle point of lateral edge of acromion were measured by digital caliper (60.93 mm, 67.87 mm, 63.17 mm respectively). The angle between the nerve and the horizontal plane was established (32.15°). After axillary nerve leaved the quadrangular space, it was seen that the nerve curved upward around the humerus underneath deltoid. Therefore the safe area on the deltoid is getting lessen while coursing anteriorly. It was established that the nerve was directed to the coracoid process, and this is

a new description that can be easily keep in mind. This data will assist to surgeon interested in shoulder surgery.

#### P60

##### A high division of sciatic nerve

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The sciatic nerve (SN) is the largest nerve in the body and usually divides into the common peroneal and tibial nerves at the junction of the middle and lower thirds of the thigh. Several variational pattern of the SN have been described in relation to the piriformis muscle. The high division of the SN was observed in 60 years old male cadaver during the routine teaching dissections in the Anatomy laboratory. The SN was divided into two terminal branches in following point which was 83.1mm from its origin. Its diameter was 15.5 mm. The point of origin of the SN was determined between the ischial tuberosity (62.1 mm lateral) and the greater trochanter (70.1 mm medial). The anatomical variations could lead to sensory, motor and trophic disturbances in the areas innervated by the SN and therefore the anatomical knowledge of the SN individually should be well considered for muscular injection to this region due to such variations.

#### P61

##### A rare case of distal one-third of the transverse colon supplied by a branch from splenic artery

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In a 78-year-old, Turkish male cadaver, a variation of a branch of the splenic artery was observed during the routine dissection in the laboratory of Anatomy Department of Medical Faculty of Kocaeli University. Along the course of the splenic artery, an artery was given off from distal segment of the splenic artery. It ran inferiorly in front of cauda of pancreas and renal vein toward the area of the distal transverse colon. This artery was accompanied with the inferior mesenteric vein. The splenic artery continued to the hilum of the spleen after giving this branch. Embryologically distal part of the transvers colon is a segment of hindgut. In this case, splenic artery, which is an artery of foregut supplies an area of hindgut. The sites of origins of hindgut and foregut arteries on the aorta are different and far away from each other during development. The variation in the branching of the splenic artery might be due to the abnormal migration of these arteries or abnormal fusion among these primitive arteries. The knowledge of splenic artery variations has significant importance during surgery of the organs of the upper abdominal region. Awareness of variations of splenic artery during surgery would help to minimize vascular complications. In advertent transection of the splenic artery during splenectomy or pancreatectomy may cause postoperative bleeding or necrosis of the transverse colon. On the other hand, the numerous and uncertain nature of the vascular supply make splenic vessel preservation technically challenging in pancreatic surgery.

#### P62

##### The intracapsularly ligament variation of the first metatarsophalangeal joint

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In a patient who was operated for hallux valgus in Gaziosmanpasa University Medical Faculty, Research Hospital, by Department of Orthopedics and Traumatology, an intracapsularly located ligament in the first metatarsophalangeal joint has been detected. The intracapsular ligament was dorsomedially attached to the head of the first metatarsal and to the inferior part of the articular face of the base of the proximal phalanx of big toe. In the literature we could not find any report of a ligament located intracapsularly in this particular joint. It may be a matter of investigation if such a variation has got a role in the etiology of hallux valgus. We supposed that this extra ligament on 1st MTP joint might have been caused to hallux valgus in this case.

#### P63

##### Extensor hallucis longus tendon variation in a case of hallux rigidus

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Hallux rigidus is a condition caused by degenerative arthritis of the first metatarsophalangeal joint and characterized by pain and limited dorsiflexion of the great toe, but relatively unrestricted plantar flexion. In a patient which was operated for hallux rigidus in Gaziosmanpasa University. Medical Faculty, Department of Orthopedics and Traumatology, it was also seen that the extensor hallucis longus muscle has got two tendons. In our case the extra tendon has been inserted to medial side the capsule of the first metatarsophalangeal joint and also to medial side of the base of the proximal phalanx of right hallux. In the literature, it has been reported that this muscle has got two tendons by approximate percentages ranging between 27% and 80%. The extra tendon has been named as the accessory tendon or extensor hallucis capsularis. Although in some studies coexistence of this variation with hallux valgus has been noted, coexistence of this tendon variation with hallux rigidus has not been reported before. The exact role of the extra tendon on the biomechanics of first metatarsophalangeal joint is not clear enough and necessitates further investigation. In addition to knowledge of the variational existence of an extra tendon has been found useful, since it can be used in the correctional operations of hallux varus cases.

#### P64

##### Evaluation of “ground reaction forces” on stairs

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The aim of this study is to see if there are differences in ground reaction forces during stair descent and stair ascent. Five females and five males (mean age for females 19.8±0.84 and for males 20.4±2.2) participated in our study without any walking disorders. They ascend and descend a four-step model wooden stairs wearing boot-like shoes with insoles. Ground reaction forces received from the four part of the foot; posterior (heel), medium, anterolateral and anteromedial for both foot and for all steps of the stairs. Three trials were taken and the clearest one was chosen for the evaluation. Fmax and Tmax values are used for the comparison. Fmax values were normalized with body weight for the statistically calculations. The differences between the females and males were tested with Man-Whitney U test. Kruskal–Wallis test was applied to test the differences between the steps. There are no statistically significant differences between females’ and males’ steps during stair ascent and descent. Fmax and Tmax values between stair ascent and descent were statistically different. Comparison of the steps showed differences only in fmax3 during ascent and in tmax3 and tmax4 for descent. As a conclusion “Ground Reaction Forces” show similarities between females and males but it has differences between ascent and descent.

#### P65

##### Evaluating the relationship between hand morphology and grip strength

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The human hand is an extremely important organ that is specialized for grip and sensation. This makes the hand irreplaceable, and the subtlest instrument of work, as well as a sensory organ. The grip is the act of taking some object, tool, or instrument in the hand and keeping a firm hold on it. This can involve using the entire hand or individual fingers. Grip and pinch strength measurements provide objective indices of the functional integrity of the upper extremity. This study evaluated the relationship between hand morphology and grip strength in 633 individuals (343 male, 290 female) aged between 18 and 42 years (22.11±2.07). Hand length, hand width, third finger length, and palmar length were measured using a digital compass with a resolution of 0.01 mm. Shape index, digit index, and the palmar length/width ratio were also assessed. A hydraulic hand dynamometer (Baseline) was

used to measure the grip strength of the individuals while sitting with the elbow in 90° of flexion and the forearm in semi-pronation on an armrest. The mean value of three trials was used. Pearson correlation analysis was used to compare the hand grip strength with the anthropometric measurements and indices. There was a strong, positive, significant correlation between grip strength and hand length, hand width, third digit length, and palmar length for both hands ( $p < 0.05$ ). There was a weak, positive significant correlation between grip strength and shape index for both hands ( $p < 0.05$ ). There was a weak, negative, significant correlation between right grip strength and the palmar length/width ratio ( $p < 0.05$ ). There was a weak, negative, significant correlation between left grip strength and left digit index and palmar length/width ratio ( $p < 0.05$ ). These results may bring insight into the relationship between the morphology and functional aspects of the hand in a Turkish population.

#### P66

##### Ultrasonic measurement of BPD and head circumference during normal pregnancy in Sulaimani women

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Transabdominal ultrasonic measurement of the biparietal diameter (BPD) and head circumference was studied on fetuses of 1040 normal different pregnant women from Sulaimani population in Iraq.

The study aimed to have data baseline of these parameters since these show racial differences, for this purpose weekly measurements for BPD 7 head circumference were measured from 15<sup>th</sup> week of gestational age till 40<sup>th</sup> week with the effect of maternal age on the above fetal parameters was studied. The results show that there was a positive correlation between the gestational age and the two parameters. There was a linear significant increase in both parameters from 15<sup>th</sup> till 40<sup>th</sup> week of gestational age, the results showed a lower measurement than those internationally depended measurements. No effect of maternal age was detected on the two parameters.

#### P67

##### Radioanatomical analysis of vertebral column diameters at level L3-S1 in symptomatic and asymptomatic patients with CT

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Various diameters of the vertebral canal are measured at the levels of L3-L4, L4-5 and L5-S1 on CT scans of 100 symptomatic cases and it was revealed that disc hernias were present in 5.79%, 52.17%, and 42.02% of the cases at the levels of L3-L4, L4-L5, and L5-S1, respectively, and radiculopathies were more prevalent in the middle age group. Comparing the measurements of the patients with those of the control group comprising 40 healthy cases showed that the diameters of the vertebral canal were significantly little and therefore compression of the spinal nerves were more common. Further, we found that the sagittal diameters were less than 10 mm in 4 cases. When we compared the diameters of the vertebral canal between males and females among symptomatic groups, except at certain levels, no significant results were obtained.

#### P68

##### Morphometric evaluation of proximal and distal ends of the fibula concerning the fractures of caput fibulae and malleolus lateralis

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Usually fractures of fibular shaft may be appeared as stress fractures or with tibial shaft fractures. A ruptured fracture (avulsion) may be seen as a result of knee injuries at the proximal end of the fibula. The proximal end is important as an attachment site for ligamentum collaterale fibulare, musculus biceps femoris and musculus peroneus longus. Weber distal fibula fractures that are

seen at the malleolus lateralis in distal end are important when trauma was done at ankle.

The purpose of our study is to make morphologic and morphometric evaluation of proximal and distal ends of the fibula in terms of properties that should be taken into consideration for fixation of fractures and screw applications.

In this study, 82 dried fibula bones were measured at the Department of Anatomy, Dokuz Eylül University Faculty of Medicine. The parameters of proximal and distal ends of the fibulae contain morphologic and morphometric evaluations. In these measurements, length of the fibula was made by ruler that is sensitive to 1 mm, and the other morphometric measurements were made by a digital caliper that is sensitive to 0.01 mm and its mark is Mitutoyo. Each parameter was evaluated statistically and Pearson method was used to correlate the relations of parameters.

The mean length of the fibula is  $350 \pm 2.2$  mm, mean height of caput is  $36.06 \pm 6.20$  mm, mean value of circumference of caput fibulae is  $77.60 \pm 5.80$  mm, mean value of width of caput fibulae is  $26.89 \pm 2.67$  mm, mean value of height of apex fibulae is  $8.53 \pm 2.50$  mm, mean value of circumference of collum fibulae  $32.31 \pm 2.91$  mm, mean value of length of malleolus lateralis is  $32.31 \pm 2.91$  mm, and mean value of width of malleolus lateralis is  $25.18 \pm 2.05$  mm.

When the surface shapes of apex were evaluated, we saw that 22 of them (64.70%) were conic, 12 of them (35.30%) were prismatic.

The angle between the long axis of apex and caput was evaluated at 40 fibula. 47.50% of them is right angle (90°), 50% of them is wide angle (>90°), 2.5% of them is acute angle (<90°).

The shape of facies articularis capitis fibulae was evaluated at 48 fibula. It is triangle in 35.42%, spherical in 52.08% and quadrangular in 12.5 % of them. Correlation coefficients among these measurements were evaluated. According to Pearson correlation test, there are largest and positive relations between the length of the fibula and the width of malleolus lateralis; between the width of caput fibulae and the circumference of collum fibulae; and between the width of caput fibulae and the width of malleolus lateralis. These relations are statistically significant ( $p < 0.05$ ).

We think that morphologic and morphometric evaluations of caput fibulae and malleolus lateralis contribute to fixation of fractures and screw applications.

#### P69

##### Levator clavicular muscle in a male gymnast: A rare variation

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Levator clavicular muscle is an infrequently recognized variation in humans, occurring in 2% to 3% of the population, and has rarely been reported in the radiologic or anatomic literature.

During the physical examination of an adult male gymnast with a history of pain and tenderness at the right supraclavicular region, a mass was detected on the middle 1/3 of the superior border of the clavicle. Adson and Roos tests were positive.

USG and MRI revealed an independent muscle mass separated from the related muscles with its own fascia.

Sagittal, coronal, and axial MR scans confirmed the presence of a well-defined superficial mass. It is concluded that the mass represents a levator clavicular (cleidocervical) muscle.

The presence of a cervical muscle variant, such as the levator clavicular muscle, is of clinical importance regarding to its close relationship with neural and vascular structures.

#### P70

##### Anthropometric parameters of newborns and young infants in Latvia: Comparison between genders and with data of 1996

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There are several biases in the society regarding anthropometric data of young generation. The most common one says newborns nowadays are much bigger and grow up much faster than it was before. This statement is used as an excuse for or explanation of different medical conditions, e.g., increase of cesarean section rate or early development of metabolic disorders in children. Having data from a similar study performed 10 years ago (already in the last century) we wanted to compare them with data in our study. Are newborns today really different?

As a part of a longitudinal study there were performed anthropometric measurements of 503 newborns (256 girls and 247 boys) in the Riga Maternity hospital and 403 infants from the same group in one month of age. We performed 17 different anthropometric measurements and compared them in gender groups. Six of them (body weight, length, arm length, shoulder width, head and chest circumference) we compared also with the results of a similar study, performed in the same location 10 years ago. Data were processed by the means of SPSS/PCT software. Normally distributed data were compared by independent T-test and significance level of 0.05 was considered significant.

Newborn boys have significantly higher anthropometric results than girls ( $p < 0.05$ ), except two measurements of face: morphological height of face and distance of arcus zygomaticus mandibulae. Infants of 1 month continue to show gender differences in almost all the parameters, the only non-significant differences are length and width of anterior fontanel.

Comparing data with the results of year 1996, mean values are very close and mostly even lower. Larger standard deviation in our study could be explained by the sample size (2.5-fold higher in our study). We did not find any statistically significant differences between the results of both studies.

Boys have significantly higher body weight and size of different anthropometric parameters both at the time of delivery and 1 month of age. Anthropometric data of newborns and infants of 1 month have not changed significantly during the last ten years.

**P71**

#### Eysenck's theory and ischemic pain threshold

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Pain as a sensory emotional, subjective and private experience of discomfort is one of the most important topics in human health and also neuroscience. A great deal of research has been directed towards identifying psychological factors, such as introversion and extroversion of Eysenck's and pain. So our primary and the main aim of this research was to study personality characteristic and ischemic pain threshold.

By multi stage cluster sampling of Tehran universities, 100 students (50 female, 50 male) have selected from Iran medical Science University, Faculty Of Rehabilitation. After testing by (EPI), introverts and extroverts samples ischemic pain threshold measured. Results analyzed by parametric statistical methods.

There was significant difference between introverts and extroverts ischemic pain threshold.

This study consistently showed that personality characteristics affect the reports of pain. Extroverts had higher level of pain threshold than introverts.

**P72**

#### Blood supply variability of terminal ileum, vermiform appendix and caecum

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Description of normal blood supply of the most complicated intestinal part from the architectonic point of view was performed.

28 macroscopic preparations were made, 18 angiograms were studied, 16 samples of various parts of colon for Indian ink injections and 11 samples for corrosion cast (Mercox) were harvested both from section and peroperatively gained material, rinsed with saline and injected. New terminological terms were proposed.

Terminal ileum is one of the most poorly supplied parts of the intestine. So-called avascular Treves' area between colic branch of ileocolic artery and last ileal branch of superior mesenteric artery should not be considered unblooded anymore. Ileocolic arcade (74%) is the most highlighted arterial structure of the ileocolic artery. Various types of branching, exact points of arterial beginnings and their percentual presence are mentioned considering all main branches of the ileocolic artery and right colic artery. Clinical consequences (possible places of more frequent pathological lesions) are discussed. Microcirculation study revealed no significant local differences.

Vascular pattern of ileocaecal junction is very variable and could be a cause of possible more frequent incidence of intestinal diseases in this area (e.g. Crohn's disease).

**P73**

#### Proposal of the new Czech anatomical terminology

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Terminologia Anatomica (TA), published in 1998 by the Federative Committee on Anatomical Terminology (FCAT), founded in 1989 in Rio de Janeiro (Brazil) published in 1998, is the latest revision of anatomical nomenclature. FCAT recommended a revision of national anatomical terminologies in relation to TA to all national anatomical societies. First Czech words relating to body parts used in literature are to be traced back in in works of Claret. First true dictionary of medical and anatomical terms is *Vocabularium Latinoheemicum Posoniense* (14th century). Otomar Völker and Karel Hora wrote only one part of intended Czech anatomical text book in 1939. Most important post-war authors are Rudolf Linc and Jaroslav Fleischmann who richly used Czech expressions between 1959-1979. Last contribution to this topic was that by Josef Zrzavy *Latin-Czech Anatomical Nomenclature* from 1985, reflecting the 4th Edition of *Nomina Anatomica*, published in Tokyo (Japan) in 1975.

The Czech Anatomical Terminology has not yet been accepted officially by the Czech Anatomical Society. This work presents a full suggestion of the official Czech anatomical terminology which will be submitted to the Czech Anatomical Society (CAS) to discuss it, then to professional medical societies to be reviewed and when successful, finally back to CAS to be authorized. The database comprises 7512 Latin terms with their Czech proposed equivalents.

**P74**

#### Radiographic parameters of acetabulum among asymptomatic subjects from central area of Serbia

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The aim of this investigation was to examine normal acetabular morphometry and sex differences in acetabular morphology, among asymptomatic subjects without structural change, from the central part of Serbia.

We analyzed plain radiographs of 340 normal adult hips (180 men and 160 women) of various parameters to evaluate the radiological characteristics of the acetabulum including the centre edge angle of Wiberg (CEA), acetabular angle of Sharp (AA), acetabular depth (AD), acetabular roof obliquity (ARO) and roof angle (RA), and also to verify the rate of acetabular dysplasia.

The following mean measurements for acetabulum geometry were obtained: CEA±SD 33.7±6.5° (33.9±5.8° - male, 33.5±6.9° - female), AA±SD 38.1±3.8° (37.5±3.6° - male, 38.7±3.9° - female), AD±SD 11.9±2.8 mm (12.5±2.7 mm - male, 11.2±2.7 mm - female), ARO±SD 7.7±5.7° (6.2±4.9° - male, 9.2±6.0° - female) and RA±SD 18.5±10.0° (19.8±8.5° - male, 17.2±9.5° - female). There were significant differences in the CEA, AA, AD, ARO and RA related to gender ( $p < 0.01$ , t-test). The CE angle was negatively correlated with acetabular angle and acetabular obliquity, but it was positively correlated with acetabular depth and roof angle. The rate of acetabular dysplasia (CE angle < 20°) was 2.1%.

We confirmed the existence of significant gender differences, among the subjects of our study, for all examined anatomical parameters of acetabulum.

These sex-related differences in acetabular morphology were the cause for more dysplastic female acetabulae, compared with male acetabulae.

#### P75

### Application of stained blood cells for differentiating arteries and nerves in cadaver

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Demonstration of the functional arteries for the first year medical students in the dissection room is very important. But the problem is after fixation of cadaver with formalin and other preserved materials, the arteries will be empty and fixative material will be in place of blood, thus arteries will be colorless and the recognition of the arteries from the nerves will be difficult for the students.

The aim of this study was to stain the arteries and differentiate them from the nerves in cadaver by an easy method such as stained blood cells.

The whole blood cells (packed cells) was initially treated with 1% glutaraldehyde solution, washed with PBS, and then was stained by safranin. Amount of 10 ml of the stained blood cells was injected into internal iliac artery of the cadaver.

The injected stained blood cells into internal iliac artery made the well differentiated of the internal pudendal arteries from the pudendal nerves as well as the inferior rectal artery from the inferior rectal nerve.

The preparation and injection of the stained blood cell into arteries is a good method that could be applied for all medical and dental students for easy learning of the functional arteries.

#### P76

### Is morphine use effective in preventing atherosclerosis in animals on normal and high-cholesterol diet?

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Studies have shown that opioid peptides and exogenous opioids such as morphine have important effects on the cardiovascular system. Today, the opioid system is being considered as a therapeutic target receptor for reducing myocardial ischemia through inhibiting the G protein. Opioid addiction, on the other hand, is one of the major challenges facing humanity today and the truth about opium use and its effects on the cardiovascular system are often misted by wrong beliefs. Hence, the effect of an exogenous opioid (morphine) on the development and progression of fatty streaks in hypercholesterolemic rabbits was investigated in this study.

The rabbits were randomly divided into four groups (five in each group): normal, normal + morphine, high-cholesterol, and high-cholesterol + morphine.

Biochemical parameters including total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), high-density lipoprotein cholesterol (HDL-C), malondialdehyde, triglyceride (TG), fasting blood sugar (FBS), quantitative C-reactive protein (CRP), coagulation factor VII, fibrinogen, platelet count, RBC count, WBC count and hemoglobin were measured at the start and end of the study. Pathological studies were conducted on the right and left coronary arteries of the animals to look for evidence of fatty streak formation.

The results showed that morphine administration along with a normal diet led to a significant increase in levels of cholesterol, coagulation factor VII, and fibrinogen, while enhancing fatty streak formation in the right and left coronary arteries ( $P < 0.05$ ). Morphine administration along with a high-cholesterol diet also significantly increased levels of coagulation factor VII, platelets, and weight of rabbits ( $P < 0.05$ ). However, it had no effect on fatty streak formation in the right and left coronary arteries.

This study demonstrates that morphine use increases the risk of cardiovascular diseases and atherosclerosis.

#### P77

### Study of parathyroid glands of 100 cadavers in medical law center

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This study is about parathyroid glands in 100 cadavers; so we research about their position and morphology of this glands (weight, length, width, etc.) in medical law center and results are these:

Weight of gland 29 mg till 52 mg and total mean is 44.21 mg. Mean weight in female samples is 44.5 mg and male samples is 44.21 mg. In 100 samples, 86% of samples have 4 glands and 14% have 3 glands. Mean number of glands in females was 3.86 and in males was 3.84 and there were not one or two parathyroid glands.

The width of parathyroid glands was 2 mm in 60% of samples and 3 mm in 30%. The length was 3 mm in 21% of samples and 28 mm in 4% of samples; in 41% of samples the length of the gland was 6 mm. All of glands were in posterior surface so 76% of them were below inferior thyroid artery and 15% above of artery and 9% were in thickness of tissue. Superior parathyroid glands were constantly of inferior parathyroid glands and inferior parathyroid glands has more variation; maybe they were in posterior, lateral, above or superior of the inferior thyroid artery so numbers and anatomical position of this glands is very important for surgery of thyroid gland, because omit of them maybe caused temporary or permanent physiologic disorders.

#### P78

### A rare case of musculocutaneous nerve

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Knowing the variations of the brachial plexus is of high importance during the surgery of axilla for surgeons. A rare case was observed in the left upper limb of a 55 year female cadaver, during the routine dissection in Medical School, Rasht.

In this case the musculocutaneous nerve which normally arises from the lateral cord of brachial plexus, originated from median nerve. Without perforating coracobrachialis muscle, the nerve was located between biceps brachii and brachialis muscles and innervated them.

Then, it pierced the deep fascia just below the elbow and extends as lateral cutaneous nerve of forearm. The nerve of coracobrachialis muscle was a branch that directly isolated from lateral cord and entered into the muscle.

#### P79

### The effect of ethnic factor on cephalic index and head shape in 17-20 years old females in Northern Iran

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Cephalic index and head shape are affected by geographical, gender, age, racial and ethnic factors. This study carried out to determine cephalic index and head shape in 17-20 years old females in Gorgan, Northern of Iran.

This descriptive and cross sectional is undertaken on 410 normal 17-20 years old female (Turkman group: n=203, Fars group n=207) study was done on 200 male native Fars by classic cephalometry in Gorgan – north of Iran.

Means and SD of cephalic index was  $85 \pm 4.5$  and  $82.8 \pm 3.6$  in native Fars and Turkman groups, respectively. Dominant and rare type of head shape in native Fars group were hyperbrachycephalic (53.6%) and dolichocephalic (15%) and in Turkman group were brachycephalic (58.1%) and dolichocephalic (0.05%), respectively.

With noticing of our results and other studies in the world, we can conclude the role of ethnic factors on head dimensions.

#### P80

### Anatomical sites of arterial injury in the extremities: A review of 75 cases

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The incidence of vascular injury has increased worldwide. In an attempt to quantitate the specific arteries most commonly involved in the extremities, we re-viewed 75 patients with extremity trauma who were evaluated with angiography (DSA, digital subtraction angiography). The majority of these injuries were related to motor vehicle accidents (93.3%). The mean age of these patients was 28.16±11.14 years, 94.7% of these patients being male. The ratio of upper to lower extremity arterial trauma was 12 to 86. A total of 99 arterial injuries were detected angiographically. Simultaneous injuries to two and three extremity arteries were identified in 13.3% and 9.3% of patients respectively. The most common arteries injured were the anterior tibial, femoral, peroneal, and popliteal arteries. Associated fractures were present in 86.7% of patients. These data may prove useful to the clinician who evaluates post-traumatic injuries of the extremities.

#### P81

##### **Unilateral multiple variations in the radial artery: A case report with clinical significance**

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During a dissection of both upper extremities, multiple variations in the origin of the radial and median arteries were found. On the right side, the brachial artery bifurcated to radial and ulnar arteries in the arm. The radial artery descended medial to the biceps brachii muscle. In the cubital fossa, the radial artery passed deep to the bicipital aponeurosis and located in the lateral side of the forearm. In the proximal end of the first intermetacarpal space, it gave off a branch for deep palmar arch but the main trunk of the artery continued toward the first interdigital space and divided into two branches that together with branches of the median artery formed an anastomosis ring. Because the upper extremity is a frequent site of injury, various surgical and invasive procedures are performed in this region; consequently, it is important to be aware of arterial variations.

#### P82

##### **Anato-physiological of ischemic arm pain threshold and tolerance in female students who are in their first/second half of their menstrual cycle and male students**

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The response of every person to pain is different in addition, some anatomical and physiological conditions, such as sex and mood of the cases can be effective in pain sensation. We measured the threshold and tolerances of ischemic arm pain in a total of 35 female students in first/second half of their menstrual cycles and male students. Our results show that there are significant differences in pain threshold and tolerance between male students and female students who were at their second half of menstrual cycle, while no significant differences are found between male subjects and female students who are at their first half of menstrual cycle. The arm ischemic pain occurs when the blood supply to the arm is blocked by suppressing the brachial artery. On the other hand, when the median nerve that passes into the arm anterior to the brachial artery is pressed in this way, it can be responsible for some of primary symptoms, such as insensibility and paresthesia of the arm. Our studies showed that ischemic pain mechanism in male and female students is similar to each other, although, it seems that the phase of menstrual cycle of female as a distinctive effect on this mechanism. So, the release of some chemical substances such as prostaglandin at the second half of this cycle, maybe responsible for increase of nociceptors sensitivity and decrease of pain threshold and tolerance.

#### P83

##### **Teaching and learning anatomy: Experiences from South Africa**

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In recent years, modern trends in education and an explosion of information has led many institutions, both nationally and internationally, to rethink their approach to teaching medicine. These trends have had a drastic impact on the subject of Anatomy, with continuous pressure being applied to condense curricular, decrease contact hours and increase throughput. In addition, a global shortage of anatomy educators and cadaver resources and concerns about the health of the student has resulted in the quest for new techniques of teaching. This study aimed to survey the current mode of teaching anatomy at South African medical schools.

A questionnaire was circulated to the eight Heads of Anatomy departments teaching medical students in South Africa. The questionnaire aimed to obtain information on curriculum changes since 2000, the number and qualifications of academic staff and student numbers.

Of the eight questionnaires circulated, four were returned. All four of these institutions employed vertical and horizontal integration of Anatomy in the medical program. Anatomy teaching is largely practically based. The number of students enrolled for Anatomy in the medical curricula ranged from 110 to 240. The staff:student ratio in the dissecting/practical laboratory ranged from 1:25 to 1:>35. In general, the institutions did not find difficulty in attracting suitably qualified staff.

It is evident from this survey that South African medical curricula are undergoing rapid changes. In light of this and the global trend of assessing teaching methodology, it is imperative that anatomists step back and reassess their role in training potential doctors in South Africa.

#### P84

##### **The assessment of melatonin in intestinal ischemia reperfusion in rat**

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The aim of this study was to determine the effect of melatonin, a hormone which secreted from pineal gland and is known as an antioxidant and free radical scavenger, on the protection of tissue damage mesenteric ischemia – reperfusion (I/R). A total of 36 young male wistar-albino rats (weighting 80-120 g) were divided equally in to 6 groups with variant concentration of melatonin (10, 20, 30 mg/kg) respected treatment. Group 1 was control. Group 2 was sham that surgical process was applied until superior mesenteric artery (SMA) dissection and received vehicle solution only in equal volume also by intramuscular way. Group 3 was I/R, group 4 was I/R plus melatonin 10 mg/kg, group 5 was I/R plus melatonin 20 mg/kg, group 6 was I/R plus melatonin 30 mg/kg. After laparotomy, a microvascular atraumatic clip was placed across the superior mesenteric artery (SMA) under general anaesthesia, and it was removed after ischemia for 30 minutes. The first dose of melatonin was applied intramuscularly just before reperfusion, the second dose was applied just after reperfusion, and the third dose was applied on the second day intramuscular way. On the third day of the experiment all of rats were killed, and their bowels were removed. Histopathological analysis and malondialdehyde (MDA) levels, as an index of lipid peroxidation were assayed. The levels of tissue MDA were found to be significantly lower in group 4 with group 3 ( $p<0.05$ ). There was significant difference in histopathological analysis of group 4 with group 3 ( $p<0.01$ ). These results suggest that melatonin has antioxidant effect in preventing intestinal ischemia reperfusion (I/R) damage.

#### P85

##### **Anthropometric cranial and facial measurements comparing with body growth of normal children in Southwest of Iran**

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The aim of this study was to determine normal anthropometric indices by measuring head length and head width and comparing these data with

the data obtained from the measurement of body growth in children aged between 7 to 12 years.

The study has been carried out on 200 normal subjects 116 males and 104 females. Cranial and body measurements which consisted of height, width, length, and circumference were made for each subjects. Standard deviation, averages and percentages for three growth patterns: cranial, facial and body growth were calculated by using SPSS for windows and comparing these patterns for final analysis.

Skull and face measurements increased less than the body dimensions, but those for the face increased more than for skull, which was valid both for males and females. Differences between male and females were determined for standing height mandibular height and lower facial height. In none of the subjects was found a significant growth in craniofacial data during the period of 7 years of their lives. The development of mandible showed higher as the number of the year increased. The set of anthropometric measurements of the head and face regions in the population studied providing valuable range of data that urgently needed for medical professional for to treat congenital or post traumatic facial disfigurements in members of these children.

#### P86

##### About a very rare variation of the vertebral artery and incomplete circle of Willis

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This study reports important variation in branches of the subclavian artery in a cadaver. The origin of the left vertebral artery was from the subclavian artery but on the right side no vertebral artery was found.

So the circle of Willis was incomplete in right side. There is no communicating branch between middle and posterior cerebral arteries but some variation in the branches of this circle was seen.

An awareness of this rare variation is important because this area is used for diagnostic and surgical procedures.

#### P87

##### The effect of substance “GM-AL iksir” on morpho-functional conditions of pancreas under alloxan diabetes

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Experiments were carried out in 162 white inbred rats with average weight 120-150 g. “GM-AL iksir” (1.0 ml) in overall dosage of 10 and 15 ml/kg were administered orally after 30 days of induction of experimental diabetes.

Results show, that GM-AL iksir has the decreasing effects of blood glucose rate and restoring morphological and functional conditions of pancreas. Early periods of treatment (from 3 to 15 days) were characteristic of lessening inflammatory process of pancreatic exocrine and endocrine areas. Significant alterations occurred in hemocirculatory bed in terms of decreasing of excessive blood flow.

From day 30 to day 60 of investigation, the restoration of pancreatic tissue structures is continued. Lumen of microvessels is restored to the normal size.

In later periods of investigation which lasts to 60-90 days, the significant morpho-functional reorganization of pancreatic tissue structures is occurred. Quantity of capillary vessels increased and the diameters of lumen of microvessels became comparatively similar to the control measurements. These alterations are characterized within particular dynamics regarding the severity of disorders and long term morbidity of diabetes mellitus.

Thus, the treatment with “GM-al iksir” showed enough effectiveness to the restoration of endocrine and exocrine function of pancreas. Moreover this substance has the strong angioprotective effects.

#### P88

##### Osteogenic index, gross and skeletal abnormalities in the embryo of treated mice with *Lavandula officinalis* and phenytoin: A comparison between herbal and chemical therapy of epilepsy

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Synthetic drugs have been widely used by people during the recent decades. As these drugs have many side effects, people tend substitute a new alternative including herbal medicine. The present study was to provide a scientific basis for traditional use of *Lavandula officinalis* in epilepsy and its probable congenital defects in comparison with the phenytoin as an antiepileptic synthetic drug. One hundred female and fifty male BulbC mice, which were sexually matured, were kept at a standard condition. Then two female and one male mouse were put in a cage. The observation of the vaginal plug in the female mice was considered as pregnancy. The pregnant mice were divided into 4 groups, two experimental and one negative control and one positive control groups. Group one, remained untreated and received equal volume of distilled water (2 ml/kg) as negative control and group two received the same volume of olive oil as solvent. Group three received 800mg/kg essential oil and group four-60mg/kg phenytoin.

The essential oil and phenytoin both reduce the weight and CRL index but the decrease of the essence on these parameters was less than phenytoin. Therefore, *Lavandula officinalis* seems to be safer than phenytoin. The congenital defect like skin, ocular and limb abnormalities were observed mostly in the treated groups whereas, the partial cleft palate, cleft vertebrae and micrognathia were observed with the least incident. With the comparison between different congenital defect and treatment, the results showed that the phenytoin caused more defect than *Lavandula officinalis*. The essential oil showed less length and ossification index reduction in comparison to phenytoin treatment.

It can be concluded that herbal remedy with *Lavandula officinalis* can be used to prevent the seizure epileptic with less congenital abnormalities in pregnant women.

#### P89

##### Integrated and comprehensive study of the pelvis using multimedia technologies

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Problems associated with the injuries of the pelvis would include “early” problems as fractures of the pelvis, rupture of the organs located their, injury of vessels associated with bleeding, lesion of neurogenous structures including the vegetative plexus and postoperative infections. After resolving the “early” problems and a seeming cure, the patients may face disorders of the continence of urine and stools, persisting pain and disorders of the sexual functions. Therefore it is necessary to consider carefully the potential consequences of the injury of the pelvis as early as during the primary treatment. Based on this finding, we have established CISP, allowing the students to study the pelvis as a functional unit requiring a multi-disciplinary approach to the therapeutic process. An educational program has been developed using the multimedia concept that comprises modules focused on both developmental and acquired diseases of the orthopedic, urologic, neurological and surgical nature, the interlinkage of which allows students to get a comprehensive picture of the problems of injuries in the region of the pelvis. Final tests will assess both the quality and quantity of the information acquired by students during the study. The educational process offers also the possibility of transmission of surgeries from operating theaters. An integrated approach to the injuries of the pelvis incorporated in the pregraduate education will contribute to a comprehensive therapeutic approach of physicians to this type of injury in the clinical practice.

#### P90

##### Practical training of mini-invasive methods in the educational center for anatomy and endoscopy (ECAE) in Prague

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Within the current efforts to find out the most considerate way for diagnostic examinations and for definitive care of patients, mini-invasive surgical techniques of operations are assuming ever greater importance. Endoscopic methods are applied in various fields of modern medicine, particularly in the surgical disciplines (laparoscopy, arthroscopy, thoracoscopy etc.) and the noninvasive disciplines (bronchoscopy, gastroscopy, FES etc.). The importance of training and acquisition of skills in endoscopy and mini-invasive methods is quickly increasing. In the period of 2000-2005, a unique multimedia centre for training in endoscopic surgery was established at the Department of Anatomy of 3rd Medical Faculty of Charles University in Prague. The centre provides conditions for repeated usage of cadavers embalmed by special method for simulation of mini-invasive surgery. Several arthroscopies of the knee, the shoulder and the wrist, laparoscopies of the abdominal cavity, bronchoscopies and gastroduodenoscopies have already been demonstrated here during dissection courses for medical students. In addition, educational courses have been introduced in the same fields for young physicians allowing them to gain experience in arthroscopy and endoscopy on specially embalmed anatomical material. The centre offers new possibilities in the practical training in mini-invasive surgery as a whole.

#### P91

##### **Correlation between craniofacial cephalometric indexes and intelligence in schoolchildren in Iran-Ahwaz 2005**

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The anthropology is the branch of biological sciences that estimates the quantitative measurement of different parts of the body. The cephalometry is concern with the anatomical index of head and face respectively. The human brain mostly develops in the embryonic period and continues to growth with higher speed in first 6 years after birth. The complicating of nervous system still have some questions and that's, what is the intelligence? What is the relation between craniofacial indexes, brain volume and weight, and intelligence? In this study we tried to find the relationship between these items.

This cross-sectional study has been done on 1057 samples (560 males and 497 females) in preschool students, in Iran-Ahwaz city. The samples have been collected randomly with convenient sampling. The maximal cranial length, maximal cranial breadth, auricular height, and circumference of the head, bizygomatic breadth and facial length were measured with the necessary equipments. Then, the brain volume and weight, cephalic and facial indexes were calculated. For determining the intelligence of samples, we have used Raven Children Test (Psychometric Test No.1) and used SPSS for windows, T test and other programs for statistical evaluation.

Relationship between craniofacial indexes and intelligence was not significant especially in girls. The mean measurement of head circumference in the girls was 1 cm less than the boys. The mean measurement of the brain volume in the boys was 141.4 cm<sup>3</sup> greater than the girls. The difference between the brain volumes was significant ( $P < 0.001$ ). The mean of intelligence in girls was more than in the boys.

According to our finding the brain volume in the boys was greater than in the girls, but the intelligence in girls was slightly more than in the boys. It seems that's the intelligence had no relationship with craniofacial indexes and other factors may affect the intelligence.

#### P92

##### **Effect of ascorbic acid on the right and left coronary arteries of male rabbits fed with high cholesterol diet**

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Atherosclerosis and cardiovascular diseases are the most common cause of death in the western countries. The useful effect of ascorbic acid on various organs has been reported. The present study was undertaken to determine the effect of ascorbic acid on the right and left coronary arteries of male rabbits fed with high cholesterol diet.

Twenty white male rabbits (mean wt: 950 gr.) were weighed and then divided randomly into two groups. For 40 days, group 1 (n=10) was given a high cholesterol diet (1%), group 2 (n=10) was fed with a high cholesterol diet and ascorbic acid (100 mg/kg). Then both groups were weighed and the animals were sacrificed. The right and left coronary arteries were dissected then fixation, tissue processing, histological sectioning and H-E staining were carried out and samples were studied by light microscopy. The results were analyzed by SPSS software and Mann-Whitney test.

The results indicated that group 2 which received ascorbic acid showed no fatty streaks in coronary arteries as compared to group 1. Significant differences in mean weight was also observed before and after the diet in both groups ( $p < 0.05$ ).

Histopathological study of the coronary arteries showed that the rabbits which had received ascorbic acid diet did not develop fatty streaks as compared to those which had received high cholesterol diet. Thus ascorbic acid demonstrated that can significantly inhibit the formation of fatty streaks and can prevent atherosclerosis by countering the negative effects of a high fat meal.

#### P93

##### **Detailed anatomy of five parts of the sternocleidomastoid muscle**

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According to the classical definition in textbooks, sternocleidomastoid muscle consists of the sternal and clavicular portions. It is also stated by some authors that sternocleidomastoid muscle has five parts as the superficial (SMs) and deep (SMd) parts of sterno-mastoid, sterno-occipital (SO), cleido-mastoid (CM) and the cleido-occipital (CO). In this study, the parts of sternocleidomastoid muscle were dissected bilaterally in six cadavers. The relationships of the parts with each other and the variations of its attachments were evaluated. Also, the widths of the parts and the "trigonum supraclaviculare minor" dimensions were measured. Main findings were as below: The deep parts of the sternal and clavicular portions were always uniting and then attaching to the mastoid process. The superficial and deep parts of the sternal portion, which were continuous with each other on the medial margin, were giving the impression that a single muscular mass was folded onto itself. At the origin, it was observed that the sternal portion was always thick and narrow (16.30±3.99 mm), whereas the clavicular portion was always thin and wide (24.18±6.63 mm). When compared with the other parts, the superficial part of the clavicular portion was showing more variations in terms of width and the attachment site. The attachment of the SMs, SO and CO, from anterior to posterior, were on the tip of the mastoid process and the superior nuchal line while the CM and SMd were always attaching to the tip of the mastoid process deep to those of the others. The SO, the narrowest part, was generally inserted to the superior nuchal line by uniting with the CO at the upper third of the muscle. In one case, the SO and CO were united and then inserted to the superior nuchal line away from the SMs bilaterally. The "trigonum supraclaviculare minor" was bilaterally absent in two cases and unilaterally in one case at the right side. However, the split between the sternal and clavicular parts was occupied only by fascia. In one case, the supraclavicular nerve was reaching the punctum nervosum by passing between the CO and CM.

Consequently, knowing that the sternocleidomastoid muscle consists of 5 parts and the muscle fibers in each part are lying in the same direction from origin to insertion in the same fascial package may be important for harvesting the muscle flap. Thus, it would be possible to choose more appropriate muscle parts.

#### P94

##### **Linear dimensions of the upper sacrum**

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Upper sacrum is an important part of the connection between the sacrum and pelvis and this is subjected to a large amount of stress with certain activities. Morphologic analysis of the upper sacrum is important for the treatment of significant degenerative diseases, severe spondylolisthesis, burst fracture, spinal deformities, metastatic diseases, or proper screw placement. The present study was designed to determine the morphometry of the upper sacrum. The measurements were performed on 20 adult human dry sacral bones of unknown age and sex obtained from Turkish population. The measured parameters included width and length of sacrum, sacral index, the largest width of S1 vertebral body, the largest width of ala, the vertical diameter of auricular surface and width and depth of upper sacral canal. The associations were investigated by using nonparametric Spearman's Test.

Regarding to results of this study; width and length of the sacrum were  $11.05 \pm 0.77$  cm and  $9.84 \pm 1.04$  cm, giving a mean sacral index of  $1.13 \pm 0.1$ . The largest width of S1 vertebral body was  $4.77 \pm 0.77$  cm. Right and left largest widths of ala were found to be  $4.06 \pm 0.57$  cm and  $4.13 \pm 0.56$  cm, respectively. The vertical diameter of the auricular surface was  $5.72 \pm 0.54$  cm on the right side and  $5.76 \pm 0.47$  cm on left side. Width and depth of upper sacral canal were  $2.71 \pm 0.4$  cm and  $1.32 \pm 0.36$  cm, respectively. There was significant positive relation between the width of sacrum and the length of sacrum, the largest width of S1 vertebral body, the largest width of ala, the width of upper sacral canal ( $0.454 < r < 0.685$  and  $p < 0.001$ ). Detailed morphometric analysis of sacrum will help in the planning of surgical intervention involving the upper sacral area safer and easier.

#### P95

##### Location of supraorbital, infraorbital and mental foramina in young Turkish adults

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The location of the supraorbital, infraorbital and mental nerves can be predicted by palpating the supraorbital foramen/notch, infraorbital foramen (IOF) and mental foramen (MF). These nerves are sensory nerves that require anesthetizing for operations in dentistry, plastic surgery and ophthalmology. The aim of this study was to determine the precise and easy location of supraorbital foramen (SOF), IOF and MF by palpation in young Turkish adults.

Measurements were taken from 105 young adults (55 female, 50 male) aged 19-32 years. The distance from SOF to nasal midline (NM), the distance from IOF to maxillar midline (MxM) and the distance from MF to mandibular midline (MnM) were measured using caliper. The position of the SOF and IOF were graded from I to V according to their relations with the roots of the maxillar teeth while MF was graded by its relations to mandibular teeth. The following classification system was used: I, level of the first premolar; II, between the premolars; III, level of the second premolar; IV, between the second premolar and first molar; V, level of the first molar.

The distances from SOF to NM were 37.7 mm; 42.8 mm, the distances from IOF to MxM were 35.3 mm; 39.2 mm, the distances from MF to MnM were 29.8 mm; 34.3 mm in females and males, respectively. SOF was most frequently positioned at level II; IOF most frequently at level I (left) and at level II (right); and finally MF; most frequently at level II (left) and at level I (right), in both sexes.

These results may be useful for local anesthetic planning and certain operations.

#### P96

##### Location of mandibular foramen and shape of mandibular lingula in dry adult human mandibles

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Present study was undertaken to determining the location of mandibular foramen and frequency of shape of mandibular lingula. The location of

mandibular foramen (MF) and shape of mandibular lingula (ML) are important for orodental surgery because of their relation to the inferior alveolar nerve. Measurements were made on both side of each of 55 dry adult human mandibles. The distance from MF to anterior, posterior, superior and inferior border of the mandibular ramus (MR) were measured using caliper while mandibles were classified by their shape into 3 types: 1, assimilated; 2, truncated; 3, triangular.

As a result of this study, the distance from MF to anterior border of MR were 17.9 mm; 17.3 mm, to posterior border of MR were 14.2 mm; 14mm, to superior border of MR were 18.6mm; 17.7mm, to inferior border of MR were 31.7mm; 31.5mm on the right and left sides, respectively. The distance of MR to third molar tooth was 25mm in right, 24.6mm in left. Length of ML was 9.1mm in right, 9.3mm in left. Assimilated lingulae were found in 32.7%, 27.3%; truncated in 34.5%, 25.5%; triangular in 32.7%, 47.3% in right and in left, respectively.

The results of this study, may guide surgeons and dentists for surgical procedures and local anesthesia of this region.

#### P97

##### Palmar dermatoglyphics features of healthy youngs

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Dermatoglyphic traits have been shown to be genetically determined, and different between and within population groups. Dermatoglyphic features are used as important data in diagnosis of some genetic diseases, psychiatric disorders and rheumatologic diseases. There are numerous reports dealing with disease which cause differences in dermatoglyphic traits but only a few reports are available regarding to racial differences. The aim of this study is determine some of palmar dermatoglyphic features in healthy young people.

In presented study, the sample consisted of 100 Turkish young adults, 50 female and 50 male aged between 19 and 32 years. Digital photographs of the hands were obtained and angles of "atd", "adt" and "dat" were analyzed in photographs with Image J software. Angles can be established between the triradius at the base of the index finger (a), the proximal axial triradius (t), and the triradius at the base of the fifth finger (d). These are called the atd, adt and dat angles.

As a result of this study, in females atd, adt, dat angles were found to be  $50.5^\circ$ ,  $71.5^\circ$ ,  $58^\circ$  in left;  $50.6^\circ$ ,  $72^\circ$ ,  $57.4^\circ$ , in right, respectively. In males atd, adt, dat angles were found to be  $53.3^\circ$ ,  $69.6^\circ$ ,  $55.7^\circ$ , in left;  $53.7^\circ$ ,  $69.7^\circ$ ,  $56.4^\circ$ , in right, respectively. Left and right atd angles were significantly lower, but adt and dat angles were significantly greater in females than males ( $p < 0.05$ ).

As a consequently of this study, we believe that these results are useful for evaluation of racial differences, genetic disease and some psychiatric disorders.

#### P98

##### Absence of extensor indicis with three headed biceps brachii muscle

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Extensor indicis muscle normally begins from the posterior side of ulna and interosseous membrane. This muscle ends near the index finger on extensor aponeurosis. Absence of extensor indicis muscle is rarely identified. In our department, during routine student dissection in 2005-2006 term, absence of extensor indicis muscle in left extremity was observed in 82 year-old man cadaver. In the same case and same extremity, it was also observed that biceps brachii muscle had three heads. The third head of biceps brachii muscle was originating from middle anterolateral part of humerus. After joining each other, all three heads of biceps brachii muscle were ending on the radial tuberosity and bicipital aponeurosis. Existence of three headed biceps brachii muscle was reported in previous studies. However, in our literature searching we couldn't find any case including the absence of extensor indicis and three headed biceps brachii muscle in the same cadaver and the same extremity. Therefore, we think that knowing the variations described in the present study

can be helpful for surgeons interested in diagnosis and treatment of possible pathologies related to this area.

**P99**

### The innervation pattern of the brachioradialis muscle: Clinical implications

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The brachioradialis muscle is dissected in tendon-transfer procedures. Special attention should be given to avoid damage to the branches of the nerve, which may result in a loss of innervation to the distal part of the transferred brachioradialis muscle. In this study, 40 normal formalin-fixed cadaver arms were dissected to reveal the anatomy of the pattern of the radial nerve branch entry into the brachioradialis muscle. The muscle-entry point of the radial nerve to the muscle ranged from 72.4 mm proximal to 34 mm distal to the lateral epicondyle (average at 20.2 mm proximal to the lateral epicondyle). A single primary branch was found in 24 (60%), two primary branches in 12 (30%), and three primary branches in 4 (10%), specimens. On the basis of the results of our study, a considerable variability is present in the number and distribution of the extramuscular branches of the radial nerve and care should be taken in surgical procedures involving the dissection of the muscle proximal to 40 mm distal to the elbow, to avoid damage to the extramuscular branches of the radial nerve to the brachioradialis muscle.

**P100**

### Normal values of breast volume in young Turkish women

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The women breasts are the most prominent superficial structures of the anterior thoracic wall, overlying the pectoral muscles. In the lateral plane, its base extends vertically from second to sixth rib and it extends transversely from the parasternal region almost to the mid-axillary line at the level of fourth costal cartilage. The female breast undergoes dramatic changes in size, shape and function in association with infantile growth, puberty, pregnancy, lactation, and postmenopausal regression. The aim of this study was to investigate the normal values of breast volume and its relation with age and Body-Mass Index. In this study the breast volume was measured with the Grossman-Rounder devise in 96 unmarried Turkish female volunteers (age range 18 to 30). Results showed that mean right and left breast volumes were 281.9±71.2 cc and 277.8±71.1 cc, and there were no statistically significant (student T-test) differences between right and left breast volumes. There were positive correlations between the mean breast volume and Body Mass Index ( $r=0.324$ ,  $p<0.05$ ), and negative correlations between the breast volume and age and when the age increased, the breast volume decreased ( $r=-0.244$ ,  $p<0.05$ ). The negative correlation was also found between Body-Mass Index and age ( $r=-0.213$ ,  $p<0.05$ ). The multiple linear regression analysis (Backward elimination method) showed that only Body-Mass Index affected the breast volume when the breast volume was taken up as a dependent variable, age and Body-Mass Index were independent variables.

**P101**

### The relation of sulcus nervi radialis with the fracture line of humerus and radial nerve injury

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Radial nerve is closely contacting with the bone in the anatomic groove placed on the middle line of humerus which is called sulcus nervi radialis (SNR). In this study; we aimed to examine if humerus fractures of this region increases the probability of the radial nerve injury. The ratio of “the distance that SNR takes on humerus corpus” to the humerus length and the distance between SNR and proximal and distal anatomic points were measured in our Anatomy department on 57 dry humerus bone according to the method that Ay et al. described. The mean values of these data were calculated. Standard

X-ray films of the dry bones were taken and measurements were repeated at the same anatomic reference points to assess the accordance of the dry bone measurements with radiological film measurements. It was seen that there was accordance. The cases of treated humerus fractures in our orthopedic department were calculated retrospectively; 23 cases whose radiological film techniques were available were involved in the study and their measurements were made at the same anatomic reference points. Of the 15 cases which had radial nerve injury, only 5 cases had fractures of SNR region. Of 8 cases which had no radial nerve injury, 3 cases had fractures of SNR region. As a result; radial nerve injury rate was 33.3% of the fractures of SNR region. We concluded that fractures of SNR region don't increase the risk of radial nerve injury.

**P102**

### Quantitative analysis of angle between occipital condyles in dry skulls

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Occipital condyle is an important anatomic structure connecting the cranium and the vertebral column. Craniovertebral surgery requires a detailed knowledge of the morphologic features of occipital condyle. The purpose of this morphometric study is to measure the angle between occipital condyles in humans.

Using a goniometer, 55 dry skulls (from 34 male and 21 female), providing 110 occipital condyles were studied quantitatively. The angle between long axes of right and left condylus occipitalis, which ends on posterior tip of concha nasalis inferior were investigated.

The average value of the angle in this study was 60° (range, 50° to 66°) in male and 57° (range, 50° to 64°) in female. In the present study, there has been a significant difference in terms of the mean values of the angle between both occipital condyle in each dry skull ( $p=0.007$ ).

It is concluded that the occipital condyle may present various orientation, requiring a careful preoperative evaluation guiding surgical interventions.

**P103**

### Multiple variations in the vasculature of the brachial region

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Variation in the arterial pattern in the arm is common. In the present case abnormal branching pattern of the subscapular artery and the unusual course of the brachial artery in the brachial region were encountered during a routine dissection of a 45 years old male cadaver.

In the case, the deep brachial artery, the circumflex humeri anterior, the circumflex humeri posterior, the circumflex scapular and thoracodorsal arteries arose together from the subscapular artery as a common trunk. The brachial artery normally is a continuation of the axillary artery. It begins at the distal margin of the tendon of teres major, then runs downward and slightly laterally, and accompanies the median nerve, which crosses anterior to the artery in the middle of the arm to the cubital fossa. The median nerve was formed by the fusion of the two branches from the lateral and the medial cords of brachial plexus then lies over the brachial artery. In the present case the brachial artery has passed between the lateral and medial radix of the median nerve then has lied over the median nerve during its course. This variation may be clinically significant because symptoms of median nerve compression arising from similar variations are often confused with more common causes, such as radiculopathy and carpal tunnel syndrome in wrist region.

In our study we thought that the knowledge of these variations might give a contribution about to safe surgical procedure of the upper limb.

**P104**

### Observations on anatomical variations of foramen magnum and surrounding anatomic structures in Turkish adults

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Anatomic information upon the skull is increasingly important because of the advancements in neuroradiologic and surgical techniques. Specifically, recognition of anatomical variations of foramen magnum and surrounding anatomic structures is useful to distinguish normal anatomy from abnormal structures in clinical practice.

The purpose of this morphologic study is to determine various anatomic variations for the foramen magnum and surrounding anatomic structures so that researchers and clinicians are related with these structures may have an anatomical reference. In this study, a total of 69 dry skulls (from 30 female and 39 male) were studied and some anatomic variations regarding foramen magnum and surrounding structures were examined.

The condylar foramen was absent on the right side in 21 skulls (female 12, male 9) and on the left side in 16 skulls (female 5, male 11). In the dry skulls studied, the hypoglossal canals were divided into two by a bony septum located at the inner orifice of the canal on the right side in 19 skulls (female 12, male 7) and on the left side in 13 skulls (female 6, male 7), while it was divided into two by a bony septum located at the outer orifice of the canal on the right side in 6 skulls (female 3, male 3) and on the left side in 4 skulls (female 1, male 3). Among females, double septum was located at the outer orifice of the hypoglossal canals on the right side in 2 of 3 skulls, but in the remaining one it was located in the left side.

It is evident that recognition of the above mentioned anatomical variations could prevent confusion during radiological interpretations and surgical interventions directed to neural or vascular structures of craniovertebral junction.

#### P105

##### **Is the rabbit knee a suitable model for the human interphalangeal and metacarpophalangeal joints of the hand?**

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The purpose of this study was to assess the suitability of the rabbit knee as a small joint model of the hand.

The proximal joint surface areas of 47 middle phalanges, the proximal and distal joint surface areas of 90 proximal phalanges and the distal joint surface areas of 42 metacarpals of various cadavers were calculated together with the distal femoral and proximal tibial joint surface areas of 10 New Zealand White rabbits by a photogrammetric method.

The average joint surface area of the rabbit proximal tibia was larger than the proximal joint surface area of the middle phalanx ( $p < 0.001$ ), the distal joint surface area of the proximal phalanx ( $p < 0.001$ ), the proximal joint surface area of the proximal phalanx ( $p < 0.001$ ) and the distal joint surface area of the metacarpal ( $p < 0.001$ ). The average joint surface area of the rabbit distal femur was larger than that of the middle phalanx ( $p < 0.001$ ) and the distal proximal phalanx ( $p < 0.001$ ), but similar to the proximal joint surface area of the proximal phalanx ( $p > 0.001$ ), and that of the distal metacarpal ( $p > 0.001$ ).

According to the results of our study, we think that there is still a lack of an appropriate animal model for the small joints of the hand.

#### P106

##### **The morphometry of the coracoid process**

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In this study, because of the role related with the subcoracoid impingement syndrome, various morphometric measurements of the coracoid process were calculated. Study included total 80 dry scapulae which unknown sex and age that obtained from the Department of Anatomy at Cumhuriyet University and Erciyes University. Scapulae were classified as three group according to shape of the region between the coracoid process and glenoidal cavity. It

was observed that, as named Type I was spherical shape with 37.5%, Type II square shape was as 32.5% and type III was hook shape as 30% respectively. Length and thickness of the coracoid process and distance between the lateral border of the coracoid tip and nearest point of the anterosuperior margin of the glenoidal cavity, prominence of the coracoid tip beyond the plane of the glenoid was measured.

Statistical analysis evaluations showed correlation between the length and thickness of the coracoid process ( $r = 0.432$ ,  $P < 0.05$ ). In comparison of the right and the left scapulae, length of the coracoid process was observed more longer on the right scapula than the left, this finding was statistically significant ( $t = 2.11$ ,  $p < 0.05$ ).

#### P107

##### **Calculating of liver volume during pregnancy: A morphometrical study**

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Pregnancy induces numerous changes in the physiology of the woman. Those changes are necessary for the embryo and fetus to have a normal growth, and for the woman to adapt to that physiologic event. The aim of this study was to determine volume of livers in rats during pregnancy trimesters.

Pregnant rats were sacrificed on gestational days 6, 14, 20 and adult, female controls; at which time livers were removed for stereological analysis. Liver volumes were calculated with water immersion method and evaluated statistically.

Liver volume increased between 9.51 and 14.7 ml. In pregnant rats, liver volumes were estimated as 10 ml at 6th day, 12.4 ml at 14th day and 14.7 ml at 20th day. According to these results, liver volumes increased at a rate of 54% from controls to end of pregnancy. Statistical data shows that there is a significant increase in liver volumes in the pregnant rats, suggesting a hepatomegaly; especially after the second trimester.

This study shows that pregnancy made up a hepatomegaly demonstrated firstly by morphometric estimation methods.

#### P108

##### **Is heart size affected from pregnancy or not? A morphometrical study**

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In the literature, it was reported that cardiovascular alterations during pregnancy are characterized by an increased vascular volume, cardiac output, and heart rate, with a marked fall in vascular resistance. And also, cardiac output is about 40-50% higher during the third trimester. Even higher values of cardiac output are observed during uterine contractions in labor. In general, arterial blood pressure remains unaffected or demonstrates some tendency toward lower diastolic pressure. The higher blood volume is associated with a slight increase in left ventricular dimensions. Left ventricular contraction force and its first derivative remain unchanged. In the paper, was aimed to describe volumetric situation of heart during pregnancy.

For this purpose, pregnant and adult female rats were perfused with formaldehyde and hearts were removed at first, second and third trimesters. Volumes of heart were calculated with water immersion method and examined statistically.

Heart volumes in control and pregnant rats at the first, second and last trimesters were 1.59, 1.61, 1.60, 1.63 ml; respectively. In respect of these results, pregnancy caused to a small volumetric change on heart of pregnant rats at a rate of 1.2% ( $p > 0.05$ ). But there was not any statistical difference between heart volume of control and pregnant rats ( $p > 0.05$ ).

In summary, in current report; heart volumes were calculated in control rats and during pregnancy, but any significant difference was not found between these results, suggesting heart size was not affected from pregnancy.

#### P109

##### **Volumetric changes of lung in pregnancy: A morphometrical study**

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In summary, the major physiologic changes that occur in pregnancy are the increased minute ventilation, which is caused by increased respiratory center sensitivity and drive; a compensated respiratory alkalosis; and a low expiratory reserve volume.

We have developed a morphometrical method based on water immersion principle for estimating lung volumes in pregnant and control rats. Pregnant rats were sacrificed on gestational days 6, 14, 20 and adult, female controls; at which time livers were removed for stereological analysis. After perfusion fixation, the lungs were removed, immersed in water and lung volumes were calculated. Liver volumes were calculated with water immersion method and evaluated statistically.

The lung volumes in control and pregnant rats varied between 2.6 and 3.7 ml. In pregnant rats, lung volumes were estimated as 2.9 ml at 6th day, 3.5 ml at 14th day and 3.7 ml at 20th day. According to these results, lung volumes increased at a rate of 42.3% from controls to end of pregnancy. Statistical data shows that there is a significant increase in lung volumes in the pregnant rats, suggesting an increase in lung capacity; especially at the second trimester.

In conclusion, we have developed an efficient and unbiased method to determine the physiological effects of pregnancy in rat lungs.

#### P110

##### **Anomalies of foramen transversarium in cervical vertebrae**

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In our study, totally 300 cervical vertebrae were examined. The incidence of foramen transversarium anomalies which are related to osteophytes were determined as ratio. In according to our examination, we have not seen anomaly in atlas and axis bones. However, we determined bilaterally 10 double foramen transversarium and 5 double foramen transversarium unilaterally.

It may be seen developmental anomalies of crania-cervical region and cervical vertebrae in all ages. It is very important to be known and determined these anomalies for true approach in cervical neck surgery.

#### P111

##### **A common trunk of the deep femoral and the lateral circumflex femoral arteries: A case report**

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During our routine gross anatomy course dissections in 2005-2006 education year we found a common trunk of the deep femoral and the lateral circumflex femoral arteries on the right side of a 78-year-old male cadaver. The common trunk branched from the femoral artery 2.6 cm distal to the inguinal ligament. A muscular branch emerged from the lateral circumflex femoral artery to supply blood to the iliopsoas muscle. We investigated the literature and discussed the importance of this variation in clinical applications.

#### P112

##### **Double lateral circumflex femoral artery: A case report**

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During our routine gross anatomy course dissections in 2004-2005 education year we found double left circumflex femoral artery in a 56-year-old male cadaver. The first artery originated from the deep femoral artery and the second one from the femoral artery. The branching point of the second one was distal to the branching point of the deep femoral artery. We investigated the literature and discussed the importance of this variation in clinical applications.

#### P113

##### **Double left renal vein encircling the aorta (renal collar)**

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Double left renal vein is a rare venous anomaly. During our routine gross anatomy course dissections we found double left renal vein encircling the aorta (renal collar) in a 72-year-old male cadaver. In our case both of these veins were draining into the inferior vena cava from different points. The left suprarenal vein was draining into the anterior vein and the left testicular vein was draining into the posterior vein. As an additional variation, the right testicular artery was branching from the right renal artery. We searched literature and discussed the clinical importance of this variation.

#### P114

##### **An early muscular branch of the lumbar plexus**

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During our routine course dissections we encountered an early muscular branch of the lumbar plexus which innervated the iliopsoas and pectineus muscles in a 67-year-old male cadaver. Two branches from the anterior rami of L2 and L3 united together to form the muscular branch. The branch passed behind the inguinal ligament to reach the femoral triangle and innervated the iliopsoas and pectineus muscles. We searched the literature and discussed the clinical importance of the case.

#### P115

##### **A branch of the femoral nerve perforating the sartorius muscle**

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After passing behind the inguinal ligament the femoral nerve divides into its cutaneous and muscular branches. During our routine gross anatomy course dissections in 2004-2005 education year we encountered a branch of the femoral nerve which perforated the sartorius muscle during its course in 76-year-old male cadaver. The branch arose from the femoral nerve 2.3 cm below the inguinal ligament then reached to the vastus lateralis to innervate it. We searched literature and discussed the clinical importance of this variation.

#### P116

##### **Estimation of the volumes of nasal cavity and concha using stereological methods**

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Studies evaluating the mean volumes of nasal cavity and concha are very rare. Since there is little date on the mentioned topic, we aimed to carry out the presented study to obtain a volumetric index showing the relation between the nasal cavity and concha.

The volumes of the nasal cavity and concha were measured in 30 males and 30 females (18 to 40 years old) on computed tomography images using stereological methods.

The mean volumes of nasal cavity, concha nasalis media and concha nasalis inferior were  $5.95 \pm 0.10$  cm<sup>3</sup>,  $0.56 \pm 0.22$  cm<sup>3</sup>, and  $1.45 \pm 0.68$  cm<sup>3</sup>;  $7.01 \pm 0.18$  cm<sup>3</sup>,  $0.67 \pm 0.31$  cm<sup>3</sup> and  $1.59 \pm 0.98$  cm<sup>3</sup> in females and males, respectively. There were statistically significant differences in the volume of the nasal cavity and concha nasalis media ( $P < 0.05$ ) between males and females, except for concha nasalis inferior ( $P > 0.05$ ).

Our results could provide volumetric indexes for the nasal cavity and concha which could help the physician to manage the surgical procedure related to the nasal cavity and concha.

#### P117

##### **The morphometrical analysis of the proximal end of the ulna**

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Different fixation methods and devices are used for diaphyseal fractures of the ulna. The intramedullary fixation with Kirschner wire is primarily preferred in diaphyseal fractures of the ulna associated with soft tissue injuries.

In this study, the length of the ulna was measured and, the morphometric analysis of proximal region of the ulna was evaluated. Forty-two ulnas were measured with caliper and milimetric ruler. The mean length of the ulna on the left side and the right side were 250.2 mm, 242.8 mm, respectively. The mean width of the olecranon on the left side and the right side were 18.1 mm, 22.4 mm respectively. The mean distance from the nutritional foramen to the coracoid process on the left side and the right side were 77.6 mm, 71.5 mm, respectively.

It was concluded that obtained data from this study will be an important guide for determining the optimal entry point of the wire in the intramedullary fixation of diaphyseal fractures of the ulna.

#### P118

##### **Pronator quadratus muscle and the anterior interosseous nerve: Anatomic considerations**

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Wrist denervation procedure is an effective treatment for chronic wrist pain, which involves the resection of the anterior interosseous nerve (AIN) together with the posterior interosseous nerve. The anatomical variations of the AIN is important during this procedure to preserve the normal function of the pronator quadratus muscle for the reason that this muscle plays an important role in initiation of hand pronation. In addition, transfer of pronator quadratus branch of the AIN is performed in the repair of the thenar branch of the median nerve and the deep branch of ulnar nerve. This study was performed on 40 formalin-fixed cadaver forearms to reveal the anatomical variability of the AIN based on these two important clinical implications of the nerve. The muscular branches to the pronator quadratus muscle usually arose within the quadratus muscle. The distance of the origins of muscular branches from the anterior interosseous nerve trunk from the radiocarpal joint was 43.6±8.8 (min.24, max.69.8) mm. The average number of motor branches was 4.4 (2-7). We conclude that resection of the AIN at a point 7 cm proximal to the radiocarpal joint denervate the pronator quadratus muscle and a resection 2 cm proximal to the radiocarpal joint will spare most of the pronator quadratus branch and save the normal function of the muscle.

#### P119

##### **Anterior belly anomalies of the digastric muscle**

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In this report, two cases of anomalies in the digastric muscle that were found during routine dissection of the submental region are described. We observed bilateral and symmetrical abnormal anterior bellies of the digastric muscle of an 84-year-old male cadaver in the first case. A unilateral abnormal anterior belly of the digastric muscle with an accessory muscle bundle lying transversally between two anterior bellies of a 60 year old male cadaver were observed in the second case. In the first case, anterior bellies were attached to the mandible's digastric fossa but in the second case, they were originated from the base of the chin and from digastric fossae and were fused at the beginning. It is important to be aware of possible occurrences of such anomalies and should be considered during surgical and imaging procedures of the submental region.

#### P120

##### **Right hepatic artery originated from superior mesenteric artery**

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The common hepatic artery is the coeliac trunk's branch with left gastric and splenic arteries. The superior mesenteric artery may be the origin of the common hepatic, gastroduodenal, accessory right hepatic, accessory pancreatic or splenic arteries. The variation of the superior mesenteric artery was observed in 55 years old male cadaver during the routine teaching dissections. The left hepatic artery originated from the proper hepatic artery and supplied only the left lobe of the liver. The length and diameter of this artery were measured as 84.6 mm and 4.7 mm, respectively. The right hepatic artery was arisen from the superior mesenteric artery and supplied the right lobe and then cystic artery originated from this artery. The length and diameter of the right hepatic artery were 69.7 mm and diameter 5.3 mm and the length and diameter of cystic artery were 13.2 mm and 2.7 mm, respectively. The variation of the proper hepatic artery is often encountered as an important matter in liver surgery and radiological examination.

#### P121

##### **Vascular endothelial growth factor (VEGF) and nerve growth factor receptor (NGFR) in the mink liver**

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Vascular endothelial growth factor (VEGF) – which is also known as vascular permeability factors – is one of the most potent regulators of endothelial permeability. VEGF has been related to blood barrier disruption that is characterized by inflammation and increased vascular permeability.

Hepatic stellate cells (HSC) are responsible for hepatic fibrogenesis and the development of cirrhosis, under the direction of growth factors. The mechanisms regulating HSC apoptosis may include the interaction of NGF (Nerve Growth Factor) with its receptor (p 75) on HSC. Nerve Growth Factor binding to the low-affinity neurotrophin receptor p-75 might induce programmed death of HSC.

The aim of the study was examination of VEGF, NGFR p75, apoptosis and correlation between results in mink's liver with different level of steatosis and inflammation.

Cells were isolated from the liver tissue of mink at age of 7 months. We have used 12 examples of liver and analyzed for VEGF and NGFR expression by immunohistochemistry methods. The staining intensity for VEGF and NGFR was evaluated by three grades: strongly positive, weakly positive and negative. TUNEL was used to identify apoptosis of hepatocytes. The apoptotic cells were counted and results were expressed as mean±SD.

VEGF expression was mainly detected in periportal hepatocytes. As VEGF was intensively expressed in the best oxygenated zone we suggest, that VEGF possibly promotes proliferation of hepatocytes through reconstruction of liver sinusoids by proliferation of sinusoidal endothelial cells. However, there are also other opinion that only hypoxia stimulates the expression of VEGF.

We establish that in the liver tissues with intensively expressed apoptotic hepatocytes VEGF was not detectable, but in liver with only few apoptotic cells, distribution of VEGF was strong. These results about increase of VEGF may contribute the organ response to the injury and might be associated with the maintenance of homeostasis of sinusoids during steatosis of the liver.

NGF-p 75 was demonstrated in small number of HSC that correlated with expressed apoptosis in liver. Thus we suggested that NGF is expressed during liver injury possibly by hepatocytes and is associated with apoptosis of HSC.

VEGF expression in periportal hepatocytes and only in animals with beginning of apoptosis indicates the possible anti-apoptotic role of these growth factors in circumstances of non-changed oxygenation during the hepatic disorder with following suppression of VEGF expression and increase of apoptosis. NGFR p75 possess insignificant expression in liver during apoptosis that might be some adaptive compensatory response of hepatic stellate cells not only to the same apoptosis, but also to the inflammation and/or steatosis.

#### P122

##### **Natural dye for staining atocytes and neurons**

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Natural dyes used for staining carpet, wool, silk, cotton. A tough leathery skin of Pomegranate has staining activity. The objective of this study was investigation new staining method from tough leathery skin of Pomegranate for histological staining.

Brain of adult wistar rats (12-13 week old) were removed, immersed in formaldehyde fixative, and embedded in paraffin. Sections, 7-10 micrometer from brain cortex hippocampus and cerebellum, were collected, and then stained by new method and hematoxylin and eosin staining method.

Analysis of section shown astrocytes of brain were yellow, neurons of brain (hippocampus) pale red, Purkinje cell of cerebellum pale red, granular cell of cerebellum yellow, elastic fibers yellow, red blood cell yellow.

By use dye extracted from skin of Pomegranate distinguish between neuron, atrocities is possible, this dye can be replacement to cost and time consuming chemical staining method.

### P123

#### Effects modification of iron hematoxylin on neuron staining

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Iron Weigert staining methods is used as nuclear staining. In present study we introduce a modification iron Weigert hematoxylin for staining neuron without astrocytes.

Whole brain of adult Wistar rats (12-13 week old) were removed, immersed in formaldehyde fixative, and embedded in paraffin.

Sections, 5-7 micro meter (from brain cortex, hippocampus, cerebellum) divided to three groups: one for staining by Hematoxylin & eosin, second for staining by cresyl fast violet (that specially performed for Nissl substances in neuron) and last for staining by modification iron hematoxylin methods, but different in quantity and quality.

In new method general and specific architecture of neuron, nucleus and nuclear envelope was clearly visible. Reactions of neuron were predominant. Astrocyte did not respond to staining methods. Also spines (axon) of Purkinje cells were clearly visible.

Modification iron Weigert hematoxylin can be replacement to cost and time consuming chemical staining method for staining neuron.

### P124

#### A confocal laser scanning microscopy study in distribution and morphology of the rabbit cardiac ganglia nervous system

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In this study, neurons of the cardiac ganglia were investigated with immunohistochemistry. Cardiac ganglia are situated in pericardial fat and play a key role in the maintenance of normal cardiac function. There is a few data about these neurons. Confocal microscope allows the study of the morphology and 3 dimensional structures of these ganglia. This technique can provide new opportunities for imaging of neurons in thick biological specimens.

For this purpose the epicardial fat of rabbit were dissected, dehydrated, cleared, washed and incubated overnight at room temperature with PGP 9.5 (1/1000 in phosphate buffered saline with 0.2 Triton X-100. After washing in PBS the slides were incubated with a mixture of Cy3 labeled Donkey anti-mouse antibody IgG for 2 hour at room temperature. The slides were evaluated and photographed with a confocal microscope LSM 510.

The results indicate individual ganglia and neuronal cell body were localized by means of a general neuronal marker Protein gene product PGP 9.5 (Chemicon Company) which is a member of Ubiquitin C-terminal hydroxylase.

In adult rabbits there were 2 groups of neurons located in the atrium and around the opening of great vessels. The first group was including large ganglia containing large cells (30-50 µm in diameter) but the second group

were including smaller ganglia and smaller neurons (15-35 µm in diameter) and had a fewer immune reactivity to PGP 9.5. A moderate level of chemical diversity within the neurons of the rabbit such chemical diversity may reflect functional specialization of ganglionic neurons.

As a conclusion, by using confocal microscopy technique, the location of ganglia could be accurately identified as well as the immunoreactivity of neurons to PGP 9.5. Showed at least there is 2 groups of ganglia which form a continuity and extension in the heart and were seem to arise from in the endocardial plexus of the atria. Satellite cells of cardiac ganglia didn't stained and were seen as small black depressions on the neurons.

### P125

#### Effects of electromagnetic field on boundary tissue of testes: An electron microscopic study

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Human beings are unavoidably exposed to ambient electromagnetic fields (EMF) generated from various electrical gadgets and from power transmission lines. Controversy exists about the EMF effects on various organs. One of the critical issues is that EMF may adversely affect the reproductive system. To examine this, rat pups (30) were exposed to 50 Hz EMF (non-ionizing radiation) during uterine development (approximately 3 weeks) and postnatal life (5 weeks). Groups of exposed rats were subsequently left in an environment free of EMF in order to see recovery, if any, from changes induced by EMF on boundary tissue of the seminiferous tubules. The materials were processed and observed under light and transmission electron microscope. In the experimental rats, boundary tissue was found disrupted in its various layers. It showed infoldings, which were perhaps due to the loss of collagen and reticular fibrils from the inner and outer non-cellular layer. The myoid cells showed few polyribosomes, pinocytotic vesicles and glycogen granules. Their mitochondria were without cristae. The connections between individual myoid cells were apparently lost. The results suggest that EMF exposure causes profound changes in the boundary tissue of the seminiferous tubules.

### P126

#### Ultrastructural localization of uranium ions deposits in the PCT cells of uranyl acetate-exposed rats kidney

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Uranium ions are nephrotoxic and it is known that they stored in many organs such as kidney. In the present work we studied the ultrastructure of kidney of uranyl acetate exposed Wistar rats by transmission electron microscopy to follow the uranium ions in the proximal convoluted tubules cells. Two groups of rats were used, the first group is a control and received only drinking water and standard diet, while the second group received 20 mg UA/kg/d in the drinking water and the standard diet. After 30 days, ultrathin sections of kidney were prepared, some of them stained routinely and others left without stain. The uranium ions deposits were seen accumulated within specific vacuoles some of them were larger than the nucleus. Unstained sections have confirmed these results. Some of these deposits were seen discharged out of the cells into the tubules lumen. These result focused light on the mechanism of accumulation of this heavy metal within PCT cells.

### P127

#### Toxic effect of cyclosporine a on rat Sertoli cells

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In man the immunosuppressive drug Cyclosporine A (Cs A) has been used successfully in organ transplantation and in the treatment of autoimmune disorders and exerts toxic effect on various parenchymal organs. This study was performed with the aim of testing whether Cyclosporine also affect the Sertoli cell.

30 male Wistar rats, 2 months old were divided into three groups (10 in each group). Experimental groups were injected daily 40 mg/kg body weight of Cyclosporine and olive oil subcutaneously for 2 weeks. Last group were normal and without any injection. Rats were kept under optimal hygienic condition, temperature 25°C, relative humidity 40 to 45% and light provided for a 12-h day/12-h night cycle. They were given water and rodent pellets.

After 2 weeks rats were killed and testis and seminal vesicle were fixed in formalin 10% and were stained and studied with light microscopy.

Distances between seminiferous tubules were increased. Accumulation of necrotic materials of the cells in the lumen of seminiferous, oligospermia, displacement of somniferous tubules and changing the situation of Sertoli nuclei were seen.

### P128

#### Effects of electromagnetic field on the boundary tissue of the seminiferous tubules of rat testes: A light microscopic study

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Electromagnetic fields (EMF) generated from various electrical gadgets and from power transmission lines. Controversy exists about the EMF effects on various organs Human beings are unavoidably exposed to ambient electromagnetic. One of the critical issues is that EMF may adversely affect the reproductive system. To examine this, rat pups (30) were exposed to 50 Hz EMF (non-ionizing radiation) during uterine development (approximately 3 weeks) and postnatal life (5 weeks). Groups of exposed rats were subsequently left in an environment free of EMF in order to see recovery, if any, from changes induced by EMF on boundary tissue of the seminiferous tubules. The materials were processed and observed under light and transmission electron microscope. In the experimental rats, boundary tissue was found disrupted in its various layers. It showed on abnormal shape. It was demonstrated that there were some spaces between the boundary tissue and spermatogenic cells. The connections between individual myoid cells were apparently lost. The results suggest that EMF exposure causes profound changes in the boundary tissue of the seminiferous tubules.

### P129

#### Stem cells of experimental animals

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Stem cells are unspecialized cells that renew themselves for long periods through cells division, and under certain physiological and/or experimental conditions can be induced to become cells with special functions. These cells exist in specific locations within tissue. Up to now there are three types of stem cells in animals and human important for work in these days: embryonic stem cells, adult stem cells and umbilical cord stem cells. Despite numerous research and still unclear mechanism of influence on common body functions the first stem cell treatment possibilities appear on the market. The aim of our work was detection of trout (TC) and goat stem cells (GC) abilities prepared for experimental per oral use of patients (France, EU).

We used smear of lyophilized TC and GC for detection of apoptosis and growth factors: BMP 2/4 (1:100, RD, UK); EGFR (1:200, DakoCytomatin, Denmark); NGFR (1:120, DakoCytomatin, Denmark); VEGF (1:50, DakoCytomatin, Denmark); FGFR1 (1:100, Abcam, UK) (biotin-streptavidin IMH, Hsu et al., 1981). Additionally, diffuse neuroendocrine system marker PGP 9.5 (1:200, DakoCytomatin, Denmark) was used to reveal neuronal developmental potential of stem cells. Some biochemical indices of oxidation processes in cells were detected by use of fluorimetry and spectrophotometry.

Example of TC contained only destructive tissue without any cell at all. Example of GC showed immature skeletal muscle fibers and separate also GC. GC displayed immunoreactivity for BMP 2/4, FGFR1, VEGF and PGP 9.5. However, NGFR and EGFR were negative in any of described structures of GC. TUNEL showed total apoptosis for GC. Biochemical indices were positive for both examples of dry weight of stem cells – TC got 1.2 µg/g, but GC – 0.61 µg/g, Vitamin E for TC was 0.12 mg/g and 0.61 mg/g for GC,

Catalase was 0.014 IU or 0.0875 IU/g for TC and 0.026 IU or 0.8666 IU/g for GC, but intracellular glutathionperoxydase was detected 3794 U/L for TC and 2242 U/L for GC.

Both stem cell examples – trout and goat cells shows antioxidant features. Goat stem cells seem to belong to mechanoblastic cell line with possible developmental potential also in nerve cell line direction. Expression of growth factors and different antioxidants raise a question about native expression of these factors from cells or endocytotic abilities of cells during the treatment with above mentioned factors. Commonly not trout stem cells, neither goat stem cells are usable for any treatment of patients because of their apoptotic features.

### P130

#### Does glucosamine sulphate affect the skin?

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Glucosamine is an amino monosaccharide derived from cellular glucose metabolism and it is a simple component or “building block” of more complex molecules. Glucosamine was considered to be an effective treatment for many joint diseases especially osteoarthritis.

It is believed that glucosamine maintain healthy joint functions and rebuild damaged joint cartilage, tendons, ligaments and other connective tissue. It does this by stimulating the production of glycosaminoglycans (GAG's) which are the structural components of cartilage and connective tissue elsewhere in the body.

Twenty male and twenty females adult mice (weighting between 23.3 gm to 27.2 gm), were divided into two equal subgroups (control and experimental); the drug was given at noon three hours after starvation it had been grinded and mixed with food and given as a single oral dose of 350mg/kg body weight per day for 35 successive days. Histological examination and statistical analysis of multiple sections of ventral and dorsal skin of male and female mice and of both subgroups were done with hemotoxylin and eosin stain.

The results reveal that there was increment in the number of fibroblast which was more obviously seen in the ventral skin of the treated animals. This study confirms practically that glucosamine sulphate induces significant structural changes in the skin of mice.

Using glucosamine sulphate clinically for medical conditions rather than arthritic diseases is now the target of most recent researches, its ability to decrease wrinkles in the aged skin and promotion of wound healing with less scar tissue is consider to be a light for dermatologist and plastic doctors, plus its effect to rebuild any aged, injured and diseased tissue in the body.

### P131

#### Biocompatibility between biomaterials and tissue in experimental animals

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Elaboration of optimal biomaterial for replacement of hard tissue is still actual problem due the mechanical degeneration of implanted biomaterials and abnormal recipient tissue reaction on the same implant. Thus, aim of this work was investigation of biocompatibility on tissue level in different time duration after subcutaneous implants of hydroxyapatite granules (HAP), glass ceramic (4N), glass ceramic with orientate crystallization (4NK) in Wistar rats. Native slides were prepared by use of Exact Grinding (Heidelberg, Germany) for detection of thickness of connective tissue capsule, number of pores and diameter of pores in biomaterial. Immunohistochemistry (Hsu et al., 1981) was used for detection of neuropeptide-containing innervation (PGP 9.5, DakoCytomatin, Denmark) and inflammation (MMP2, RD System, UK).

Results showed all biomaterial implants surrounded by fibrous connective tissue capsule of different thickness. Inflammation was seen mainly after 3 weeks implantation period in cases of 4H and 4NK. MMP2 marked white blood and connective tissue cells, and also some glandular cells of

sebaceous and sweat glands. Neoangiogenesis and/or sclerotisation of small blood vessels were observed near the fibrous connective tissue capsule or within it. Indistinct neuropeptide content was detected in partially prominent nerve trunks of soft tissue. The largest pore size was seen in 4N material ( $70.33 \pm 26.35 \mu\text{m}$ ) with tendency to decrease by prolongation of implantation time ( $64.23 \pm 16.43 \mu\text{m}$ ). Middle size of pores was observed in 4NK ( $63.97 \pm 16.47 \mu\text{m}$ ) after 3 weeks long implantation and small in HAP ( $19.26 \pm 4.78 \mu\text{m}$ ) with following decrease of it by prolonged implantation of biomaterial (until  $38.12 \pm 6.41 \mu\text{m}$  for 4NK) and  $9.72 \pm 1.33 \mu\text{m}$  for HAP).

Degenerative proliferative changes of all tissue are characteristic morphological features around different types of biomaterial implants. Decrease of quality in immunoreactive innervation correlates to the increase of implantation time of biomaterial despite proliferation of nerve fibers. Thickness of connective tissue capsule around the implant varies and do not depend on duration of implantation. Number of pores of biomaterial increases, but diameter of pores decreases with implantation time.

### P132

#### Histological study of the tonsils in the pharynx of Caspian miniature horses

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Pharynx is a funnel shaped passage that connects the oral cavity with the esophagus and the nasal cavity with the larynx. Pharyngeal cavity is divided by the soft palate into dorsal and ventral channels, namely, nasopharynx and oropharynx. The narrower caudal portion of the pharyngeal cavity is known as laryngopharynx. Tonsils which are found in several places in the pharyngeal mucosa, has different shape and patterns in domestic animals. In order to study of the structure of tonsils in these three regions of the pharynx in Caspian miniature horses, 4 healthy adult (2 males and 2 females between 3-4 years old) were used. Samples were taken from the three regions of the pharynxes and fixed in 10% buffered formalin. Routine histological laboratory methods were used and paraffin blocks were cut with  $6 \mu\text{m}$  thickness and stained with hematoxylin-eosin and studied under light microscope. Results showed, there were large numbers of cryptic tonsils covered the whole lamina propria of oropharynx. The crypts were lined with keratinized stratified squamous epithelium in most parts, but in some cases they changed into bistratified cuboidal and/or simple cuboidal epithelium. Tonsils were not observed in the mucosa of the nasopharynx; instead, there were dispersed large amounts of lymphatic nodules in lamina propria. Laryngopharynx had non-cryptic tonsils with smaller size and fewer number than in the oropharynx.

### P133

#### The utility of alizarin red S staining in detection of peripheral vascular calcification in comparison with H and E (HE) staining

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Calcification of the media of peripheral arteries is referred to as Monckeberg's Sclerosis (MS) and occurs commonly in aged and diabetic individuals. Its presence predicts risk of cardiovascular events and leg amputation in diabetic patients. This study is designed to introduce Alizarin red S staining instead of Hematoxylin and Eosin (HE) staining for detection of vascular calcification.

Uterine paraffin sections belonging to the 20 women aged more than sixty, and endured hysterectomy, stained with HE and ARS. For HE, the sections were treated with Mayer's hematoxylin (pH 2.3) for 5 min and with Eosin alcohol (pH 4.1) for 1 min. For ARS, 1% ARS dissolved in distilled water was adjusted to pH 6.4 by adding 10% ammonium hydroxide solution drop by drop. Five sections were randomly selected for microscopic study in which vessels with medical calcification were counted.

Crystals were seen clearly in most specimens stained with ARS, but were markedly reduced in tissue sections stained with HE. The number of arteries

with calcification ( $18.4 \pm 1.34$  mean  $\pm$  SD) compared with HE ( $10.4 \pm 1.42$  mean  $\pm$  SD) was significantly ( $p < 0.000$ ) higher.

Standard HE staining reduced the number of visible crystals, probably due to strong acidity of both Hematoxylin and Eosin solutions, whereas the ARS stain seems to preserve a large number of the crystals; so we recommend this staining for a correct diagnosis in early stages of peripheral vascular calcifications.

### P134

#### Histopathologic changes of rat testis following formaldehyde exposure

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Formaldehyde is a chemical, which is used traditionally for fixing the cadaver. It is vaporized during dissection and practical studying on cadaver. Studies show that this vapor can cause some clinical symptoms such as throat, eye, skin and nasal irritation.

This study was designed to determine the histopathologic changes of rat testis while all of the experiments were exposed to formaldehyde for 18 weeks.

This study was performed on 28, 6-7 weeks postnatal albino Wistar rats. According to exposure protocol, the rats were divided into 3 case groups (E1: 4 hours/day, 4day/weeks; E2: 2 hours/day, 4 day/weeks; E3: 2 hours/day, 2 day/weeks) and 1 non-exposed control group. The testis specimens were sectioned at  $5 \mu\text{m}$  and stained with H&E technique for histopathologic study.

In group E1, a severe decrease of spermatogonia cells was observed in lots of tubules and spermatogenesis was arrested. In group E2, many tubules showed decreased number of the spermatogonia. Also, an increased space between spermatogonia was found within tubules of group E3. In control group, morphological view of the tubules was normal.

The results of this study showed that formaldehyde exposure can cause histopathologic changes in rat testis. In addition, there was a direct relationship between the duration of exposure to formaldehyde vapor and the intensity of histopathologic changes in rat testis.

### P135

#### Ultrastructural evaluation of electromagnetic field effects on rat cerebellum

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It is known that prolonged exposure to low intensity electromagnetic field (EMF) is hazardous for biological system. However, there is controversies regarding the effect of EMF on human bring. Several epidemiologic and experimental studies have shown that EMF has a harmful effect on central nervous system. Previous works in our laboratory, using light microscopes have shown that EMF could produce morphological changes in central nervous system. Since ultrastructural studies on the effects of EMF is very rare, the aim of the present study is to investigate ultrastructural changes of cerebellum in EMF-exposed rats.

For this purpose, wistar rats were exposed to 3mT EMF for 4 months, 4 hours/day. After the experimental period rats in control and experimental groups were sacrificed and tissue samples from cerebellum were prepared for electron microscopic studies.

Our finding clearly demonstrated that number of Purkinje cells in EMF-exposed rats were decreased significantly ( $P < 0.01$ ). The other changes include: condensation of nuclei, dilatation of endoplasmic reticulum, breakdown and disappearance of crista in mitochondria of cerebellum cells. There also were breaks in the basement membrane of vascular endothelial cells in experimental group.

These findings indicate that long-term exposure to EMF has detrimental effects at cellular level on central nervous system.

**P136****Morphological alterations of uterus and intrauterine venous vessels in juvenile intact and alloxan-induced diabetic rats**

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Morphological alterations of uterus and intrauterine venous vessels were studied in juvenile intact and alloxan-induced diabetic rats. Investigations aimed to analyze and compare age specific and pathological dynamics of uterus and its venous vessels under experimental diabetes of juvenile (90 days of age) rats. Widespread anatomo-histological investigation of uterine tissue structures and venous vessels was used as a method of investigation. Experimental diabetes was induced by alloxan. After 90 days of investigation, the edema and dystrophic changes around intrauterine venous vessels were observed in relatively all parts of uterine horn. They were highly significant predominantly in internal muscle layer of myometrium. In addition perivascular connective tissue undergoes deep edema within disintegration of structural elements. The range of edematous regions enlarged with gradual invasion to wider muscular spaces. Fiber structures of connective tissue turn to disintegration, homogenization with fibrinoid deposition and proliferation of blast connective-tissue cells. Venous wall thickened, at which fiber structures deposited and homogenized within disintegration of cells. The endothelial cells of those veins became irregular through the formation of thromboid mass attached to the wall. The irregular enlargement of venules and postcapillary venules were also observed in spaces between muscular layers of myometrium. The proposed morphological analysis of uterine structures and statistical evaluation of venous vessels show that organogenesis and morphogenesis of uterus, its vessels and their complications in diabetes mellitus have the direct relations with longevity of disease and age related alterations of the whole organism.

**P137****Investigation of developmental toxicity and teratogenicity of macrolide antibiotics on rat embryos cultured in vitro**

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Macrolides are considered to be one of the safest anti-infective groups in clinical use, with severe adverse reactions being rare. However, there is very little current data about their embryotoxicity and teratogenicity as well as their use in pregnancy. We aimed to investigate the effects of these agents on embryonic growth and development. Wistar rats were obtained from the Selcuk University Experimental Medicine Research Center, and their 9.5 days embryos were dissected and cultured for 48 hours in rat serum. Whole rat serum was used as a culture medium for the control group while different concentrations of spiramycin (1.25 µg/ml, 2.5 µg/ml, 3.75 µg/ml, 5 µg/ml, 6.25 µg/ml), azithromycin (1.25 µg/ml, 2.5 µg/ml, 3.75 µg/ml, 5 µg/ml, 6.25 µg/ml) and clarithromycin (2.5 µg/ml, 5 µg/ml, 10 µg/ml, 20 µg/ml, 30 µg/ml) were added to rat serum for the experimental groups. Dose-dependent effects of macrolides on embryonic developmental parameters such as total morphological score, yolk sac diameter, crown-rump length and somite number were compared. Embryos were evaluated for the presence of any malformations. After morphological examination of the embryos, total DNA was extracted from the cells using standard procedures to determine fragmentation of nuclear DNA of embryonic cells. DNA sample was separated by gel electrophoresis and visualized under UV light. When compared to the control embryos, the macrolides significantly decreased all growth and developmental parameters dose-dependently. Especially, clarithromycin was found to cause more developmental toxicity than spiramycin and azithromycin. While all macrolides caused haematoma in general, azithromycin caused neural tube defects, maxillary deformity and situs inversus most frequently, while situs inversus and flexion deformity were observed with spiramycin. There was no difference regarding the fragmentation of nuclear DNA of the all used agents. In this study, dose-dependent developmental toxicity of macrolides on rat embryos was determined. While the toxic effects of clarithromycin were observed more

dominantly, the teratogenic features of the used drugs were different from each other.

**P138****Durer and anatomy**

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Durer is the eminent artist of the Germany Renaissance. He was borne in Nurnberg. Like Leonardo da Vinci, he is an artist, architect, mathematician and anatomist. Therefore he is considered as the eminent figure of the Northern European Renaissance. Although he visited Italy two times he created an original German art school. He was skilled on self-portraits as well. His three self-portraits are of the highest artistic value. In one of his self-portraits he drew a spleen projectio. He founded the surface anatomy with this work.

Albrecht Durer wrote 4 books on human body proportions. The first one was alive, the other three being published after his death. During his period in Italy, he was interested in plastic anatomy drawings and handwritings. After his return to Germany, he continued his researches. As cadaver dissections were not allowed during that period in Germany he studied on living models and analyzed reference papers.

He analyzed both male and female body proportions on a scientific and artistic basis. He wrote detailed books on this subject. He is considered the Pioneer in "Artistic Anatomy" as a consequence of these books he wrote.

**P139****Chronic intake of high-fat diet effects the intestinal microscopic structure in rats**

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In the present study, it was aimed to evaluate whether consumption of fatty diet might affect histological structure of small intestine.

For this reason, 16 Sprague-Dawley rats (10 weeks old) were used in the experiment. Control rats (n=8) were fed with a commercial standard diet (10% of total energy from fat). Animals of the treatment group (n=8) were fed with an isoenergetic diet in which 30% of the total energy was provided from fat either in the form of animal fat (high saturated fat). Animals were sacrificed after 12 weeks by cardiac perfusion of 10% formaldehyde. Jejunal tissue pieces were obtained from all rats for histological examination. The samples were embedded in paraffin. Sections 5-6 µm in thickness were stained with H-E and examined light microscopically.

Feeding with a high-fat diet led to a mononuclear cell infiltration in both nodular and diffuse form, partial villus atrophy, and an increase of connective tissue in the lamina propria. In the treatment group, many hypertrophied goblet cells were also found. Additionally, a prominent dilatation of lacteals and a lot of eosinophils were observed in the lamina propria.

These results may provide evidence that fatty manipulations in the diet may change the histological structure of jejunum, even though diets are the same in terms of the amount of energy.

**P140****Adrenal gland is an important obesity link: A microscopical study**

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Obesity has become an epidemic problem in Western societies contributing to several disease processes including metabolic diseases, hypertension, and cardiovascular disease. Overweight and obesity are frequently associated with increased plasma levels of aldosterone suggesting a direct link between obesity hypertension and increased mineralocorticoid levels. So, in this study, we aimed to investigate possible microscopic changes of the adrenal glands secreting corticosteroid hormones, in the fatty diet-induced obese rats.

Within scope of this aim, the obesity model is performed on animals of the study group, (Sprague Dawley rats), by feeding them with a diet comprised highly of fat (30%), for a duration of 3 months. After adrenal glands are removed from all sacrificed rats, paraffin sections were prepared according to conventional histological process.

Microscopic findings observed in H-E slides were as followings: large and more lipid droplets within the cells of all cortical zones; fatty degeneration in some cortical cells; sinusoidal dilatation especially in zona reticularis; the presence of an area with small parenchymal cells between zona glomerulosa and zona fasciculata, suggesting a hyperplasia in this cortical region; also many necrotic foci in the cortical tissue.

The fatty diet has long been suggested to be directly caused to change of the body's fat mass and recent evidence now proves that human fat is a highly active endocrine tissue. Adrenal glands in visceraally obese subjects may be driven by a secretagogue released from the liver by fatty acids from abdominal adipocytes. In the literature, it was reported that excess dietary fat induces an accumulation of lipid metabolites in cells and that necrosis may be occurs in tissues of subjects fed with fatty diet. This event may have occurred as a result of oxidative damage in cellular proteins. Also inflammatory responses to necrosis may be triggered sinusoidal dilatation. Furthermore birth-rate was markedly raised by necrosis in adrenal gland cell exclusively in ZG- and ZF-cells, and enhances the centripetal migration of newly-formed cells in the peripheral cortex.

In conclusion, a possible direct link exists between fat tissue metabolism and adreno-cortical function which would be suggested to be able to reflect to microscopic anatomy of adrenals.

#### P141

##### The occurrence and structure of accessory suprarenal glands in Sprague- Dawley rats

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In histological sections through the entire kidney and suprarenal gland together of one intact Sprague-Dawley rat used as a control animal, accessory suprarenal glands were found between the kidney and the main suprarenal gland.

The detailed microscopic findings of the glands were as the followings: (1) They were localized within the pericapsular adipose tissue of the true gland. (2) They consisted of aggregates of cortical cells surrounded peripherally by a thin layer of collagenous fibers. (3) Although there was no a prominent zonation similar to the true suprarenal gland, some subcapsular more basophilic cells resembled the cells of zona glomerulosa. More central region of the accessory glands had an appearance resembling those of zona fasciculata and reticularis. (4) In the accessory suprarenal glands, some lighter cells among more acidophilic parenchymal cells were seen. (5) There were many capillary sinusoids between the clusters of cortical cells. (6) Few small aggregates of ganglion cells and nerve fibers were also seen near the accessory glands. (7) Additionally, the volume of the accessory suprarenal glands was estimated with Cavalieri principle. It was estimated meanly  $0.0007375 \text{ cm}^3$ .

The accessory adrenal gland, an island of cortical tissue separated from the main suprarenal gland, is a developmental anomaly. It can be recognized often in the retroperitoneal tissues, kidneys, genitals, or peri-suprarenal fatty tissue at post-mortem examination. According to literature, accessory suprarenal tissue may be found in at least 50% of neonates and infants if searched for carefully. With advancing age, this accessory tissue atrophies because it is physiologically unnecessary in the presence of normal suprarenal glands. It generally consists of cortical tissue, but sometimes medulla can also be found if near celiac ganglion.

This study indicated that accessory suprarenal glands may be found also in rats, suggesting similar embryonic development to that in humans.

#### P142

##### The topographical features of nervus ischiadicus in human fetuses

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We aimed to investigate the topographical features of sciatic nerve during prenatal period in human.

Our study was made on lower extremities of 22 dead human fetuses that were free of any anomalies. We measured micrometrically the width of sciatic nerve (NIG) in infrapiriform foramen, and the distances from infrapiriform foramen to anterior superior iliac spine (SIAS), posterior superior iliac spine (SIPS), highest point of iliac crest (CI), ischiadic tubercle (TI), and trochanter major (TM) of femur. We also measured the width of sciatic nerve (NIF) where it emerged to the gluteal region and where it passed from the gluteal region to the posterior femoral region at the level of the line connecting the ischiadic tubercle and trochanter major, and the distances from the sciatic nerve to ischiadic tubercle and trochanter major of femur.

The values measured were the width of NIG=2-6 mm, NI-SIAS=10-33 mm, NI-SIPS=6-27 mm, NI-CI=12-38 mm, NIG-TI=7-18 mm, NIG-TM=4-20 mm, NI-TI=1.5-16 mm, NI-TM=3-12 mm, width of NIF=2-6 mm, TI-TM=7-31.5 mm, and showed significant variations.

Understanding the structure and course of sciatic nerve in both gluteal and femoral regions is important during all interventions to these regions due to the potential damage on the nerve itself. The knowledge of topographical features of sciatic nerve in the prenatal period and its relations with reference points that are used especially in adults will provide us to follow up the variations during postnatal and grow up periods.

#### P143

##### Scanning electron microscopic findings of Netherton's syndrome

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We present light and scanning electron microscopic findings of a case with Netherton syndrome. Netherton syndrome (NS) is a severe autosomal recessive disorder characterized by ichthyosiform erythroderma, a pathognomonic hair shaft defect ("bamboo hair") and atopy. The disease is caused by mutations in the SPINK5 gene, which encodes a putative serine protease inhibitor, LEKTI (lymphoepithelial Kazal-type-related inhibitor). Scanning electron microscopy is a very useful technique for the examination of trichorrhexis invaginata (bamboo hair) and allows the diagnosis of Netherton disease to be confirmed.

#### P144

##### Metamorphosis in medical education and why?

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At the beginning of middle-ages, medical education was in the way of skilled person teaching apprentice. Medical education was started in 10th century in western countries especially in Salerno - Italy. Medical school was allowed to study on real patients after French Revolution. In 19th century experimental methods and statistics became part of modern medical education.

The first medical school in Turkeye began education in 1827, the second one in 1909 and the rest was opened after 1945.

The main purpose of medical schools is to raise medical doctor for achieving healthy living human beings.

The most of medical schools use traditional Flexner methods. The medical schools depend on basic and clinical sciences, so the medical doctors that were raised up is not enough for the needs of the population. The contemporary health problems necessitate the charges in medical education. Today medicine is based on technical procedures and loses its humanistic side.

In our country medical performance, basic health care and health budget are not enough for health. Health care is worse than it is supposed to be. Medical schools in our country perform different education program, 9 perform

classical medical education, 36 perform integrated education and finally 2 of all perform problem based education (2001).

No one is aware of profile of medical doctors and what health needs of this country are, because of the confusion in health system.

In 1988 World Federation for Medical Education declared that the extension of the medical education must be increased and must be performed outside of the hospitals. The demands of population and priorities of health problems must be reflected to education.

Metamorphosis in medical education is inevitable. In 1993 General Medical Council – GMC announced tomorrow's doctors' document. In this document, main topic was person that will have medical education must learn on their own responsibility, all through their life. The purpose of GMC education committee is as follows; education must be integrated and include both vertical and horizontal integration, medical education of medical students must be based on self-learning all over their life, include basic health care, protective medicine dominantly and medical students must be faced with patients in the first year of their medical education period.

The essential need is public aimed medical education. Problem Based Education...

#### P145

##### An anaglyphic three dimensional (3D) investigation of SEM images taken from the olfactory region of rat

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Smelling differs from the other special senses of being reached to cerebral cortex without passing through the thalamus. Smell fibers and their connections with limbic system could have regulatory effect of smell sense over the emotional functions in primitive mammals by the means of smelling. Because of this situation, investigation of the micro-structural pattern of the formation of olfactory nerve will allow us to better understand the functions of this nerve.

One female albino rat 250 – 300 g in weight was used in the study. The specimens were fixed in 2.5% glutaraldehyde for 24 hours, washed in phosphate buffer (pH: 7.4), post-fixed in 1% osmium tetroxide in phosphate buffer (pH: 7.4) and dehydrated in increasing concentrations of alcohol. After dehydration, the specimens underwent to critical point drying and mounted on metal stubs with double-sided adhesive tape. Then the samples were sputtered with 150 Å thick layer of gold in BIO-RAD sputter apparatus. The images were taken as stereopairs by JEOL SEM ASID-10 (Japan) electron microscope. After having the stereopairs, we held anaglyphs in RGB format using Adobe Photoshop® 7.0 Mac version software.

The aim of this study as methodological and as originally will be reported is to investigate the scanning electron microscopic image of the olfactory area of rat by a technique called anaglyph, in which the images were initially recorded as stereopairs and then converted to the three dimensional pictures in red blue channels that would be seen by the use of special anaglyph glasses.

#### P146

##### Determination of fetal age during the fetal period

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The aim of this study was to determine the fetal age according to crown rump length (CRL), head circumference (HC), bi-parietal diameter (BPD), femur length (FL) and foot length (FdL) during the fetal period.

Two hundred and fifteen fetal morphometric parameters obtained from human fetuses aged between 6-40 weeks of gestation was used in this study. The fetal dimension parameters (CRL, HC, BPD, FL and FdL) of the fetuses were measured. The fetal ages were determined according to each fetal parameter.

Means and standard deviations of the all parameters with respect to gestational weeks, trimester and months groups were calculated. No significant differences were observed between sexes for any of the parameters

( $p > 0.05$ ). All parameters were increasing with age during fetal period. There was significant correlation between gestational age and all parameters ( $p < 0.001$ ). There were differences between the gestational ages of each fetal parameter. The correlation coefficients of gestational ages according to fetal parameter were difference between trimester groups.

New data are derived to evaluate gestational age for human fetuses. Data acquired in this study are believed to contribute for studies of obstetrics, perinatology, forensic medicine and fetal pathology on fetal development of the diaphragm, and diagnosis of its anomalies, pathologies and variations.

#### P147

##### Effect of interleukin 12 (IL-12) on embryonic development and yolk sac vascularization

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The vascular system starts to develop in the very early stage of embryo in the mammals. In the rat embryo, the circulation system completed the majority of development approximately in the days of 11th-12th. Including 9.5th and 11.5th days, embryonic period in vitro embryo culture could be a suitable model for study effects of angiogenic and antiangiogenic substances on yolk sac vascularization. In the present study, the effects of Interleukin-12 (IL-12), an antiangiogenic factor, investigated on the yolk sac vascularization in addition to whole rat serum (WRS) during the in vitro embryo culture. After 48 hours of culture period, effects of the different doses of IL-12 (50 ng/ml, 100 ng/ml and 200 ng/ml) were estimated morphologically. According to morphologic scoring system; total morphologic score, yolk sac diameter, crown rump length and somite number were significantly retarded in the presence of 200 ng/ml IL-12 in WRS compared to embryos grown in WRS. The morphological scores for WRS and WRS+200 ng/ml IL-12 were  $58.5 \pm 0.5$  and  $41.3 \pm 2.9$ , somite numbers were  $24.2 \pm 0.7$ , and  $17.8 \pm 1.1$ , yolk sac diameters were  $3.2 \pm 0.1$  and  $2.3 \pm 0.1$  mm, and crown-rump lengths were  $2.8 \pm 0.1$  and  $2.0 \pm 0.1$  mm, respectively. There was also poor development in the yolk sac vascularization and the heart. As a result, the IL-12 could cause developmental retardation of embryo because of its antiangiogenic effect.

#### P148

##### Light microscopic examination of uterus in pinealectomized rats

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The aim of this study was to investigate the histological changes in uterus tissue of rats after pinealectomy at light microscopic level. For this purpose, 12 female Wistar rats were divided into two groups. Rats in group I (n=6) were used as control (sham-pinealectomy), whereas rats in group II (n=6) were pinealectomized. At the end of the one-month experimental period, all rats were killed by vascular perfusion. Uterus of all rats was weighed. Following routine histological procedures, uterus tissue specimens were examined under a light microscope. In the pinealectomized rats, there were increases in uterus weights. In light microscopic examination, it was observed that increase of connective tissue cells, dilatation of glands in endometrium of rats' uterus after pinealectomy. Additionally, vessels in myometrium were filled as compared to control group. In conclusion, endometrial hyperplasia was seen in pinealectomized rats.

#### P149

##### A survey on the satisfaction of the teaching of anatomy in Meram Faculty of Medicine

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Medical Anatomy curriculum has changed dramatically around the world since the 1970s. These changes include the reduction of course hours, the abandonment of cadaver dissection, application of new teaching modalities such as prosected specimens, models, radiographic images, computer simulations. The aim of this survey is to explore the satisfaction and opinion

of our faculty students who have attended to anatomy courses during last three years. A questionnaire consisting 17 questions regarding anatomy education were administered to 373 (138 first year, 154 second year, 80 third year) medical students. The items in the questionnaire included the performance of the examination skill, use of laboratory, the satisfaction from the theoretical and practical class, the distribution of the anatomical courses and integration of the curriculum. All participants were asked to reply each item in the questionnaire on five point scale as A) strongly disagree, B)disagree, C)not sure, D)agree, E)strongly agree. The questionnaires have been received with pleasure by our students and perceived as an index of being considered important. Since the average percentage of participation is almost 95%, the reliability of the results obtained is very high. Our results indicate that more than half of our students require an increase in the practical course hours and a decrease in the theoretical course hours. This study discusses the controversies and the opinions on the objections in anatomy teaching, curriculum and student satisfaction in our faculty. It is concluded that student opinions obtained from present study, may be beneficial for future planning of our Anatomy education, for preparing core education curriculum, for improving the teaching presentation of our department teachers and education tool's and also for improving the lecturer and student interaction.

#### P150

##### **A survey on the anatomy teaching in Faculty of Dentistry Selcuk University**

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The teaching of human anatomy has witnessed constant changes over the years. These changes include the reduction of course hours, application of new teaching modalities such as prosected specimens, models, radiographic images, computer simulations. Many schools such as Dentistry faculties, are asking for the teaching of anatomy with very little or no dissection. The aim of this survey is to explore the satisfaction and opinion of our faculty students who have attended to anatomy courses during last three years. A questionnaire consisting 15 questions regarding anatomy education were administered to 167 (44 first year, 59 second year, 64 third year) dentistry students. The items in the questionnaire included the performance of the examination skill, use of laboratory, the satisfaction from the theoretical and practical class, the distribution of the anatomical courses and integration of the curriculum. All participants were asked to reply each item in the questionnaire on five point scale as A) strongly disagree, B)disagree, C)not sure, D)agree, E)strongly agree. The questionnaires have been received with pleasure by our students and perceived as an index of being considered important. Since the average percentage of participation is almost 90%, the reliability of the results obtained is very high. Our results indicate that more than half of our students require an increase in the practical course hours and a decrease in the theoretical course hours and students want to be given interactive of lesson by lecturer. Also, they would prefer to be used anatomical models in anatomy lab. They voted dominantly that the anatomy education and cadavers is most important section for basic medical sciences. It is concluded that student opinions obtained from present study, may be beneficial for future planning of our Anatomy education, for preparing core education curriculum, for improving the teaching presentation of our department teachers and education tool's and also for improving the lecturer and student interaction.

#### P151

##### **Anatomy of the eye from the view of IBNU' L HEYSEM (965-1039) who established modern optics**

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İbnü'l Heysem (known as Alhazen in Latin) (965 Basra-1039 Kahire) was a scientist who played an important role in middle-age Islam world. He wrote many books and novels but only 90 of them are known. His main book "Kitab el Menazir" was translated to west languages in the last of 12th century and

in the beginning of the 13th century. In this book, he wrote many hypotheses about optic science. This book which is also known as "Optic treasure" (opticae thesaurus) effected many famous western scientists. He became an authority until 17th century in west and east. Roger Bacon (1212-1294) who made radical changes on western western optic traditions repeated İbnü'l Heysem's findings. İbnü'l Heysem began his book Kitab el Menazir with the anatomy and physiology of the eye. Especially, he described cornea, humor aquous, lens and corpus vitreum. He examined the effect of light on seeing. He changed the ideas which were popular until that time. He suggested that light came from objects not from the eye. He gave knowledge about the optic nerve, retina, iris and conjunctiva. He showed the system of the eye as a dioptric and the relations between the parts of the eye. It is understood that he had all the knowledge about his century about the structure of the eye. The best proof of this is the eye picture that he drew.

#### P152

##### **Evaluation of body composition with Tanita body-fat analyser in young Turkish adults**

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Significant changes on body composition occur through age particularly by an increase in body fat and a decrease in free fat mass. These changes cause marked increases in cardiovascular diseases, type 2 diabetes, mortality and in some types of cancers. Body fat measurement is an important data used in scientific researches as a determinant of future risk. The aim of this study is to evaluate the body composition of a young Turkish adult population.

Tanita body fat analyser is one of the methods available for a correct, simple and noninvasive determination of body composition. Based on bioelectrical impedans principles; body mass index (BMI), basal metabolic rate (BMR), impedans (I), fat percentage (FP), fat mass (FM), free fat mass (FFM) and total body water (TBW) can be determined with Tanita. In this study the body composition of 75 female and 100 male Turkish young adults (mean age; 22,6 years) has been assessed with Tanita (Body Composition Analyzer, TBF-300). In addition, neck and hip circumferences were measured. According to the measurements the results were found for females and males respectively; BMI, 20.5; 23.3; BMR, 1376.8 kcal; 1793.4 kcal; I, 556.1 Ω; 481.2 Ω; FP, 18.9%; 14%; FM, 10.9 kg; 10.5 kg; FFM, 43.6 kg; 62.1kg; TBW, 31.9 kg; 45.5 kg, neck circumference, 31.6cm; 37.6cm; hip circumference, 100.2 cm; 98.2 cm. A statistically significant correlation was found between BMI and BMR, FP, FM, FFM, TBW, neck and I circumference.

We think that the data of this study will help predict some diseases in advance and support dietary researches and weight regulation programs.

#### P153

##### **The problem of using a single term in Turkish to different terms in Latin**

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Words corresponding to concepts of science, art or a profession are called terms. The clarity and accuracy of the language and the terms used is of crucial importance for a scientist to express his/her opinion correct and precise. This is possible if one thinks and expresses himself/herself in his/her mother language. Therefore conversion of medicine and anatomy vocabulary to Turkish is essential.

There have been so many studies and treatises on the conversion of medicine and anatomy vocabulary to Turkish after the constitution of Republic. We investigated 19 Turkish dictionaries on anatomy and medicine as references. Then we created a list of terms in Latin whose number is 1658 as a guide that we would look for their equivalents in Turkish from "Terminologia Anatomica". We analyzed the equivalents proposed for these terms using Türk Dil Kurumu's "Contemporary Turkish Dictionary" and listed the ones of Turkish origin. We observed that 154 terms in Latin are corresponded by 63 terms in Turkish, so 91 new Turkish terms must be derived. We think that this case will cause confusion in the concepts of health and particularly

medicine. For this reason, we want to draw attention to both the problem and the point that must be focused on deriving anatomical terms in Turkish by listing our findings.

#### P154

##### The effect of 50 HZ AC electromagnetic field on rat liver

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In the last few decades, various investigations have been performed in order to determine the possible biological effects of electromagnetic fields generated by power lines and telecommunication technologies. The long-term exposure of electromagnetic fields may have been linked to various disorders and may affect different organs. The aim of this study was to investigate the effect of 6 mT AC electromagnetic fields on the rat liver.

Twenty adult male Wistar rats were divided into 2 groups; one group was exposed to 50 Hz, 6 mT AC electromagnetic field (EMF) for 8 weeks, 2 hours per day, and the other sham exposed, meaning that all other experimental conditions were the same except for EMF exposure. After 8 weeks, all subjects were sacrificed, and livers were removed and weighed. For histopathological examination, samples were fixed in 10% buffered formalin, embedded in paraffin, and then cut and stained with hematoxylin-eosin, PAS and Masson's trichrome. The histological samples were evaluated using the semi-quantitative scoring. Mann Whitney U test was applied for statistical analysis.

For each animal the difference in body weight was calculated from the weight at the beginning of the experiment (day 0) and the weight at termination (day 56). The body weight gain of exposed group is less than that of the control group, but there is no significant difference between the two groups. The absolute and relative liver weights did not show any significant difference between the EMF exposed and sham exposed rats. Microscopic examination of liver samples revealed no significant differences between the EMF exposed and sham exposed rats.

The present study demonstrates that rat livers are not affected by 6 mT AC magnetic fields exposure.

#### P155

##### Protective effects of melatonin against formaldehyde-induced kidney damage in rats

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This study was undertaken to investigate the protective effects of melatonin against formaldehyde-induced renal damage in rats. For this purpose, 21 male Wistar rats were divided into three groups. The rats in group I were used as control. The rats in group II were injected every other day with formaldehyde. The rats in group III were daily administered melatonin with injection of formaldehyde. At the end of 14 days experimental period, all rats were killed by decapitation. The kidney tissue specimens which were taken from the rats were examined in light microscope with passing on the routine histological procedures. The activities of SOD, GSH-Px and MDA were determined in the kidney specimens by using spectrophotometric methods. The levels of the SOD and GSH-Px were significantly decreased, and MDA levels were significantly increased in rats treated with formaldehyde compared with those of the controls. In the microscopic examination of this group, glomerular degeneration, tubular dilatation and vascular congestion were observed. However, increased SOD and GSH-Px enzyme activities, and decreased MDA levels were detected in the rats administered melatonin while exposed to formaldehyde. Additionally, kidney damage caused by formaldehyde was decreased, and structural appearance was similar to that of the control rat in this group. In conclusion, the findings of our study suggest that melatonin treatment prevents formaldehyde-induced renal damage in rats.

#### P156

##### Effects of cadmium chloride on cranial part of neural tube development in mouse fetuses

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Cadmium chloride is an essential component of industrial and non-industrial materials such as foods, water and cigarettes. Reports have shown the teratogenic effects of cadmium, thus the present study was performed with the aim of determining the effects of cadmium on central nervous system in mouse fetuses.

In this experimental study 30 female mice were included. Samples were divided in three groups of control, experimental I and II. Experimental groups have received cadmium chloride with dosage of 3 mg/kg and 5 mg/kg intraperitoneally on the 9th day of pregnancy, respectively. The control group received distilled water. On the 15th day of pregnancy, mice were killed by ether and their fetuses were removed and weight and height measured and then kept in fixative. Finally, specimens were prepared and stained by H&E.

Weight and height of embryos in experimental groups were significantly lower than control group. Diameter of third ventricle and cerebral aqueduct in experimental groups significantly were increased in compared to control group. Furthermore lateral and the fourth ventricles' thickness in experimental groups were significantly decreased.

The results show that prenatal exposure to cadmium chloride can induce significant changes in CNS and growth of mouse fetuses.

#### P157

##### Effect of formaldehyde exposure on morphometric evidences of rat spleen

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Formaldehyde is commonly used in the production of various industrial and medical items. At room temperature formaldehyde easily evaporates. Exposure to formaldehyde can have hazardous effect on human health. Studies show that this vapor can cause some clinical symptoms such as throat, eye, skin and nasal irritation. It can also decrease the production of IGM in spleen cells.

This study was designed to determine the morphometric changes of rat spleen while all the experiments were exposed to formaldehyde for 28 weeks.

This study was performed on 28, 6-8 postnatal Albino Wistar rats. The rats were divided in to 3 case groups (E1:2hrs/d, 2d/w; E2:2hrs/d, 4d/w; E3:4hrs/d, 4d/w) and 1 control group (SM). The spleen specimens were sectioned and stained with H and E technique for morphometric study.

There were significant changes in mantle layer between E2 and SM so that mantle layer diameter in SM was greater than E2. There were also significant changes in germinal center diameter and area between E2 and E1, SM so that germinal center diameter and area in E2 was greater than E1 and SM.

The result of this study show that formaldehyde vapor in high concentration similar to our study can make morphometric changes in germinal center and mantle layer so that increase germinal center diameter and area and decrease mantle layer diameter.

#### P158

##### A new description for the inferior laryngeal nerve: Detailed investigation of the terminal part of the recurrent laryngeal nerve

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In literature, the descriptions of the inferior laryngeal nerve vary greatly and sometimes contradictory. We intended to further investigate the course of the recurrent laryngeal nerve.

Sixty formalin fixed cadavers, 41 males and 19 females, aged between 40 to 89 years were included to the study. A total of 120 sides were dissected. Çalışma yaşları 40 ve 89 arasında değişen 41 erkek, 19 kadın kadavra üzerinde toplam 120 tarafta yapıldı.

We classified the terminal branching patterns of the recurrent laryngeal nerve in five groups: 1) The nerve had no extralaryngeal branches. 2) It gave 2 laryngeal and 1 to 3 extralaryngeal branches. 3) The nerve had 3 laryngeal branches and 1 or 1 extralaryngeal branches. 4) The nerve had many branches surrounding the inferior thyroid artery. 5) Non-recurrent inferior laryngeal nerve giving laryngeal and extralaryngeal branches.

Depending on our results, we suggest that the term “inferior laryngeal nerve” would be more accurate and the term “recurrent laryngeal nerve” should be removed from international anatomical nomenclature. Additionally, in our opinion, the inferior laryngeal nerve should be evaluated in two parts as “recurrent” and “ascending”.

#### P159

##### Determination of normal values of calves and ankles in medical students

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Aesthetics is the study of beauty and beauty is difficult to describe. Ricketts analyzed structure, harmony and proportions of human body. Moreover, the ideal length proportions of the calves were described by Howard using with the drawings of Leonardo da Vinci. The present study was undertaken to determine the mean values of surface measurements from right and left calves and ankles. These measurements were taken from 150 second-year medical students (75 women, 75 men) ages 18 to 23 years using a flexible standard measuring tape. The results showed the mean values for calf circumference, length of the medial head of the gastrocnemius muscle, length between the inferior border of the medial head of the gastrocnemius muscle and medial malleolus of tibia and ankle circumference to be respectively, 33.8±2.4 cm, 17.8±1.1 cm, 20.1±1.3 cm and 21.9±1.3 cm for the right leg and 34.0±2.5 cm, 17.8±1.2 cm, 20.0±1.5 cm and 21.9±1.3 cm for the left leg in the young women. However, in the young men, these values were respectively, 35.9±2.4 cm, 18.8±1.3 cm, 22.2±1.7 cm and 23.6±1.5 cm for the right side and 35.8±2.4 cm, 19.1±1.3 cm, 22.0±1.7 cm and 23.4±1.5 cm for the left side.

#### P160

##### Morphologic and morphometric characteristics of foramen obturatorium

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A detailed knowledge of the morphologic features of foramen obturatorium (FO) is vital for morphologists and surgeons, since various surgical procedures near these areas may traumatize important neural or vascular structures.

In this study, 100 coxae (from 50 male and 50 female), providing 100 foramen obturatorium were studied quantitatively using a compas device. A total of six (four morphometric and two morphologic) parameters were assessed. The long diameter of foramen obturatorium (LDFO), the short diameter of foramen obturatorium (SDFO), and foramen index (FI) as a ratio of LDFO/SDFO, the width of sulcus obturatorius (WSO), the presence of the tuberculum obturatorium posterius (PTOP) and tuberculum obturatorium anterius (PTOA) of the coxae were calculated. Afterwards, all morphometric parameters were compared between sexes by using t-test.

In our study, the LDFO was 49.27 mm in females, 51.95 mm in males and 50.61 mm in mean value for both gender. The mean values of SDFO for females, males and both gender were 31.16 mm, 32.07 mm, and 31.61 mm, respectively. Mean values of FI were 1.58 mm in females, 1.61 mm in males, and 59 mm for both gender. The WSO in females, in males and both gender mean values were 11.99 mm, 12.22 mm, 12.10 mm, respectively. The tuberculum obturatorium posterius was absent on the right side in 15 coxae (female 1, male 11) and on the left side in 15 coxae (female 4, male 11). The tuberculum obturatorium anterius was absent on the right side in 3 coxae (female 2, male 1). Both sexes had a tuberculum obturatorium anterius on the left side. When the morphometric features were compared with regard to sex, a significant difference was found in the LDFO ( $p=0.002$ ,  $p<0.05$ ). However, there has been no statistically significant differences in terms of the SDFO,

FI, and WSO ( $p>0.05$ ). On the other hand, significant differences were found in the FI and WSO of the each side in both sexes.

Based on the result of all morphometric evaluations of FO, we suggest that our findings may be useful guide for surgical procedures directed to pelvic in clinical practice. Given the clinical importance of the pelvic bone and the problems faced in surgical applications, there is no doubt that a thorough knowledge of the morphologic and morphometric characteristics will contribute greatly to surgery.

#### P161

##### Investigation of the accessory tendinous slips of extensor hallucis longus muscle in fetuses

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The tendon of the extensor hallucis longus (EHL) muscle is given as attached to the dorsum of the base of the distal phalanx in classical textbooks. It has been also noted that it may send accessory tendinous slips to the first metatarsophalangeal joint capsule. However, there are conflicting data about the frequency of these slips. Furthermore, the function of the accessory tendinous slip is unclear. The aim of the present study is to determine the frequency and morphometric features of the accessory tendinous slips of the EHL in fetuses as well to discuss its possible function.

45 (26 females and 19 males) fetuses were used in this study. Fetuses were grouped as A (16-21 weeks), B (22-27 weeks) and C (28-34 weeks) according to their age. Accessory tendinous slips were encountered in 23 out of 45 fetuses (51%). The accessory tendinous slips were bilaterally found in 15 fetuses (65%) while in 8 fetuses (35%) it was unilateral [6 (75%) in the right foot and 2 (25%) in the left foot]. 52% of the fetuses in group A, 43% of group B and 67% of group C had accessory slips. Regardless of being uni- or bilateral, accessory tendons were encountered in 14 female (54%) and 9 male (47%) fetuses. The width of the EHL tendon was significantly increasing with age. When the widths of the accessory tendinous slips of fetuses were evaluated according to age, there was only significant difference between group A and B, but there were no significant differences between groups A and C and B and C.

In all cases, the accessory tendinous slips were always found within the same tendinous sheath of the EHL tendons and it was possible to observe them throughout their course within this sheath. They were always diverging to the medial side of the EHL tendons and were always attaching to the metatarsophalangeal joint capsule distal to the joint space. The mean distance between the medial sides of the EHL and accessory tendinous slips was 1.17±0.54mm.

Thus, one of the possible functions of the accessory tendinous slip may be to stretch the joint capsule during the dorsiflexion of the great toe by the EHL muscle. Secondly, it may help the EHL muscle to maintain a powerful dorsiflexion of the great toe by anchoring its tendon to the joint capsule.

#### P162

##### Parcellation of the orbital-frontal cortical subfields and their relationship to attention/concentration

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The orbital frontal cortex plays an important role in the etiology of many cognitive and psychiatric disorders such as schizophrenia, obsessive compulsive disorder, depression, autism, substance abuse, and antisocial behavior. The aim of this study was to provide a rapid and reproducible method to divide orbital frontal region to its subfields based on gyral / sulcal pattern and explore the relation between volumes of the cortical subfields and attention/concentration. The Cavalieri method and point counting were used to estimate the volumes of anatomically defined subfields of the orbital frontal cortex based on landmarks visible on T1-weighted magnetic resonance (MR) images. Twenty right-handed, healthy participants aged between 19-30 years were studied. Regional orbital frontal cortex volume estimates derived from point counting methods were reproducible between raters (Intraclass Correlations (ICC): 0.92–0.95) and repeatable within rater (ICC: 0.93–0.99).

Predicted coefficients of error for individual volume estimates were less than 5%. There was no significant correlation between the volumes of the orbital frontal subfields and attention/concentration score of WMS-R.

### P163

#### CT study on morphometry of frontal sinus

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Frontal sinuses are paired lobulated cavities located posterior to the superciliary arches in the frontal bone and each frontal sinus opens in to the corresponding middle meatus via the infundibulum. They are radiographically visible after 5 years of age and reach their maximum size at the age of 20.

The aim of this study was to evaluate the prevalence and morphological characteristics of the frontal sinus in an adult population.

This study was conducted retrospectively on the paranasal CT scans of 2 mm thickness in the axial and coronal planes of 300 cases (123 male and 177 female) taken by a Siemens Emotion Tomography Machine. No apparent sinonasal pathology was present in the CT scans used for the study. The mean age of the cases was  $40.74 \pm 13.34$  (range 20- 83). All evaluations and measurements were done together by two radiologists with a Dicom viewer program.

Measurements of the width, height and anteroposterior length for each sinus and total width were obtained from CT scans. Measurements were compared statistically with relation to side and gender. In addition, cases were divided in to subgroups according to age for each gender and each measurement parameter was also compared among the subgroups.

All measurements tended to be larger in the left side and were significantly larger in males than females. There was a significant difference in antero-posterior length for both sexes and height for males and width for females between the two sides. Regardless of sex, the highest values of measurements were observed at the subgroup of 31-40 age and there was a tendency to decrease with aging.

The size of the frontal sinus is related to side, gender and age.

### P164

#### Morphometry of the foramen magnum and surrounding anatomic structures of Turkish adults.

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A detailed knowledge of the morphologic features of craniovertebral junction is vital for anatomists, embryologists and surgeons because various surgical procedures near these areas may traumatize important neural or vascular structures, especially in the presence of associated bony anomalies of the posterior cranial fossa.

The purpose of this study was to assess morphometry of the foramen magnum FM of Turkish adults and was to determine whether there was any difference in parameters related with the FM between both sexes. using a gonimeters and a cumpas, 69 dry skulls (from 30 female and 39 male), providing 69 FM, 138 occipital condyles (OC) and 138 hypoglossal canals (HC), were studied and a total of 12 anatomic parameters including length of the HC, diameter of the extracranial end of the HC, distance of the HC from the posterior and anterior margins of the OC, distances of HC from basion and opisthion, antero-posterior and transverse diameters of the FM and OC, and the angle of the long axis of the OC to the sagittal plane were analyzed. The FM index was calculated by dividing the anteroposterior diameter of the FM by the transverse diameter.

The average length of the HC in this study was 8.5 mms (female 8.0 mms, male 8.8 mms) and the average diameter of the extracranial end of the HC was 6.5 mms (female 6.3 mms, male 6.6 mms). The distance of the intracranial end of HC from the anterior and posterior margins of the OC were 10.1 mms (female 10.2 mms, male 10.0 mms) and 10.3 mms (female 10.0 mms, male 10.5 mms), respectively. The distances of extracranial end of the HC from basion

and opisthion were 15.8 mms (female 15.4 mms, male 16.2 mms) and 39.4 mms (female 38.4 mms, male 40.2 mms), respectively. The antero-posterior and transverse diameters of the FM were 35.7 mms (female 34.7 mms, male 36.4 mms) and 29.0 mms (female 28.3 mms, male 29.5 mms), respectively. The antero-posterior and transverse diameters of the OC were 23.0 mms (female 22.4 mms, male 23.4 mms) and 12.8 mms (female 12.4 mms, male 13.0 mms), respectively. The OC made an angle of  $26^\circ$  to the sagittal axis (female  $29^\circ$ , male  $24^\circ$ ), while the average FM index was 1.22 (female 1.22, male 1.23) in this study. In our study, there has been a significant difference in terms of each measuring the length of the HC, and the distance between the extracranial end of the HC and opisthion of the male and female ( $p=0.011$  and  $p=0.00$ , respectively). Nevertheless, there was no significant difference between the mean values of each of other parameters of the male and female, and of the right and the left in both sexes for all of the parameters.

As a result of morphometric evaluations of FM and surrounding structures, we think that our findings may be useful guide for evaluation of mesodermal bony anomalies of the craniovertebral junction for embryologists as well as surgical procedures directed to craniovertebral junction in clinical practice.

### P165

#### Protective effects of vitamin E and ginkgo biloba on cisplatin-induced liver damage in rats

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Cisplatin is a widely used anti-neoplastic agent in the treatment of tumors. The aim of this study was to investigate the protective effects of vitamin E and ginkgo biloba, on cisplatin-induced liver damage.

The rats were divided into control, cisplatin alone (8 mg/kg, i.p), cisplatin + GB (100mg/kg/day, orally), cisplatin + vitamin E (12 mg/kg/day, i.p) groups. At the end of the 10th day, liver tissue were removed for light microscopy and analysis.

The tissue of the cisplatin group showed some histopathological changes such as hepatocyte degeneration, sinusoidal dilatation, hemorrhage and vascular congestion and dilatation. In the cisplatin + vitamin E and cisplatin + ginkgo biloba groups, histopathological evidence of liver damage was markedly reduced.

These results show that cisplatin causes liver damage and Ginkgo Biloba and Vitamin E treatment prevents it to happen in liver tissue.

### P166

#### Protective effects of melatonin and ginkgo biloba on bleomycin-induced kidney damage in rats.

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Bleomycin is a widely used anti-neoplastic agent in the treatment of solid tumors. The aim of this study was to investigate the protective effects of melatonin and ginkgo biloba on bleomycin-induced kidney damage.

The rats were divided into six groups as follows: control, BL only (100mg/kg/day, orally), ML only (4mg/kg/day, i.p), and GB (100mg/kg/day, orally) only, as well as (2.5 mg/kg, intratracheally injected), BL + GB combined, and BL + ML combined. At the end of the 14-day treatment, kidneys were removed for histological and light microscopic analysis.

The tissue obtained from Bleomycin group showed some histopathological changes such as tubular lesion, cytoplasmic vacuol alteration, glomerular and vascular lesion. In the BL+GB and BL+ML combined groups, histopathological evidence associated with kidney damage was markedly reduced.

These results show that Bleomycin causes kidney damage and Ginkgo Biloba and Melatonin treatment prevents it to happen in kidney tissue.

### P167

#### Morphometric evaluation of uncinate process and its importance in surgical approaches to cervical spine

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Uncinate process (UP) has an important localization due to its proximity to the vertebral artery, radicular artery and the spinal nerve branches. Osteophytes are formed in the UP as a result of some degenerative diseases and pathologies such as radiculopathy, myelopathy and vertebral vascular insufficiency occur due to the pressure applied. In order to treat these pathologies, the pressure must be taken off. In other words, uncoforaminectomy or osteophyte resection for decompression may be necessary in spite of the risk of damaging the neurovascular structures. We aimed to provide data for preoperative and operative evaluations by measuring the dimensions of the UP and the vertebra corpus directly on the cadaver and via Computed Tomography (CT).

13 formalin-fixed male cadavers with no marked cervical deformity provided from the laboratories of the Department of Anatomy of Dokuz Eylül University were used in the study. CT images were taken with a Philips Mx 8000 Multislice System CT scanner in supine position and the sections in the transverse plane were evaluated. Reformate sagittal and coronal plane images were obtained and the measurements were made via PACS. Direct measurements were made with a metallic compass sensitive to 0.1 mm.

High of UP from C3 to C7 was measured as 5.76±1.03mm, 6.29±1.42 mm, 6.47±0.96 mm, 6.52±0.44 mm, 6.57±0.54 mm and 6.57±0.54 mm in CT; and as 5.94±1.15 mm, 6.56±1.51 mm, 6.62±1.03 mm, 6.85±0.65 mm and 6.89±0.63 mm in direct measurements. The distance between right and left UP apex from C3 to C7 in CT was 20.84±0.98mm, 21.92±1.67 mm, 23.66±1.96mm, 25.47±2.34 mm and 28.09±2.40 mm; in direct measurement were 23.72±3.43mm, 23.99±3.25mm, 25.44±3.65mm, 27.02±3.37mm and 28.95±2.99mm. Vertebral body antero-posterior diameter from C3 to C7 was measured as 18.10±1.88mm, 18.63±2.13, 18.22±1.76mm and 18.91±2.22mm in CT. Wide of vertebral body from C3 to C7 was measured as 21.81±2.73mm, 22.06±2.10mm, 23.42±2.82 mm, 25.28±2.98mm and 28.38±2.79 mm in CT; 22.44±2.75mm, 22.32±2.90mm, 23.72±3.80mm, 25.67±3.35mm and 27.46±2.44mm in direct measurement. Distance between superior articular process and UP from C3 to C7 was measured as in CT respectively 9.8±1.7mm, 7.9±1.8mm, 7.9±1.6mm, 7.8±1.3mm and 8.2±1.7mm

We think that the measurements of uncinat process and vertebral body directly on the cadaver and through CT images may provide beneficial postoperative and operative data for cervical decompression surgery.

#### P168

##### Variations in the high division of sciatic nerve and relationship between sciatic nerve and piriform muscle

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Sciatic nerve that contains fibers of L4-5 and S1-3 spinal nerves generally leaves the pelvis through infrapiriforme foramen. Additionally, the separation of sciatic nerve into its branches, tibial nerve and common fibular nerve usually occurs outside the pelvis but it may occur within the pelvis in some instances. In such cases, tibial nerve and common fibular nerve may leave the pelvis through different routes and this may cause nerve pressures that are non-disc related. For this reason, conditions such as piriformis syndrome are important in making the diagnosis. In our study, we aimed to describe the differences in the exit routes of tibial nerve and common fibular nerve (which are the branches of sciatic nerve) from the pelvis.

50 gluteal regions were examined in 25 formalin-fixed adult male cadavers used for educational purposes and maintained in the laboratories of the Department of Anatomy of Dokuz Eylül University.

In 19 out of 25 cadavers (in 38 gluteal regions), sciatic nerve leaves the pelvis as a whole through foramen infrapiriforme. In the 12 gluteal regions of six cadavers the exit of sciatic nerve is realized separately by tibial nerve and common fibular nerve. In one cadaver, common fibular nerve passes through piriformis muscle bilaterally while in another, it passes through suprapiriforme foramen bilaterally and in one other, tibial nerve passes inferior to the superior gemelli muscle.

If common peroneal nerve and tibial nerve that form sciatic nerve follow a route apart from infrapiriforme foramen, through which they usually and normally pass and pass through suprapiriforme foramen or inferior to the superior gemelli muscle, piriformis syndrome that causes nondiscal nerve compression occurs. The differences in the exit routes of common fibular nerve and tibial nerve are important in clarifying the clinical etiology of the nondiscal sciatic nerve pressure. We also think that the differences presented in this paper may also be beneficial in the interventions to be applied in this particular region.

#### P169

##### Effect of the pesticide Permethrin on the Mauthner cells of *Xiphophorus helleri*

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Permethrin [3-(phenoxy-phenyl) methyl (±)-cis, trans-3-(2,2-dichloroethenyl)-2,2-dimethyl cyclopropanecarboxylate], a synthetic pyrethroid used on cotton, wheat, corn, alfalfa, and other crops, has been found to induce severe impairments of the nervous system of swordtail, *Xiphophorus helleri*. The Mauthner cells (M-cells) are a pair of neurons found in the medulla oblongata of most fish. Female swordtail fishes were exposed to permethrin in continuous flow-through exposures for approximately 10 days. Following range finding (25, 50, and 100 deci-g/l) and duration of exposure assays, the relative sensitivity was studied when initiation of exposure to permethrin diluted (cis/trans isomers, 1000 µg/ml, Supelco USA) in the aquarium water. The giant Mauthner's nerve cells effected by Permethrin in a concentration of 100 micrograms per liter, induces blockade of the coordinating movement. Since, under normal conditions, the function of the Mauthner cells is to coordinate the C-start reaction. Permethrin toxicated in *Xiphophorus helleri* particularly in 100 deci-g/l. Histochemical studies described in this study, together with the deleterious effects of Permethrin to the enteric nervous system of fish. Especially LD50, has been reported earlier (Gonzalez-Doncel et al, 2003) for medaka suggest that fish death occurred to use of Permethrin as well as in our study.

#### P170

##### Relation between difficult intubation and uvula, mandible morphometry

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Preoperative bedside screening test for difficult tracheal intubation may be neither sensitive nor specific enough for clinical use. The aim was to investigate if a combination of the Mallampati classification of the oropharyngeal view with the uvula length, uvula width, bigonial distance and menton-gonion distance measurement improved the predictive value.

A total of 204 (146 male, 58 female) healthy person, aged >17 yr were used in this study.

37 (23.2%) had a grade III or IV oropharyngeal view (Mallampati classification). There was a significant difference between cranial capacity in those person with a grade III or IV oropharyngeal view compared with those with a grade I or II (p<0.05). There was a significant difference between BMI, menton-gonion, mandible height, mandible surface area in those person with a grade III or IV head extension compared with those with a grade I or II (p<0.05). The sensitivities, specificities, positive and negative predictive values of each test were calculated. Mandible height of 83.9 mm or high had a sensitivity, specificity of 83.3 %, 71.3 %, respectively. The anatomical features encountered included limited neck extension, short mandible height, large mandible surface area.

The findings suggest that the Mallampati classification, in conjunction with measurement of the menton-gonion, mandible height and mandible surface area, may be useful routine screening test for preoperative prediction of difficult tracheal intubation.

## P171

**Anthropometric measurements of second division and amateur league footballers in Aydin region**

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The aim of this study was to investigate the effect of team, body structure of the footballers and playing position upon anthropometric measurements and forced vital capacity in Aydin area.

This study was carried out with the enrollment of 56 footballers whose from two amateur league (A1, A2) teams and one from professional (P) second league team in Aydin.

The height and body weight, blood pressure, forced vital capacity, skinfold thickness and contour of some region measurements of the subjects were measured. The mean of two measurements that were carried out by same investigator was taken to the consideration. For the forced vital capacity assessment, the best of three tests were chosen. The height and body weight of the footballers were measured using SECA digital balance with height attachment. Skinfold thickness measurements were taken using Harpenden skinfold calipers. Forced vital capacity of the subjects was measured with MIR spirometer. Data was analyzed with SAS statistics package program.

The dispersion of a total of 56 footballers (21 A1, 18 A2 and 17 P football team) was as 8 goalkeepers, 11 defenders, 22 midfielders, 15 strikers in terms of the playing position. The mean of age was 23.41±0.56 years, height was 177.93±0.71 cm, and weight was 73.12±0.69 kg. The mean systolic blood pressure was 120.00±14.52 mmHg, diastolic blood pressure was 75.98±8.86 mmHg, chest circumference was 87.38±3.39 cm, arm circumference was 25.45±1.59 cm, waist circumference was 73.61±3.67 cm, thigh circumference was 48.15±3.46 cm, body mass index was 12.83±1.63, weekly training was 12 hours, forced vital capacity was 5.07±0.10 liters. After analyzing the data, the effect of the team, playing position and body structure of the footballers upon anthropometric measurements as follows:

- 1) The team factor was found effective upon circumference measurements (chest, waist) skinfold thickness (biceps triceps suprailiac, subscapular, thigh and calf) and forced vital capacity. In terms of these measurements, the means of A1 team were significantly higher than A2 and P team ( $P < 0.05$ ).
- 2) The playing position was only effective on arm circumference. The arm circumference of the goalkeepers was higher than that of players of other playing positions.

3) The weight and height of the players were positively and negatively correlated with circumference and skinfold thickness (abdominal, suprailiac ve subscapular) measurements.

The results have shown that the team, playing position and the body structure were effective upon some body composition components of the footballers. The importance of the team factor could be due to the quality and duration of the training and sports background of the players.

## P172

**Anatomy of intrarenal circulation in rabbit kidneys**

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The aim of this study is to search anatomy of intrarenal arteries in rabbit kidneys and to make contribution to the studies about this matter. 17 New Zeland white adult male rabbits' vessels of 33 kidneys are examined with plastic injection and corrosion method.

In most of the kidneys, before entering the kidney, the renal artery separated into two branches as anterior and posterior. In some of them while anterior branch feeds front side and posterior branch feeds back side (22/33), in the others there are differences between the feeding of kidney's top and bottom edge and posterior and anterior faces (7/29). In very few of the kidneys (4/33) renal artery separated into 3 branches and one of these branches fed the anterior and posterior faces of kidneys upper pole and from the other two branches front branch feeds front face and back branch feeds back face. In all kidneys, the renal artery separated the front and back branches into two segmenter arteries (33/33). There is no anastomosis between front and back branches ending in the edges of kidney

In publications it is specified that most of the rabbit kidneys have 5 segments as in people. In our study it is determined that the rabbit kidneys in which renal artery is separated into two branches have 4 segments (29/33) and the rabbit kidneys in which renal artery is separated into 3 branches have 5 segments (4/33). Feeding of top and bottom poles in some of the rabbits kidneys shows differences as in people (11/33). In a few of the rabbits' kidneys there is symmetry between anterior and posterior branches of renal artery (8/33).



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