



Anatomy Courses Content of the Medical Faculty in Turkey

Türkiye'de Tıp Fakültelerinde Verilen Anatomi Derslerinin İçeriği

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Abstract

Aim: Our research in Turkey with the Higher Education Council (YÖK) depends on the content of the courses in Anatomy operating in the Faculty of Medicine, School of Medicine has identified and studied during class hours to reveal whether there is a standard in this regard.

Materials and Methods: Web pages of all Medical Faculties have been accessed by writing the names of Medical Faculties to search engines on the Internet. From these web pages, Anatomy course topics and course hours have been determined by referring to the Core Education Program (ÇEP) of the Turkish Anatomy and Clinical Anatomy Association (TAKAD) and the Medical School syllabus for the 2018-2019 period.

Results: Content of the curriculum could not be reached in most of the Foundation Universities websites (75%). Nearly half (48.8%) of the State University Medical Faculties have published their course programs regularly on their web pages.

Conclusion: This study makes us think that State Universities have a more serious education program in terms of accessibility to course content data, sharing knowledge experience infrastructure and archiving successes compared to Foundation University Medical Faculties. Period of anatomy class I / II is the awarding and course contents can be said to be the standard in Turkey.

Keywords: Anatomy, Medical faculty, Education, Turkey

Öz

Amaç: Yaptığımız araştırma ile Türkiye'de Yüksek Öğretim Kurumu'na (YÖK) bağlı faaliyet gösteren Tıp Fakültelerinde verilen Anatomi derslerinin içerikleri, ders saatleri tespit edilerek Tıp Fakültelerinde bu konuda bir standardın olup olmadığı ortaya çıkarılmaya çalışılmıştır.

Materyal ve Metot: Bütün Tıp Fakültelerinin web sayfalarına internette arama motorlarına Tıp Fakültelerinin isimleri yazılarak ulaşılmaya çalışılmıştır. Bu internet sayfalarından 2018-2019 dönemine ait Tıp Fakültesi ders programı Türk Anatomi ve Klinik Anatomi Derneği'nin (TAKAD) Çekirdek Eğitim Programı (ÇEP) referans alınarak Anatomi ders konu başlıkları ve ders saatleri tespit edilmiştir.

Bulgular: Vakıf Üniversitelerinin web sayfalarının çoğunda (%75) ders programı içeriğine ulaşamamıştır. Devlete bağlı faaliyet gösteren Üniversite Tıp Fakültelerinin yarıya yakını (%48.8) ise ders programlarını muntazam bir şekilde internet sayfalarında yayımlamıştır.

Sonuç: Bu çalışmamız Devlet Üniversitelerinin, Vakıf Üniversite Tıp Fakültelerine göre internet ortamında ders içeriği verilerine ulaşılabilirlik, bilgi tecrübe alt yapılarını paylaşma ve arşiv tutma başarıları açısından daha ciddi bir eğitim programına sahip olduğunu bize düşündürmüştür. Anatomi derslerinin Dönem I/II'de verilmesi ve ders içerikleri konusunda ise Türkiye'de bir standart olduğu söylenebilir.

Anahtar Kelimeler: Anatomi, Tıp Fakültesi, Eğitim, Türkiye

INTRODUCTION

Medical science is dynamic and medical education practices are changing rapidly. The purpose of the searches here is to find out how this education can best be applied. For this reason, different education models

are applied in medical faculties around the world. Models such as problem-based learning, task-based learning, outcome-based learning and evidence-based learning are some of them. The purpose of institutions using different education models is to find the ideal model and prepare students for their professional life (1).

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There was a period in Turkey described as Medicine classical education system. Each department had its own curricula such as Anatomy, Physiology and Histology, and each course had separate exams. Although it was difficult to separately pass each course, the majority of that course will be dominated by the end of the year. So it was a difficult system but still taught (2). Classical education system is also known as Conventional ((lecture-based curricula) education system (3).

In the integrated system, courses are divided into systems. Some faculties refer to the committee, while others refer to the module. In this system, the exams of the courses are not separate but with a single question booklet. In the ratio of the number of courses you have seen, there are questions from each course. The integrated system is preferred by many medical faculties today (2).

While the rate of faculties applying only classical or integrated education in Turkey was 82% in 1997, this rate decreased to 57% in 2002. It is known that this rate decreased even more in 2004. In this period, some medical faculties switched to full active education, while others switched to the education system we call co-education (integrated + active or classical + active) (4).

Anatomy course is one of the first courses that come to mind among the basic medicine courses given in the preclinical period in Medical Faculties. It is the science that examines the shape and structure of the body. Examines the structural and functional relations between organs. It is one of the most difficult courses in the first years of the Faculty of Medicine (5,6). Anatomical knowledge supports a patient's examination, diagnosis formation and communication of these findings to the patient and other medical professionals. It provides a platform of knowledge suitable for all medical careers (7).

The National Core Education Program (UÇEP) criteria created by YÖK are used as a guide in creating curricula in medical faculties. The medical curriculum in Turkey is prepared using the UÇEP guidelines. The Core Education Program (ÇEP) published by the Turkish Society of Anatomy and Clinical Anatomy (TAKAD) in 2018 provides detailed information on the course content. Therefore, the ÇEP published by TAKAD has been taken as a reference in order to reach the content of anatomy lessons applied in Turkey. According to TAKAD, the main topics in systematic anatomy approach are; Introduction to anatomy (basic Latin knowledge, anatomical posture and importance, anatomy terminology) and systems part (respiration, circulation, digestion, reproduction, urinary, nerve, endocrine, movement, skin and attachments). Anatomy is one of the cornerstones of medical education. As far as possible, issues of anatomy should be associated with clinical practice (8). Cadaver, specimen, plastic model, computer simulation, anatomical photographs, and shapes should be preferred (8). In this direction, various

methods and technologies such as independent learning, computer-assisted learning and problem-based learning should be used in anatomy education (9). The content and course hours of the Anatomy courses given in the Faculties of Medicine were determined and it was tried to find out whether there is a standard in the Faculties of Medicine by taking TAKAD's ÇEP as a reference.

MATERIAL AND METHOD

The names of the Medical Faculties in Turkey were taken from the official Higher Education Council (YÖK) website on 27/08/19. The web pages of all Medical Faculties have been tried to be accessed by writing the names of Medical Faculties to search engines on the Internet. A total of 95 universities in Turkey, 69 states with medical faculties, 23 foundations, 2 in the Turkish Republic of Northern Cyprus (TRNC) and 1 in Azerbaijan, affiliated to YÖK, were included in the study. Universities without medical faculties were not included in the study. Some universities have dual medical faculties that provide education in both Turkish and English. Therefore, in this study, a total of 115 medical faculties, 82 state, 28 foundations, 4 in the TRNC and 1 in Azerbaijan, were included in the study.

Anatomy course topics and course hours of the Faculty of Medicine curriculum for 2018-2019 period have been determined from these web pages. Based on the Core Education Program (ÇEP) data published by the Turkish Society of Anatomy and Clinical Anatomy (TAKAD) in 2018, the contents and hours of the Anatomy course education of all Medical Faculties were evaluated and compared in this study.

Introduction to Anatomy (basic Latin knowledge, anatomical posture and importance, anatomy terminology) and systems (respiratory, circulatory, digestive, reproductive, urinary, nerve, endocrine, movement, skin and attachments) in the ÇEP of TAKAD are searched on web pages. Anatomy course topics and course hours of Medical Faculties were evaluated in accordance with the internet contents that we could reach and statistical analysis was performed.

Statistical analysis

The qualitative data used in the study are summarized as number (percentage) and the quantitative ones as median (min.-max.). The conformity of the quantitative data to the normal distribution was examined with the Shapiro-Wilk test. The Mann-Whitney U test was used to determine whether there was a statistically significant difference between the groups in terms of quantitative variables. Pearson chi-square test was used to determine whether there was a statistically significant difference between the groups in terms of qualitative variables. $p \leq 0.05$ was accepted as statistical significance level. IBM SPSS Statistics 26.0 package program was used in the analysis.

RESULTS

115 medical faculties in 95 universities affiliated to YÖK were included in the study and examined.

The Faculties of Medicine operating under the Council of Higher Education in Turkey are given in Table 1 (10).

	n	%
State Universities (eleven in both English and Turkish)	82	71.3
Foundation Universities (Five in both English and Turkish)	28	24.3
Turkish Republic of Northern Cyprus (One in both English and Turkish)	4	3.4
Azerbaijan	1	0.8
Total	115	100

The anatomy course topics in the ÇEP issued by TAKAD are given in table 2.

	Course Topics
Introduction to Anatomy	Basic knowledge of Latin
	Anatomical posture and its importance
	Anatomy terminology
Systems	Respiratory system
	The circulatory system
	Digestive system
	Reproductive System
	Urinary System
	Nervous system
	Endocrine System
	Locomotor System
	Skin and supplementary

Anatomy course topics applied by medical faculties are given in Table 3.

The web pages of the state and foundation medical faculties in Turkey and the medical faculties of universities affiliated to YÖK outside Turkey were accessed and examined.

Table 3. Faculty of Medicine Anatomy course topics

Term I, II	Course Topics
	Introduction to Anatomy
	Anatomy Terminology
	General Information About Bones
	Upper Extremity Bones, Lower Extremity Bones
	Columna Vertabralis, Costas and Sternum
	Head Bones
	General Information About Muscles
	Superficial Back Muscles, Shoulder Muscles, Arm Muscles
	Axilla Anatomy, Plexus Brachialis
	Forearm Anatomy, Fossa Cubiti, Rear area of Forearm
	Hand Anatomy
	Anatomy of Gluteal Region, Plexus Lumbosacralis
	Posterolateral regions of the thigh, Canalis Adductorius, Popliteal fossa
	Anteromedial regions of the thigh, Trigonum Femorale
	Foot Anatomy
	Anterolateral region of the leg and foot back
	Posteromedial region of the leg and soles
	Upper and Lower Limb Clinical Anatomy
	Facial Anatomy and Scalp
	Parotid and Temporal Regions, Fossa Infratemporalis and Fossa Pterygopalatina
	Neck, Front and Side Areas
	Deep Back Muscles, Suboccipital Region
	Heart Anatomy, Coronary Vessels and Nerves
	Pericardium and Great Vessels, Systemic, Pulmonary, and Fetal Circulations
	Neck Root (Veins and Plexus Cervicalis)
	Thorax Wall Anatomy, Diaphragma, Mediastinum
	Nasal Anatomy, Paranasal Sinuses, Larynx
	Nervous System Parts and General Information
	Morphology of Medulla Spinalis
	Brainstem Formations: Medulla Oblongata, Pons, Mesencephalon
	Cerebellum and Paths
	Cranial Nerves
	Endocrine System (Pituitary, Pineal, Suprarenal, Thyroid, Parathyroid, Thymus)
	Kidney and Ureter
	Vesica Urinaria and Urethra, Endocrine Organs
	Pelvis and Perineum
	Male Genital Organs
	Female Genital Organs
	Oral and Dental Anatomy
	Tongue and Chewing Muscles
	Pharynx, Oesophagus
	Abdominal Cavity Topography, Abdominal Front Wall, Abdominal Back Wall
	Canalis Inguinalis, Inguinal Hernias
	Stomach, Gros Anatomy of intestines, Small intestine, Large intestine
	Peritoneum, Omentum Majus, Minus and Bursa Omentalis
	Liver, Gallbladder, and Ways
	Pancreas and Spleen, Portal system and Portacaval anastomoses

State University Medical Faculties

The 2018-2019 academic year curriculum of Aksaray University, Amasya University, Canakkale Onsekiz Mart University, Dicle University, Dokuz Eylul University, Duzce University, Erzincan Binali Yildirim University, Eskisehir Osmangazi University, Giresun University, Hatay Mustafa Kemal University Tayfur Ata Sokmen, Hitit University, Kastamonu University, Kirikkale University, Kirsehir Ahi Evran University, Kocaeli University, Manisa Celâl Bayar University, Marmara University, Necmettin Erbakan University Meram, Nigde Omer Halisdemir University, Pamukkale University, Sivas Cumhuriyet University, Suleyman Demirel University, Trakya University, Usak University and Yozgat Bozok University Medical Faculties could not be accessed from the official web pages of the faculties.

Hacettepe University Faculty of Medicine, Istanbul University İstanbul Faculty of Medicine, Istanbul University-Cerrahpasa Cerrahpasa Faculty of Medicine, Mugla Sitki Kocman University Faculty of Medicine and Ondokuz Mayıs University Faculty of Medicine have two faculties providing education in Turkish / English. The 2018-2019 academic year curriculum was not available on the official web page of these faculties.

In order to shed light on our study, the number of anatomy theoretical and practical courses of some state and foundation universities are given in our study.

Ankara University Faculty of Medicine has two faculties providing education in Turkish and English. The Anatomy course for term I students has 78 hours of theoretical and 78 hours of practical content. It has been observed that there are 23 hours of theoretical and 32 hours of practical courses for term II students (11).

Inonu University Faculty of Medicine has two faculties providing education in Turkish and English. Anatomy course for term I students has 67 hours of theoretical and 76 hours of practical content. It has been observed that 93 hours of theoretical and 96 hours of practical lessons are available for term II students (12).

Anatomy course for Akdeniz University Faculty of Medicine term I students have 88 hours of theoretical and 78 hours of practical content. It was observed that 94 hours of theoretical and 96 hours of practical lessons were applied to term II students (13).

Anatomy course for the students of Bursa Uludag University Faculty of Medicine term I students have 56 hours of theoretical and 46 hours of practical content. It was found that there are 67 hours of theoretical and 37 hours of practical lessons for term II students (14).

Anatomy course for Cukurova University Faculty of Medicine term I students have 56 hours of theoretical and 54 hours of practical content. It was observed that 91 hours of theoretical and 66 hours of practical lessons were provided for term II students (15).

Anatomy course for Ege University Medical Faculty term

I students have 75 hours of theoretical and 17 hours of practical content. It was observed that 103 hours of theoretical and 29 hours of practical lessons were applied to term II students (16).

Anatomy course for Erciyes University Faculty of Medicine term I students have 57 hours of theoretical and 30 hours of practical content. It was found that 113 hours of theoretical and 62 hours of practical lessons were applied to term II students (17).

Anatomy course for Gaziantep University Medical Faculty term I students have 70 hours of theoretical and 56 hours of practical content. It was found that 110 hours of theoretical and 77 hours of practical lessons were applied to term II students (18).

Anatomy course for Harran University Medical Faculty term I students have 36 hours of theoretical and 26 hours of practical content. It was observed that 168 hours of theoretical and 118 hours of practical lessons were provided for term II students (19).

Anatomy course for Istanbul Medeniyet University Faculty of Medicine term I students have 71 hours of theoretical and 42 hours of practical content. It was observed that 98 hours of theoretical and 48 hours of practical lessons were provided for term II students (20).

Anatomy course for Karadeniz Teknik University Faculty of Medicine term I students have 98 hours of theoretical and 32 hours of practical content. It was observed that there were 134 hours of theoretical and 80 hours of practical lessons for term II students (21).

Anatomy course for Sakarya University Faculty of Medicine term I students have 78 hours of theoretical and 32 hours of practical content. It was found that 101 hours of theoretical and 39 hours of practical lessons were applied to term II students (22).

Anatomy course for Selcuk University Faculty of Medicine term I students have 62 hours of theoretical and 22 hours of practical content. It has been observed that 150 hours of theoretical and 112 hours of practical lessons are available for term II students (23).

Anatomy course for Zonguldak Bulent Ecevit University Faculty of Medicine term I students have 30 hours of theoretical and 12 hours of practical content. It has been observed that 160 hours of theoretical and 54 hours of practical lessons are available for term II students (24).

Foundation University Medical Faculties

The 2018-2019 academic year curriculum of Acibadem Mehmet Ali Aydinlar University, Bahcesehir University, Beykent University, Halic University, Istanbul Aydin University, İstanbul Bilim University, Izmir Ekonomi University, Koc University, KTO Karatay University, Sanko University, TOBB Ekonomi ve Teknoloji University, Ufuk University, Yeditepe University and Yuksek Ihtisas Faculty of Medicine were not available on the official web page of the faculties.

It has been observed that there are 102 hours of theoretical anatomy courses for term I students in the 2018-2019 academic year on the web page of Lokman Hekim University Faculty of Medicine. This faculty was evaluated among those who did not have a curriculum (25).

Baskent University, Istanbul Medipol University, Maltepe University Faculty of Medicine has two faculties providing Turkish / English education and the curriculum of the 2018-2019 academic year could not be accessed from the official web page of the faculties.

Istinye University Faculty of Medicine has two faculties providing education in Turkish and English. Anatomy course for the term I students have 32 hours of theoretical and 16 hours of practical content. It was found that 50 hours of theoretical and 17 hours of practical lessons were applied to term II students (26).

Anatomy course for Bezm-î Âlem Vakıf University Faculty of Medicine term I students have 118 hours of theoretical and 58 hours of practical content. It was found that there are 57 hours of theoretical and 30 hours of practical courses for term II students (27).

Faculty of Medicine Affiliated YOK University Outside Turkey

Doğu Akdeniz University (UOLP-Marmara University), Girne University Medical Faculties 2018-2019 academic year

curriculum could not be accessed from the official web page of the faculties.

Yakın Doğu University Faculty of Medicine has two faculties providing Turkish / English education and the curriculum of the 2018-2019 academic year could not be accessed from the official website of the faculty.

The 2018-2019 academic year curriculum of the Faculty of Medicine of Azerbaijan Medical University could not be accessed from the official web page of the faculty.

The numbers and proportions of state and foundation medical faculties, and medical faculties outside Turkey, whose anatomy curriculum have been accessed or not, are given in Table 4. A significant difference was found between the state, foundation and medical faculties outside Turkey in terms of accessing the anatomy curriculum. The rate of accessing the anatomy curriculum in state medical faculties was found to be significantly higher than the rates of other medical faculties ($P < 0.05$) Table 4.

There was a significant difference in both theoretical and practical average course hours between state and foundation medical faculties in the second term. Both theoretical and practical average course hours in state medical faculties were found to be significantly higher than foundation medical faculties ($P < 0.05$) (Table 5).

Table 4. Those with and without curriculum on the web page of the Faculties of Medicine

Curriculum on the web page	State	Foundation	Outside Turkey	Total	p*
Yes	40 (48.80%) ^a	7 (25.00%) ^b	0 (0.00%) ^b	47 (40.90%)	0.011
No	42 (51.20%) ^a	21 (75.00%) ^b	5 (100.00%) ^b	68 (59.10%)	
Total	82 (100.00%)	28 (100.00%)	5 (100.00%)	115 (100.00%)	

*: Pearson chi-square test

Note: Each subscript letter denotes a subset of university types whose column proportions do not differ significantly from each other at the 0.05 level

Table 5. The average of Anatomy course hours of Medical Faculties

	Term I*		Term II*	
	Theoretical (h)	Practical (h)	Theoretical (h)	Practical (h)
State	62 (26-98)	40 (12-120)	110 (23-168)	87 (50-115)
Foundation	42 (32-118)	17 (15-58)	87 (50-15)	41 (17-92)
p	0.22	0.086	0.004	0.01

*: Data are summarized as median (minimum-maximum) h:Hour

DISCUSSION

Anatomical knowledge plays a very important role in patient examination, diagnosis and treatment. Physicians need to have a good understanding of basic anatomy knowledge for safe medical practices. It has been reported that there is a 7-fold increase in medical errors due to anatomical reasons. The training of surgeons will also be affected in the future as the entire anatomy curriculum is reduced to ease the burden of students and teach other skills (28).

There has been a steady decline in the number of anatomy education hours in medical education worldwide in recent decades. Clinicians affirm that it remains a center of contemporary anatomy knowledge for medical examination and accurate diagnosis. Anatomy remains the cornerstone of medical education despite a significant reduction in lecture hours over the recent decades (29).

In order to provide medical education in the best way, different education models are applied in medical faculties around the world (1).

In the study of Craig et al., a total of 19 universities in Australia and New Zealand were surveyed. Significant differences have been identified in terms of time, content and presentation allocated for anatomy in medical faculties here. Average anatomy teaching hours were found to be 171 hours (SD 116.7, range 56/560) (30).

Leung et al. reported that the average teaching hours for gross anatomy in US medical schools decreased from a total of 549 hours in 1902 to a total of 167 hours in 1997 (31). In the United Kingdom and Ireland, the average time devoted to teaching gross anatomy was reported as 124.5 hrs in 1999–2000 (32).

With our research, the contents and course hours of the Anatomy courses given in Medical Faculties operating under the YÖK in Turkey have been determined, and it has been tried to reveal whether there is a standard in this subject in Medical Faculties, by taking TAKAD's ÇEP as a reference. It was seen that most of the Faculties of Medicine curriculum content, which we have access on the web pages are similar and overlap with the content of ÇEP Anatomy course education published by TAKAD in 2018.

The periods in which anatomy courses are given in all Medical Faculties in Turkey are determined as the first and second terms. In the curriculum of state universities affiliated to YÖK, there is an total average of 102 hours of anatomy courses, both theoretical and practical, in the first term, and 197 hours of anatomy courses in the second term. A total average of 299 hours of anatomy courses are given to medical students at the state university.

In foundation universities, a total average of 59 hours of anatomy courses, both theoretical and practical, are given in the first term, and 128 hours in the second term. The total average course hours given to medical students at foundation universities is 187. It has been observed that the total average course hours of both state and foundation universities in Turkey are higher than the course hours

given in the literature.

In addition, the average course hours of both theoretical and practical anatomy in the 2nd term in the Faculties of Medicine of the State University were found to be significantly higher than in the Faculties of Medicine of the Foundation University.

It can be said that there is a standard in Turkey in terms of giving anatomy lessons in term I/II and course content. However, it can be said that there is an inconsistency between the average of Anatomy theoretical and practical course hours of State University Medical Faculties and Foundation University Medical Faculties.

The content of the curriculum could not be reached in most of the web sites of the universities (75%). Nearly half (48.8%) of the University Medical Faculties operating in the state have published their course curriculum on their web pages. This study makes us think that State Universities have a more serious education program in terms of accessibility to course content data, sharing knowledge experience infrastructure and archiving achievements compared to Foundation University Medical Faculties.

A study similar to our study did not appear in our literature review. In a study by Hegazy and Minhas, they mentioned the following: Criticism in recent decades regarding an overcrowded medical school curriculum delivered via didactic, passive techniques has resulted in revised medical courses throughout the world. These now cover a spectrum from problem-based to systems-based, delivered via lectures, clinical skills, and small-group classes. Within this, anatomy teaching in the United Kingdom utilizes a range of formats including dissection, prosection, information technology, living anatomy, and models. Yet there is scant published evidence on outcomes underlying many of these varied teaching styles and techniques. Much simply relies on perceptions of the learning experience and course feedback from students. Frequently these support the particular style of teaching employed by the author rather than attempting a critical appraisal. Recently, much attention has focused on the perceived lack of anatomical knowledge of Australian medical graduates, both in the popular press and academic literature. A sustained decline in the number of hours dedicated to teaching anatomy from the mid-1990s has been attributed to the introduction of integrated, problem-based curricula, the redesign of medical curricula to accommodate a vast expansion in basic science knowledge, as well as the rise of time-poor, four-year graduate programs (7).

CONCLUSION

Anatomy education holds a very important place in the practice of medicine. Various models are being tried today in order to provide better anatomy education. In Turkey, a standard was provided in terms of course content with the anatomy courses given in the medical faculties of the universities affiliated to YÖK in term I/II. It was concluded that most of the curriculum content of the faculties of medicine that we can access on the web pages are similar

and overlap with the contents of the ÇEP anatomy course published by the TAKAD in 2018.

Over the years, the hours of anatomy education in medical education in the world have shown a continuous decline. Reducing these anatomy education hours has been the subject of discussion in various studies. It has been observed that the anatomy course hours applied in medical faculties in Turkey are higher than the literature values.

It can be said that there is a mismatch between the average theoretical and practical hours of the state university medical faculties and the anatomy of foundation university medical faculties in Turkey. This study makes us think that state universities have a more serious education program in terms of accessibility to course content data, sharing knowledge experience infrastructure and archiving achievements compared to foundation university medical faculties. If the number of university medical faculties that open the curriculum to the web pages will increase, it will be possible to make clear conclusions in the researches.

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