

Research and Analysis in the Field of Veterinary Anatomy Between 1994 and 2013 in Turkey

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S U M M A R Y

This search was conducted in order to determine the trends of studies published in the field of Veterinary Anatomy in Turkey between 1994 and 2013 in terms of certain qualification. Scientific articles conducted by academic members of Veterinary Faculties in Turkey and published in national and international journals between 1994 and 2013 were used in this study. Articles were classified according to year-system, year-animal species, gender-system, gender-animal species, doctorate location-system and the journals they were published in. In the year-system classification of the study, most of articles (Table 1, f: 217, 31.68%) were found to be published between the years of 2009-2013. In the same classification, most of articles between 1994 and 2013 were determined to be conducted on circulatory system (Table 2, f: 191, 27.88%) and motion system (Table 2, f: 182, 26.57%). In the evaluation conducted according to year-animal species, rabbits were found to be most commonly used in scientific studies (Table 4, f: 90, 13.10%). In the gender-system analysis, women mostly preferred the motion system (Table 6, f: 36, 31.86%); whereas, men preferred the circulatory system (Table 6, f: 152, 34.55%). Consequently, articles published in the field of veterinary anatomy in Turkey between the specified years were utilized in terms of certain characteristics in order to determine trends.

Key Words: Scientific research, Turkey, Veterinary anatomy

1994 ve 2013 Yılları Arasında Türkiye'deki Veteriner Anatomi Alanındaki Çalışmalar ve Analizi

ÖZ

Bu çalışma 1994-2013 yılları arasında ülkemizde Veteriner Anatomi alanında yayımlanmış çalışmaların bazı özellikler bakımından eğilimlerini belirleme amacıyla yapılmıştır. Çalışmada 1994-2013 yılları arasında ülkemiz Veteriner Fakülteleri öğretim üyeleri tarafından yapılan ulusal ve uluslararası dergilerde yayımlanan bilimsel makaleler kullanıldı. Makaleler yıl-sistem, yıl-hayvan türü, cinsiyet-sistem, cinsiyet-hayvan türü, doktora yer-sistem ve yayımlanan dergiye göre sınıflandırıldı. Çalışmada yıl-sisteme göre yapılan sınıflandırmada en çok makalenin (Tablo 1, f: 217, % 31.68) 2009-2013 yılları arasında yayımlandığı görüldü. Aynı sınıflandırmada 1994-2013 yılları arasında en çok makalenin dolaşım sistemi (Tablo 2, f: 191, % 27.88) ve hareket sistemine (Tablo 2, f: 182, % 26.57) ait olduğu belirlendi. Yıl-hayvan türüne göre yapılan değerlendirmede bilimsel çalışmalarda en çok tavşanın (Tablo 4, f: 90, % 13.10) kullanıldığı görüldü. Cinsiyet-sisteme göre yapılan analizde kadınların en çok hareket sistemi (Tablo 6, f: 36, % 31.86), erkeklerin de dolaşım sistemine (Tablo 6, f: 152, % 34.55) yöneldiği tespit edildi. Sonuç olarak belirtilen yıllar arasında Türkiye'de veteriner anatomi alanında yayımlanmış makaleler bazı özellikler bakımından değerlendirilerek, yönelimler belirlenmeye çalışılmıştır.

Anahtar Kelimeler: Bilimsel Araştırmalar, Türkiye, Veteriner Anatomi

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INTRODUCTION

Veterinary anatomy is an academic discipline on which the practice should be repeated on the training of veterinary surgeons. The technology developing in this field is used conformably in both anatomy education and anatomic researches (Salazar 2002). In Turkey, it is not clear whether a certain trend has been shaped by taking advantage of technological developments in veterinary anatomy studies or not.

New ideas generated in academic disciplines are shared through scientific articles. Therefore, knowledge is produced and academic communication is enabled. Academicians work to generate reliable and accurate knowledge (Ozan and Kose 2014). Staton-Spicer and Wulf (1984) reported that the most acceptable way in determining the study field of a discipline is the evaluation of studies conducted on this discipline. Cohen et al., (2007) stated that the examination of studies conducted on a certain discipline may lead the way for those who are willing to perform studies on this discipline. In addition, synthesis of scientific research results affects the policies and practices of subsequent scientific researches (Ozan and Kose 2014).

There have been numerous studies related to different fields in literature that endeavor to determine scientific research trends (Apaydin 2009, Aydin and Uysal 2011, Erdem 2011, Goktas et al. 2012, Incekara 2009, Sozbilir and Kutu, 2008). On the other hand, upon literature review, no study on the trend analysis related to studies conducted on scientific fields of veterinary medicine has been found. The purpose of this study was to determine the trends of veterinary anatomy researches published in Turkey between 1994 and 2013 in terms of certain characteristics.

MATERIAL and METHOD

Scientific articles conducted by academicians (a total of 75 persons including 18 women and 57 men) with at least doctoral degree at anatomy departments of veterinary faculties in Turkey and published in national and international journals between 1994 and 2013 were used in the study. The articles were reached through universities' websites, Google Scholar, Web of Science, and Cab Abstract databases. Articles were classified according to year-system, year-animal species, gender-system, gender-animal species, doctorate location-system, and the journals they were published in. In the classification conducted according to year-system and year-animal species, the presence of a permanent academic member among article writers was considered sufficient. According to gender-system, gender-animal species, doctorate location-system and the journals they were published in; the classification was performed by taking only the first author name into consideration. 685 articles were assessed according to year-system, 687 articles were assessed according

to year-animal species, 553 articles were assessed according to gender-system, 586 articles were assessed according to gender-animal species, 491 articles were assessed according to doctorate location-system, and 593 articles were assessed according to the journals they were published in. Frequency and percentage values of data were calculated by using MS Excel 2010 program.

RESULTS

Tables 1-11 illustrate results obtained from the study. Articles were classified according to year-system, year-animal species, gender-system, gender-animal species, doctorate location-system and the journals they were published in. In the year-system classification of the study, most of articles (Table 1, f: 217, 31.68%) were found to be published between the years of 2009-2013. In the same classification, most of articles between 1994 and 2013 were determined to be conducted on circulatory system (Table 2, f: 191, 27.88%). In the evaluation conducted according to year-animal species, rabbits were found to be most commonly used in scientific studies (Table 4, f: 90, 13.10%). In the gender-system analysis, women mostly preferred the motion system (Table 6, f: 36, 31.86%); whereas, men preferred the circulatory system (Table 6, f: 152, 34.55%). In the classification conducted according to gender-animal species (Table 6-7) within the study; while women tended more towards aves species (Table 8, f: 41, percentage: 34.75), men studied more on laboratory animals (Table 8, f: 126, percentage: 26.87). It was determined in the study that both male and female researchers mostly conducted studies on rabbits. In the evaluation conducted according to doctorate location-system; those who studied for their doctorates at Ankara and Selçuk Universities tended more towards the circulatory system, whereas those doing their doctorates at Uludağ, Istanbul, and Fırat Universities tended more towards the motion system (Table 9). In the studies where veterinary anatomists were the first author name; the three most commonly preferred journals were found to be Ankara University Veterinary Faculty Journal (Table 10, f: 67, percentage: 11.30), Journal of Veterinary Sciences– Eurasian Journal of Veterinary Sciences (Table 10, f: 61, percentage: 10.29) and Anatomia Histologia Embryologia (Table 10, f: 49, percentage: 8.26). In this classification, a total of 68 journals were preferred (Table 10-11).

DISCUSSION

Classification of articles in terms of various characteristics within the study was performed with the purpose of achieving certain interpretations. On the other hand, upon literature review, no human anatomy or veterinary anatomy studies in which the obtained results could be compared have been found.

Table 1. Classification results of articles according to year-system criterion

Systems	Motion	Digestive	Respiratory	Circulatory	Excretory	Genital	Nervous	Endocrine	Sensory	Other	Total	Percentage
1994	1	2	1	6	1	2	7			1	21	3.07%
1995	1	1	3	3	1		3	1	3	1	17	2.48%
1996	3			6			2	1			12	1.75%
1997	4	1		5			2	1			13	1.90%
1998	7	3		4		2	1			3	20	2.92%
1999	16	4		2	1	1	4		1	2	31	4.53%
2000	7	1	1	8		3	11		1		32	4.67%
2001	15	4	3	23		3	3		1	3	55	8.03%
2002	22	1		10		1	1		1	3	39	5.69%
2003	6	3	2	17	1	1	6		1		37	5.40%
2004	11	2	2	17			3	1	2	4	42	6.13%
2005	5	1	1	16	2	1	6	1	2	6	41	5.99%
2006	11	1	2	8		2	4	2		3	33	4.82%
2007	16		5	8	3	2	5	2	2	2	45	6.57%
2008	5	3		13		1	3	2	2	1	30	4.38%
2009	12	3	2	11	2	3	5	1	3	3	45	6.57%
2010	12	3	3	12		4	2		4	3	43	6.28%
2011	9	3	7	7	2		6	1	4	4	43	6.28%
2012	8	2	2	7	1	3	5	1	4	6	39	5.69%
2013	11	1	2	8	5	2	9		2	7	47	6.86%
Total	182	39	36	191	19	31	88	14	33	52	685	
Percentage	26.57%	5.69%	5.26%	27.88%	2.77%	4.53%	12.85%	2.04%	4.82%	7.59%		

Table 2. Classification results of articles according to year-system criterion in 5-year periods

Systems	1994-1998	1999-2003	2004-2008	2009-2013
Motion	16	66	48	52
Digestive	7	13	7	12
Respiratory	4	6	10	16
Circulatory	24	60	62	45
Excretory	2	2	5	10
Genital	4	9	6	12
Nervous	15	25	21	27
Endocrine	3		8	3
Sensory	3	5	8	17
Other	5	8	16	23
TOTAL	83	194	191	217
Percentage	12.12%	28.32%	27.88%	31.68%

Table 3. Classification results of articles according to year-animal species

Groups	Laboratory Animals						Laboratory Animals	Sus	Sus		
	Species	Rabbit	Rat	Guinea Pig	Hamster	Mouse	W. Rodent	Total	Domestic	Wild	Total
1994	1	1						2			
1995	5	1	1					7			
1996	3	1	1					5			
1997	2	2	2					6			
1998	2	2						4			
1999	2	2					2	6			
2000	4	1	1				1	7			
2001	12	3	2		2			19			
2002	8	1					3	12			
2003	9		1		1		2	13		1	1
2004	4	1	2				1	8			
2005	2	1			2		3	8	1		1
2006	4	2	3				3	12	1		1
2007	10		1		1		6	18	1		1
2008	1		1				3	5			
2009	6						5	11			
2010	3	6			3		1	13			
2011	7	3					2	12			
2012	3	3			1		2	9			
2013	2	3	1				4	10		1	1
Total	90	33	16		10		38	187	3	2	5
Percentage	13.10%	4.81%	2.33%		1.46%		5.53%	27.22%	0.44%	0.29%	0.73%

Table 4. Classification results of articles according to year-animal species (Cont. of Table 3)

Groups	Equidae				Ruminant						Carnivora				
	Species	Horse	Donkey	Mule	Total	Cattle	Water Buffalo	Sheep	Goat	Camel	W. Ruminant	Total	Dog	Cat	W. Carnivora
1994					1		7				8	7			7
1995							1	2			3	1			1
1996					1		2	2			5	3			3
1997	1			1			2	3			5	4			4
1998					3				2	1	6	3		3	6
1999					1		1		1		3	6	3	1	10
2000					3		4	2			9	3	2		5
2001					2		7	5			14	6	4	4	14
2002							2	1			3	9	3	3	15
2003					3	3	4				10	6	4	3	13
2004	1	2		3	3	2	2	1			8	3		10	13
2005		1		1	6					2	8	4		9	13
2006					4		1	2	1		8	4	1	5	10
2007	1	1		2	1		3	2			6	4		2	6
2008		3		3	3		2	2			7	4	1	3	8
2009		5		5	3		7	1		2	13	3		4	7
2010	3	1		4	1		3	2		4	10	2		3	5
2011	2	1		3	1		2	2			5	5	1	3	9
2012	1			1	4		3	1		1	9	2	1	1	4
2013	6			6	5		1	1		1	8	2		1	3
Total	15	14		29	34	5	54	29	4	11	148	81	20	55	156
Percentage	2.18%	2.04%		4.22%	4.95%	0.73%	7.86%	4.22%	0.58%	1.60%	21.54%	11.79%	2.91%	8.01%	22.71%

Table 5. Classification results of articles according to year-animal species (cont. of table 3)

Groups	Aves											Aves
Species	Chicken – Rooster	Goose	Duck	Quail	Ostrich	Turkey	Partridge	Pigeon	Pheasant	Other	W. Poultry	Total
1994	1											1
1995	4		1					1				6
1996	2		2					1				5
1997				1								1
1998	3	2	2	1				2				10
1999	4		3					2				9
2000	3	3	1	1		2						10
2001	6	2	1			1		1		2	1	14
2002	2	1		1						1	5	10
2003	1				1							2
2004	2		1	3			2	1				9
2005	2	1						1		1	1	6
2006	1	1	1	1			1		1	1	1	8
2007			1	1		1					2	5
2008	3		1	3								7
2009	3	2		1		1					2	9
2010	1	2		3		4	1				5	16
2011			1	4			1			1	4	11
2012	1	1	1	1			4		1		5	14
2013		1		1				1	1		5	9
Total	39	16	16	22	1	9	9	10	3	6	31	162
Percentage	5.68%	2.33%	2.33%	3.20%	0.15%	1.31%	1.31%	1.46%	0.44%	0.87%	4.51%	23.58%

Table 6. Classification results of articles according to system-gender

Systems	Female		Male	
	Frequency	Percentage	Frequency	Percentage
Motion	36	31.86%	122	27.73%
Digestive	6	5.31%	20	4.55%
Respiratory	11	9.73%	23	5.23%
Circulatory	23	20.35%	152	34.55%
Excretory	2	1.77%	10	2.27%
Genital	9	7.96%	19	4.32%
Nervous	16	14.16%	58	13.18%
Endocrine	4	3.54%	7	1.59%
Sensory	6	5.31%	21	4.77%
Other			8	1.82%

Table 7. Classification results of articles according to gender-animal species

Group	Species	Female		Male	
		Frequency	Percentage	Frequency	Percentage
Equidae	Horse	5	4.24%	9	1.92%
	Donkey	3	2.54%	11	2.35%
	Mule	8	6.78%	20	4.26%
Ruminant	Cattle	5	4.24%	24	5.12%
	Water Buffalo			5	1.07%
	Sheep	4	3.39%	36	7.68%
	Goat	6	5.08%	23	4.90%
	Camel			3	0.64%
	W. Ruminant	1	0.85%	10	2.13%
Carnivora		16	13.56%	101	21.54%
	Dog	11	9.32%	58	12.37%
	Cat	1	0.85%	19	4.05%
	W. Carnivora-insect.	9	7.63%	40	8.53%
		21	17.80%	117	24.95%

Table 8. Classification findings of articles according to gender-animal species (Cont. of Table 7)

Group	Species	Female		Male	
		Frequency	Percentage	Frequency	Percentage
Laboratory Animals	Rabbit	17	14.41%	66	14.07%
	Rat	3	2.54%	20	4.27%
	Guinea Pig	3	2.54%	16	3.41%
	Hamster				
	Mouse			5	1.07%
	W. Rodent	9	7.63%	19	4.05%
Laboratory Animals		32	27.12%	126	26.87%
Aves	Chicken-Rooster	8	6.78%	27	5.76%
	Goose	8	6.78%	6	1.28%
	Duck	4	3.39%	12	2.56%
	Quail	2	1.69%	14	2.99%
	Ostrich			1	0.21%
	Turkey	5	4.24%	5	1.07%
	Partridge			6	1.28%
	Pigeon	2	1.69%	7	1.49%
	Pheasant			1	0.21%
	Other	2	1.69%	3	0.64%
	W. Poultry	10	8.47%	19	4.05%
	Aves		41	34.75%	101
Sus	Domestic			2	0.43%
	Wild			2	0.43%
Sus				4	0.85%

Table 9. Classification findings of articles according to system and doctorate location

Systems	Ankara		Uludag		Istanbul		Firat		Selcuk	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Motion	45	22.73%	24	44.44%	41	57.75%	34	37.78%	9	11.54%
Digestive	3	1.52%	4	7.41%	3	4.23%	8	8.89%	5	6.41%
Respiratory	15	7.58%	7	12.96%	3	4.23%	1	1.11%	1	1.28%
Circulatory	80	40.40%	4	7.41%	8	11.27%	24	26.67%	43	55.13%
Excretory	6	3.03%		0.00%	1	1.41%	2	2.22%	4	5.13%
Genital	8	4.04%	3	5.56%	4	5.63%	7	7.78%	1	1.28%
Nervous	25	12.63%	8	14.81%	8	11.27%	3	3.33%	12	15.38%
Endocrine	4	2.02%		0.00%	1	1.41%	4	4.44%		0.00%
Sensory	12	6.06%	3	5.56%	2	2.82%	6	6.67%	1	1.28%
Other		0.00%	1	1.85%		0.00%	1	1.11%	2	2.56%
Total	198		54		71		90		78	
Number of People	24		6		10		11		10	
Rate of People	8.25		9		7.1		8.2		7.8	

Table 10. Classification findings of articles according to journals

Name of Journal	Frequency	Percentage
Ankara University, Journal of Veterinary Faculty	67	11.30%
Eurasian Journal of Veterinary Sciences- Journal of Veterinary Sciences	61	10.29%
Anatomia Histologia Embriologia	49	8.26%
Firat University Veterinary Journal of Health Sciences	46	7.76%
Kafkas University Journal of Veterinary Faculty	43	7.25%
Turkish Journal of Veterinary and Animal Sciences	30	5.06%
İstanbul University Journal of Veterinary Faculty	29	4.89%
Uludag University Journal of Veterinary Faculty	27	4.55%
Journal of Animal and Veterinary Advances	23	3.88%
Veterinarni Medicina-Czech.	18	3.04%
Atatürk University Journal of Veterinary Sciences	17	2.87%
Indian Veterinary Journal	17	2.87%
Veterinarski Arhiv	15	2.53%
Yüzüncü Yıl University Journal of Veterinary Faculty	15	2.53%
Annals of Anatomy	14	2.36%
Revue de Medecine Veterinaire	11	1.85%
Veterinary Research Communications	11	1.85%
Erciyes University Journal of Veterinary Faculty	10	1.69%
Israel Journal of Veterinary Medicine	8	1.35%
Dtsch. Tierarztl. Wochenschr	6	1.01%
Journal of Veterinary Medical Science	5	0.84%
Journal of <i>Turkish</i> Veterinary Medical Society	4	0.67%
Journal of Veterinary Surgery	4	0.67%
Bulletin of the Veterinary Institute in Pulawy	3	0.51%
Research in Veterinary Science	3	0.51%
Acta Veterinaria Hungarica	2	0.34%
Brain Research	2	0.34%
Bulgarian Journal of Agriculture Sciences	2	0.34%
Folia Morphology	2	0.34%
Harran University Journal of Veterinary Faculty	2	0.34%
International Journal of Clinical and Experimental Anatomy	2	0.34%
International Journal of Morphology	2	0.34%
Journal of Chemical Neuroanatomy	2	0.34%
Journal of the South African Veterinary Association	2	0.34%
Kocatepe Veterinary Journal	2	0.34%
Review of Environmental Contamination and Toxicology	2	0.34%
Schweizer Archivfür Tierheilkunde	2	0.34%
Scientific World Journal	2	0.34%
Veterinary and Comparative Orthopaedics and Traumatology	2	0.34%

Table 11. Classification findings of articles according to journals (Cont. of Table 10)

Acta Veterinaria (Beograd)	1	0.17%
Acta Veterinaria Brno	1	0.17%
Annals of Otolaryngology, Rhinology and Laryngology	1	0.17%
Archiv Tierzucht	1	0.17%
Archives of Biological Sciences	1	0.17%
Biotechnic and Histochemistry	1	0.17%
Journal of Bornova Veterinary Sciences	1	0.17%
British Poultry Science	1	0.17%
Dicle University Journal of Veterinary Faculty	1	0.17%
Journal of Etlik <i>Veterinary Microbiology</i>	1	0.17%
Folia Veterinaria	1	0.17%
International Journal of Osteoarcheology	1	0.17%
Israel Journal of Morphology	1	0.17%
Journal of Applied Animal Research	1	0.17%
Journal of Physiology	1	0.17%
Journal of veterinary medicine. B, Infectious diseases and veterinary public health	1	0.17%
Microscopy Research and Technique	1	0.17%
Natura Croatica	1	0.17%
Neuroscience	1	0.17%
Small Ruminant Research	1	0.17%
Society for Neuroscience	1	0.17%
The anatomical record. Discoveries in molecular, cellular, and evolutionary biology	1	0.17%
<i>Journal of Turkish Veterinary Surgeon Association</i>	1	0.17%
Veterinary medicine and zootechnics	1	0.17%
Veterinary Ophthalmology	1	0.17%
Veterinary Quarterly	1	0.17%
Veterinary Record	1	0.17%
Veterinary Record: Journal of the British Veterinary Association	1	0.17%
Wildlife Information Bulletin	1	0.17%

In fact, in addition to being the first as a study, the study is also significant as it has a limitation because of including a certain time interval.

Articles were evaluated according to year-system criterion within the study. Accordingly, most articles were found to be conducted in 2001 (Table 1, 8.03%). The three most commonly-studied systems were circulatory (Table 2, 27.88%), motion (Table 2, 26.57%), and nervous (Table 2, 12.85%) systems. It has been remarkable that the circulatory system had the highest level among other studies between 2001 and 2005 and had a relative decrease in the following years.

In the evaluation of articles conducted according to year-animal species, the most commonly-studied animal group was laboratory animals (Table 4, f: 187, percentage: 27.22). The three most studied animal

species were rabbit (Table 4, f: 90, percentage: 13.10), dog (Table 3, f: 81, percentage: 11.79), and wild carnivora (Table 3, f: 55, percentage: 8.01) in this classification. The fact that the interest shown in wild animal species in the recent years increased was also among the results obtained from this classification.

In the classification of articles conducted according to system-gender; while women studied more on motion system, men studied more on circulatory system. The number of articles per person among a total of 113 articles produced by 18 female academicians within the study was calculated as 6.28; whereas, the number of articles per person among a total of 440 articles produced by 57 male academicians was calculated as 7.72.

In the classification conducted according to gender-animal species (Table 6-7) within the study; while women tended more towards aves species (Table 8, f: 41, percentage: 34.75), men studied more on laboratory animals (Table 8, f: 126, percentage: 26.87). It was determined in the study that both male and female researchers mostly conducted studies on rabbits.

In the evaluation conducted according to doctorate location-system; those who studied for their doctorates at Ankara and Selçuk Universities tended more towards the circulatory system, whereas those doing their doctorates at Uludağ, Istanbul, and Fırat Universities tended more towards the motion system (Table 9).

In the studies where veterinary anatomists were the first author name; the three most commonly preferred journals were found to be Ankara University Veterinary Faculty Journal (Table 10, f: 67, percentage: 11.30), Journal of Veterinary Sciences– Eurasian Journal of Veterinary Sciences (Table 10, f: 61, percentage: 10.29) and Anatomia Histologia Embryologia (Table 10, f: 49, percentage: 8.26). In this classification, a total of 68 journals were preferred (Table 10-11).

Consequently, articles generated by permanent academic members of Veterinary Faculties between 1994 and 2013 were examined in terms of certain characteristics in this study. Trends were tried to be determined according to the obtained results. We are of the opinion that the results of this study shall lead the way to young academicians working in this field in the future.

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