

Some Morphological Traits of the Zagar (*erect-ear*) Dog in Turkey

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ABSTRACT: This research is the first to document the morphology of the Turkish Zagar (Erect-ear) dog. The study was conducted to determine the frequencies of body coat colour and the morphological traits, according different age and sex groups, of the Zagar dog raised in the East of Turkey. To this end, a total of 38 male and 23 female Zagar were measured. Descriptive statistics gave the following means: live weight 10.6 ± 0.19 kg, height at shoulders 27.8 ± 0.22 cm, height at rump 29.1 ± 0.22 cm, body length 46.3 ± 0.42 cm, heart girth circumference 50.9 ± 0.44 cm, chest depth 21.8 ± 0.33 cm, chest width 21.1 ± 0.22 cm, cannon circumference 9.5 ± 0.08 cm, and head length 18.0 ± 0.22 cm. The frequencies of different body coat colours for these dogs were: white 29.5%, black 23.0%, piebald 19.7%, brown 18.0%, and tan 9.8 %. The Zagar dog is a small size watch dog in Turkey, and it reaches its mature body size at two years of age. The overall results of this study show that Zagar dogs have a very close resemblance to the English Welsh Corgi and Swedish Vallhund dogs.

Keywords: Turkish Zagar, erect-ear, watch dog, morphologic trait, body measurements, body coat colour



Türkiye'deki Zağar (Dikkulak) Köpeğinin Bazı Morfolojik Özellikleri

ÖZET: Bu çalışma, Türk Zağar (Dikkulak) Köpeği hakkındaki ilk bilimsel araştırmadır. Araştırma farklı yaş ve cinsiyet gruplarındaki Zağar Köpeklerinin post rengi ve morfolojik özelliklerini belirlemek amacıyla Türkiye'nin Doğu Anadolu Bölgesinde gerçekleştirilmiştir. Araştırma materyali olarak 38 erkek ve 23 dişi Zağar kullanılmıştır. Tanımlayıcı istatistik değerler şöyledir: Canlı ağırlık 10.6 ± 0.19 kg, omuz yüksekliği 27.8 ± 0.22 cm, sağrı yüksekliği 29.1 ± 0.22 cm, vücut uzunluğu 46.3 ± 0.42 cm, göğüs çevresi 50.9 ± 0.44 cm, göğüs derinliği 21.8 ± 0.33 cm, göğüs genişliği 21.1 ± 0.22 cm, ön incik çevresi 9.5 ± 0.08 cm ve baş uzunluğu 18.0 ± 0.22 cm olarak bulunmuştur. Post renklerinin oransal dağılımı sırası ile beyaz renk % 29.5 siyah % 23.0, alaca % 19.7, kahverengi % 18.0 ve boz renk % 9.8 olarak belirlenmiştir. Zağar Köpeği küçük boylu bir bekçi köpeğidir ve ergin canlı ağırlığına 2 yaşında ulaşır. İngiliz Welsh Corgi ve İsveç Vallhund Köpekleri ile yapılan karşılaştırmada, bu köpekler ile Zağar Köpeği arasında oldukça fazla benzerlik olduğu görülmüştür.

Anahtar kelimeler: Zağar, dikkulak, bekçi köpeği, morfolojik özellik, vücut ölçüleri, post rengi

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INTRODUCTION

The Turkish Zagar (Erect-ear) dog is a small-size watch dog. Watch dogs are used to watch for and give warning about unwanted or unexpected people or animals. They are distinct from guard dogs, which attack such people without always giving warning. Both watch dogs and guard dogs are able to discriminate between people, so that they do not annoy or attack familiar people (en.wikipedia.org, 2011a).



Figure 1. Examples of Turkish Zagar (Erect-ear) Dog.

Such dogs bark loudly to alert their owners of an intruder's presence and to scare away the intruder. A watch dog's function ends here, because they are not capable of attacking or restraining an intruder. Big guard dogs are often large enough and strong enough to attack and drive away livestock predators such as wolves. Watch dogs bark loudly to alert their masters of intruders, but are not given to assertive behaviour. Thus

even very small but attentive dogs may function well as watchdogs, and such a dog is the Turkish Zagar dog (en.wikipedia.org, 2011a).

If the risk is from human intruders, a suitable watch dog can simply be trained to be alert about unfamiliar humans. It can be tethered or enclosed unsupervised in an area the owner wishes to protect when humans are not around, such as at night. The stereotypical 'junkyard dog' is a common example of this (en.wikipedia.org 2011a). It is assumed that the dogs barking will deter any intruders, who will not be in a position to know whether the dog is a watch dog, which will not attack, or a guard dog, which will. In any case, an intruder will not know whether or not the dog's owner has been alerted by its barking.

The Turkish Zagar dog is a dog that has been mainly bred for watching. It is good at watching and barking, so as to deter intruders from entering its owner's property. It is not a dog friendly to strangers. Zagar dogs are not suitable as pet dogs. They need to be outside and to have lots of space to move around in (Yılmaz, 2007) The Zagar is generally bred in the eastern region of Turkey, and has short haired coats of any colour, including pied.



Figure 2. Examples of Welsh Corgi Dogs.



Figure 3. Examples of Swedish-Vallhund Dogs.

Apart from the Zagar, there are several dog breeds elsewhere in the world, including the Swedish Vallhund and Welsh Corgi, which strongly resemble each other (Anonymous, 2005; en.wikipedia.org, 2011b; en.wikipedia.org, 2011c; www.akc.org, 2011; www.cardigancorgis.com, 2011).

The Swedish Vallhund is a Spitz-type, small-size, short-legged breed of dog. It is bred to herd cattle, to catch vermin such as rats and to guard the home. Like the Welsh Corgi, it also nips at the heels of cattle due to its inborn herding impulses. The Vallhund is also known as the ‘Viking Dog’ or ‘the little cattle dog of the Vikings’. The Vallhund is powerful, fearless, sturdily built, watchful, energetic, alert, intelligent, friendly and a generally healthy breed of dog. The Vallhund dog makes a great companion and can also be used for herding and ridding. They love human attention and are very devoted to their owners. They are responsive and even-tempered with most people, but they can be wary of strangers. They are well known for their ability to fit well into rural as well as suburban living. Their coat is medium length and coarse. The Vallhund generally have dark body coat colours. The average Vallhund height at shoulders is 33 cm for males and 31 cm for females. Their overall average weight is between 9-14 kg (Anonymous, 2005; en.wikipedia.org, 2011b; www.akc.org, 2011).

The Welsh Corgi dog is a short-legged, small type of herding dog that originated in Wales, UK. They are loyal, alert, fun-loving, even-tempered, confident and beloved pets. Queen Elizabeth II of England is known for her devotion to Corgis. Two distinct breeds are mainly recognized: the Pembroke Welsh Corgi and the Cardigan Welsh Corgi. The Pembroke Welsh Corgi is the more common of the two. Corgi dogs are a kind of herding dog and they perform this task by nipping at the heels of livestock. The Corgi’s low stature allows it to avoid being kicked in the process. They have a short or medium length coarse-textured and waterproof coat that has also undercoat. Their height averages 25-30

Table 1. Weight and height in Welsh Corgi and Swedish Vallhund Dogs

Source	Weight (kg)		Height (cm)	
	Male	Female	Male	Female
Welsh Corgi ¹	10-12	10-11	25-30	25-30
Welsh Corgi ^{5,7}	12	11	25-30	25-30
Swedish Vallhund ¹	9-14		33	31
Swedish Vallhund ^{4,6}	12-14	9-11	33	31

¹en.wikipedia.org, 2011a; ⁴en.wikipedia.org, 2011b; ⁵en.wikipedia.org, 2011c; ⁶www.akc.org, 2011; ⁷www.cardigancorgis.com, 2011

cm for both males and females. Their weight is about 12 kg for males and 11 kg for females (Anonymous, 2005; en.wikipedia.org, 2011c; www.cardigancorgis.com, 2011).

The object of the current study was to compare the Turkish Zagar dogs with the Welsh Corgi and Swedish Vallhund by describing body coat colour and some morphologic characteristics of the Zagar dogs in Turkey.

MATERIALS AND METHODS

Experimental animals: The Turkish Zagar dogs used in this study were surveyed in five provinces in the East of Turkey. The provinces used as study areas were Ağrı (39°43'N; 43°03'E), Ardahan (41°06'N; 42°42'E), Erzurum (39°54'N; 41°16'E), Iğdır (39°55'N; 44°02'E), Kars (40°36'N; 43°06'E) (www.googleearth.com, 2011). The dogs were aged between 1 and 7 years and grouped into three age groups: 1-2, 3-4, and 5-7 years respectively. Their ages were determined from the information given by their owners.

Measurements: This study was conducted in January 2011. The dogs were weighed for attributes such as live weight using a portable spring scale. Height at shoulders (WH), height at rump (HR), body length (BL), chest depth (CD), and chest width (CW) were measured using a measuring stick. Other linear measures such as heart girth circumference (HGC), cannon circumference (CC), and head length (HL) were taken using a graduated plastic tape (Yılmaz, 2007).

Statistical analysis: The data obtained for the Turkish Zagar dogs were analyzed with the Minitab 15 statistical software program. Descriptive statistics for body dimensions were computed using an ANOVA Model that also determined the impact of regions and age groups on the response variables of LW, WH, HR, BL, HGC, CD, CW, CC, and HL. The effect of sex on the response variables for live weight and body

dimensions was analyzed by using the t-Test Method (Anonymous, 2011).

RESULTS AND DISCUSSION

Frequencies of body coat colour in the Turkish Zagar dog are shown in Table 2. As can be seen, the five different coat colours were recorded. By contrast, the common colours of Welsh Corgi dogs are brown, sable, fawn, black and tan, and can also be with or without white markings on the legs, brisket and neck (en.wikipedia.org, 2011c; www.cardigancorgis.com, 2011). In the Vallhund dogs, desirable colours are grey, greyish brown, greyish yellow or reddish brown, with darker hairs on the back, neck and sides of the body (en.wikipedia.org, 2011a; www.akc.org, 2011). In having white and piebald coat colours, the Turkish Zagar differs from both Welsh Corgi and Swedish Vallhund dogs, which do not have such colouring.

The effects of sex and age on phenotypic traits are given in Table 3. It is clear that the Turkish Zagar is slightly smaller than Swedish Vallhund and Welsh Corgi in body dimensions, as seen when Table 1 is compared with Table 3. The Turkish Zagar is about 10% lighter than the Welsh Corgi. The female Turkish Zagar dogs agree with the Swedish Vallhund in terms of weight, but the male Zagar dogs are about 20% lighter than the Swedish. Among the three breeds, the shortest is the Turkish Zagar and the tallest is the Swedish Vallhund. The Welsh Corgi comes between the two.

The effect of sex on phenotypic traits is given in Table 3. The t-Test results show that there are no statistically significant ($P < 0.05$) differences between male and female dogs for all traits.

With respect to ages, the means are given in Table 3. Among the three age groups, 1-2 year-old Zagar dogs were significantly ($P < 0.05$) different from the other two groups for WH, HR, BL, HGC, CD and CW. After 2 years, there is minor difference for all traits. It can be

Table 2. Frequencies of body coat colour in the Turkish Zagar Dog

	White	Black	Piebald	Brown	Tan
n	18	14	12	11	6
%	29.5	23.0	19.7	18.0	9.8

concluded that the Turkish Zagar dogs grow up to 2 years of age, and after that there is only minor growth.

The phenotypic correlation values (r) are shown in Table 4. The highest values were observed between WH-CD ($r = 0.85$), WH-HGC ($r = 0.81$), WH-HR ($r = 0.78$), WH-BL ($r = 0.77$) and HR-BL ($r = 0.74$). The lowest correlation values were between WH-CW ($r = 0.33$), WH-CC ($r = 0.32$), HR-CW ($r = 0.36$), BL-CC ($r = 0.31$), HGC-CC ($r = 0.34$) and CD-CW ($r = 0.31$).

This work was the first study of the Turkish Zagar dog to define the morphological traits. It evident that they reach their adult body weight and size at around 2 years of age, after which there is only minor growth.

CONCLUSION

The overall results of this study show that Zagar dogs have a very close resemblance to the Welsh Corgi and Swedish Vallhund dogs. In order to establish whether or not they are descended from one ancestor, a full DNA-based research should be conducted in the future, and a genetic relationship sought between the Zagar in Turkey, the Welsh Corgi in the UK and the Swedish Vallhund in Sweden.

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Table 3. Descriptive statistics and comparison results of the phenotypic traits of the Turkish Zagar dog for different sexes and ages

Trait	LW (kg)	WH (cm)	HR (cm)	BL (cm)	HGC (cm)	CD (cm)	CW (cm)	CC (cm)	HL (cm)
	$\bar{X} \pm S_{\bar{X}}$	$\bar{X} \pm S_{\bar{X}}$	$\bar{X} \pm S_{\bar{X}}$	$\bar{X} \pm S_{\bar{X}}$	$\bar{X} \pm S_{\bar{X}}$	$\bar{X} \pm S_{\bar{X}}$	$\bar{X} \pm S_{\bar{X}}$	$\bar{X} \pm S_{\bar{X}}$	$\bar{X} \pm S_{\bar{X}}$
Overall (n=61)	10.6 ± 0.19	27.8 ± 0.22	29.1 ± 0.22	46.3 ± 0.42	50.9 ± 0.44	21.8 ± 0.33	21.1 ± 0.22	9.5 ± 0.08	18.0 ± 0.22
Sex									
Male (n=38)	10.1a ± 0.26	27.9a ± 0.31	29.0a ± 0.30	46.1a ± 0.58	51.0a ± 0.63	21.8a ± 0.47	21.1a ± 0.28	9.5a ± 0.09	18.2a ± 0.31
Female (n=23)	10.5a ± 0.24	27.7a ± 0.27	29.1a ± 0.32	46.5a ± 0.60	50.5a ± 0.57	21.6a ± 0.40	21.2a ± 0.38	9.4a ± 0.09	17.7a ± 0.29
Age									
1-2 years (n=23)	9.5a** ± 0.27	27.1a* ± 0.45	28.3a* ± 0.46	44.8a* ± 0.75	49.2a* ± 0.81	20.7a* ± 0.61	20.4a* ± 0.39	9.3a ± 0.15	18.0a ± 0.25
3-4 years (n=20)	11.1b** ± 0.28	28.2ab* ± 0.28	29.5b* ± 0.24	46.7ab* ± 0.68	51.8b* ± 0.66	22.0ab* ± 0.52	21.5ab* ± 0.35	9.7a ± 0.10	17.5a ± 0.52
5-7 years (n=18)	11.5b** ± 0.21	28.5b* ± 0.24	29.5b* ± 0.32	47.6b* ± 0.60	51.9b* ± 0.63	22.8b* ± 0.38	21.7b* ± 0.35	9.4a ± 0.11	18.6a ± 0.32

* ($P < 0.05$), ** ($P < 0.01$); there were no significant differences between means showed in same letters of alphabet in same row and factor group

Table 4. The phenotypic correlation values (r) among live weight and body dimensions

Trait	WH (cm)	HR (cm)	BL (cm)	HGC (cm)	CD (cm)	CW (cm)	CC (cm)
HR (cm)	0.78**						
BL (cm)	0.77**	0.74**					
HGC (cm)	0.81**	0.68**	0.69**				
CD (cm)	0.85**	0.62**	0.68**	0.74**			
CW (cm)	0.33**	0.36**	0.25	0.40**	0.31*		
CC (cm)	0.32*	0.43**	0.31*	0.34**	0.22	0.23	
HL (cm)	0.04	0.17	0.12	0.05	0.05	0.11	0.08

* ($P < 0.05$), ** ($P < 0.01$)

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