

DETERMINATION OF ZERDAVA DOG (KAPI KOPEGI) RAISED IN NORTHEAST OF TURKEY

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ABSTRACT

This is the first document on Turkish Zerdava dogs raised in northeast of Turkey. This study was carried out to define the morphologic traits of the Turkish Zerdava dogs raised in east of Turkey comparing with some other native dog breeds of Turkey. To this end, a total of 39 (19 male and 20 female) dogs was analyzed using the Minitab 15 statistical software program using ANOVA and Student's t-Test. Descriptive statistics and comparison results were for height at shoulders 51.2±0.35, height at rump 51.6±0.28, body length 56.3±0.35, heart girth circumference 50±1.43, chest width 25.6±0.22, cannon circumference 9.4±0.14, and head length 19.4±0.17 cm respectively. The overall results of the study demonstrated that Turkish Zerdava dogs had a very close resemblance to the Turkish Kangal (Karabash) and Akbash Shepherd dogs related with body measurements. The Zerdava dogs reach mature body weight and size at around 18 months of age.

Keywords: Body measurement, genetic resource, hunting dog, live weight, phenotypic trait.

INTRODUCTION

According to scientist the dog is the first domesticated animal in prehistoric times even though among scientist there is no full agreement on where and when dogs (*Canis familiaris*) originated [4]. Savolainen et al [8] reported that a genetic evidence for East Asian origin of domestic dog was found in China about 15,000 years ago. In Turkey Prof. Dr. Belli revealed that hunting seen with dog about 15.000 years ago rock carving in village of Calli, county of Kagizman, province of Kars, Turkey. Belli reported that the rock carving showed that dogs used to use to hunt deer and/or wild goats in ancient times [12]. Pang et al [6] reported that mtDNA data indicated a single origin for dogs South of Yangtze River, less than 16.300 years.

In the world there are more than 400 dog breeds [7]. In dog species (*C. familiaris*), guardian dogs are dogs bred to defend people and their possessions [10]. They are generally large, rugged and impressive in body. They possess great endurance and agility. These dogs are tall and powerful, yet not massive in build. This magnificent ancient working dog presents an impression of functional utility

without exaggerated features. Large size is important, but correct breed type, soundness of movement, overall balance with correct temperament should be given precedence so as to preserve working ability. Flock guardian dogs show an alert, territorial and protective temperament of sheep and goats and their human family. Their possessive natural protective instinct is calm, noble, courageous, steady, intelligent, sensitive and affectionate with its own family and flock, loyal, proud, self-assured and independent. [9, 10].

In Turkey there are about dozen of native dog breeds, five of which are livestock guardian dogs listed in Table 1. In those breeds the Turkish Kangal (Karabash) Shepherd (TKnS) is the most common dog breed of Turkey. This breed can be seen almost all wide spread of country. Other breeds are generally local dog breeds. The Turkish Akbash Shepherd dog is located in triangle of Ankara, Afyon, and Eskişehir provinces. The Kars (Caucasian) Shepherd (TKrS) is mainly seen in east of Turkey. In province of Karaman and adjacent provinces there is a breed of Karaman Dog. The Turkish Tazi (Sighthound) (TT) is mainly raised especially in provinces of Konya and Sanliurfa. The

Tarsus Catalburun (Fork-nose) (TC) Dogs is a pointer type dog and can only be found in province of Icel. Dikkulak (Erect-ear) or Zagar (D/Z) dog is located in a place where TKrS dog lives. In northeast of Turkey, there are also three local dog breeds. One of them is Zerdava dog which is the subject of this

study. This breed is a working type and medium size dog breed. The second breed is Fino of Tonya. This breed is a small size watch dog. The third breed is Rize Koyun dog (Bayburt Kelpi) which is another flock protection dog breed in north-east region of Turkey [10, 11, 12, 13, 14, 15, 16].

Table 1. Some morphologic traits on various Turkish Breeds of dogs

	LW (kg)	HS (cm)	HR (cm)	BL (cm)	HGC (cm)	CD (cm)	CC (cm)
Turkish Kangal (Shepherd)[11]	45.9	74.8	73.8	84.5	86.2	31.6	13.2
Turkish Akbas Shepherd[1]	44.9	75.3	74.2	81.8	86.5	32.6	13.3
Turkish Kars (Shepherd)[2]	44.6	72.4	71.1	87.3	84.7	31.3	12
Turkish Tazi[15]	18.4	62	62.2	60.3	63.3	22.8	10.2
Tarsus Catalburun[16]	21.7	48.5	48.5	49.1	64	20.8	10.5
Dikkulak (erect-ear)/Zagar[13]	10.6	27.8	29.1	46.3	50.9	21.8	9.5

The Zerdava dog is a hunting dog which is used to hunt boars, foxes, and jackals. Nowadays Zerdava dogs are used as a watch dog rather than hunting dog. Only one type of colour pattern can be seen. Main colour is dark brown or liver brown. On chest, legs, chest and point of tail there is white colour with small dark patches. This breed is potentially dangers to strangers. Zerdava Dogs are very brave, energetic and agile dogs. According to Zerdava owners, they chase a lure even for several days. They do not affair from wolves, so they are hunt by wolves in winter session. This is the main reason of decreasing number of Zerdava dogs during last several years (pers. com.).

The aim of this study is to present some morphologic traits of Zerdava Dogs by minding sex, region and age factors and by comparing with other dog breeds.

MATERIALS and METHODS

Experimental animals

The Zerdava dogs in this study were surveyed in November 2011 in the province of Trabzon (40°53'N; 39°17'E)[17]. A total of 39 dogs, 19 male and 20 female, were studied. The dogs were aged between 1 and 7 years, and divided into three age groups: 12-18 months, 24-30 months, and 36-84 months. In the first group there were 5 males and 11 females; in the second group there were 7 males and 6 females, and in the third group there were 7

males and 3 females. The ages of dogs were determined from the information given by their owners.

Measurements

The sampled dogs were measured for height at shoulders (HS), height at rump (HR), body length (BL), and chest depth (CD) by using a measuring stick calibrated in centimetres. Other linear measures such as hearth girth circumferences (HGC), cannon circumferences (CC) and head length (HL) were measured using a graduated plastic tape [5].

Statistical analysis

The data obtained were analyzed using the Minitab 15 statistical software program. Descriptive statistics for body dimensions were analyzed using ANOVA and Student's T-Test that also determined the impact of sex, country and age group on the response variables of HS, HR, BL, HGC, CD, CC and HL[1].

RESULTS AND DISCUSSION

The effects of sex, region and age on phenotypic traits were given in Table 2. Between male and female dogs there were no significant differences for all morphological traits except the traits of HR and HL. For all results obtained male dogs yielded higher values than females except for the traits of BL and CC ($P < 0.01$). For those traits male dogs yielded higher values than females.

Table 2. Descriptive statistics and comparison results of the phenotypic traits of Turkish Kars (Caucasian) dogs for different sexes, regions, ages and coat colours

	Traits		HS (cm)	HR (cm)	BL (cm)	HGC (cm)	CD (cm)	CC (cm)	HL (cm)
Sex	Overall (n=39)	$\bar{X} \pm S_{\bar{y}}$	51.2±0.35	51.4±0.28	56.3±0.35	58±1.43	25.6±0.22	9.4±0.14	19.4±0.17
	Male (n=19)	$\bar{X} \pm S_{\bar{y}}$	51.8±0.43	51.9±0.34	56.9±0.47	60.6±0.43	25.8±0.27	9.6±0.22	19.7±0.19
	Female (n=20)	$\bar{X} \pm S_{\bar{y}}$	50.7±0.53	50.8±0.40	55.7±0.50	55.6±2.69	25.5±0.35	9.2±0.18	19±0.26
Region	Merkez (n=13)	$\bar{X} \pm S_{\bar{y}}$	50.6±0.50	50.8±0.32	55.7±0.59	59.3±0.43	25.3±0.29	9±0.20	19±0.18
	Akçaabat (n=12)	$\bar{X} \pm S_{\bar{y}}$	51.3±0.76	51.5±0.65	56.3±0.68	54.3±4.52	25.3±0.40	9.1±0.26	19±0.32
	Maçka (n=11)	$\bar{X} \pm S_{\bar{y}}$	52.3±0.62	52.2±0.48	57.2±0.67	60.7±0.62	26.6±0.39	10±0.26	20.4±0.27
	Tonya (n=3)	$\bar{X} \pm S_{\bar{y}}$	50±0.58	50.3±0.33	55±0.58	57.7±0.33	24.3±0.88	9.3±0.44	19±0.29
Age (Month)	12-18 (n=16)	$\bar{X} \pm S_{\bar{y}}$	49.4±0.32	50±0.22	54.6±0.30	57.8±0.27	24.8±0.27	9±0.20	18.9±0.19
	24-30 (n=13)	$\bar{X} \pm S_{\bar{y}}$	52±0.54	52.4±0.47	56.8±0.51	56.3±4.30	26.5±0.35	9.5±0.24	19.7±0.33
	36-84 (n=10)	$\bar{X} \pm S_{\bar{y}}$	53.1±0.43	52.2±0.42	58.3±0.60	60.7±0.65	25.8±0.39	9.8±0.31	19.8±0.34

a, b = P<0.01; A, B = P<0.05

* There were no significant differences between means showed by the same letters of alphabet in the same line and factor group.

The impacts of region on live weight and body sizes are also given in Table 2. The TKrS dogs in provinces of Agri and Artvin were significantly different from others on measurements for BL (P<0.01). The dogs raised in Artvin yielded the lowest and the dogs in Agri the highest values.

With respect to ages, the descriptive statistics and comparison results are given in Table 2. Among the three age groups, 1-2 year-old TKrS dogs were significantly different to the other two groups for LW, HS, HR (P<0.01), BL, and HGC (P<0.05). After 3 years, there is minor difference for all traits. It can be concluded that the TKrS dogs grow up to 2-3 years of age, and after that there is only minor growth. In this study observed results (Table 2) were compared with other native dog breeds of Turkey (Table 1). According to results TKrS and TKnS dogs were almost similar for the traits of LW, HS, HR, BL, HGC, CD, and CC. The obtained value of TKrS dog was also in range of value of TAS dogs for live weight. TKrS dogs were two times heavier than TT, TC and four times

heavier than D/Z dogs related with live weight. For other traits of HS, HR, BL, HGC, CD and CC results of TKrS were significantly higher than results of TT, TC, and D/Z dogs.

The phenotypic correlation coefficient values summarized in the Table 3 show that almost all observed traits are affected by selected factors. The highest value was found between HS and HR (r = 0.95) (P<0.01). Other high values were found between LW and HR (r = 0.81), LW and HS (r = 0.79), HR and HGC (r = 0.76), LW and HGC (r = 0.71), HS and HGC (r = 0.71) (P<0.01). The correlations of HS-BL, HR-BL, HS-CD, HR-CD, BL-CD, and HGC-CC also yielded higher values those than r = 0.50 (P<0.01). The lowest value (r = 0.30) was found between HS and CC (P<0.05). Other low correlation values were found between LW-CD (r = 0.49), LW-BL (r = 0.47), HGC-CD (r = 0.43), LW-CC (r = 0.43), BL-HGC (r = 0.42), and HR-CC (r = 0.36) (P<0.01). There were no negative correlations between the traits of BL-CC and CD-CC, as seen in Table 3.

Table 3. Phenotypic correlation coefficient values (r) between body measurements in Kars Shepherd dogs.

Traits	HS	HR	BL	HGC	CD	CC
HR	0.90**					
BL	0.76**	0.74**				
HGC	0.30	0.28	0.20			
CD	0.51**	0.47**	0.43**	0.04		
CC	0.68**	0.64**	0.36*	0.28	0.19	
HL	0.60**	0.66**	0.51**	0.34*	0.40*	0.65**

*P<0.05, **P<0.01

According to the results obtained in this research, Turkish Kars (Caucasian) Shepherd (TKrS) dogs are big-size livestock guardian dogs.

CONCLUSIONS

The overall results of this study demonstrate that TKrS dogs have a very close resemblance to the TKnSand TAS dogs for body dimensions. It can also be concluded that TKrS dogs are much bigger than the other Turkish dog breeds of TT, TC, and D/Z dogs. The TKrS dogs grow up to 2-3 years of age and that there is only minor growth. This suggests that TKrS dog reaches mature body weight and size at around 2-3 years of age. There were no significant differences among dogs. From overall results of the current study revealed that the Turkish Kangal Dogs were bigger in size because of better life conditions.

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