Body Weight and Some Morphological Characteristics of Kangal Dogs

Irfan Daskiran
Department of Animal Science, Faculty of Yüzüncü Yıl, Animal Breeding Unit,
University of Agricultural, Van-Turkey

Abstract: In this study, some descriptive morphological characteristics of Kangal shepherd dogs were assessed. Body weight and some body measurements were investigated in 38 Kangal shepherd dogs at different ages. In female and male dogs, the average live weight was 34.2 and 43.4 kg; height at wither was 65.2 and 71.7 cm; rump height was 64.5 and 72.1 cm; body length was 66.2 and 71.1 cm; body circumference was 78.8 and 86.1 cm; leg length was 39.4 and 41.9 cm; face length was 10.8 and 11.2 cm; head length was 23.8 and 24.8 cm; face width was 13.1 and 14.8 cm, respectively. It is true that the large scaled field studies should be carried out to determine the all breed characteristics of Kangal shepherd dogs.

Key words: Body measurements, live weight, Kangal dog, shepherd dog, morphological, breed

INTRODUCTION

Sheep production has the biggest proportion (59.3%) in the animal husbandry in Turkey with 26 million heads of sheep (Anonymous, 2001). It is a common practice to keep the herd outdoor in pasture conditions. This practice causes problems for the protection of the herd from the wild creatures. It was reported that shepherd dogs mostly (50-80%) succeeded the protection of the herd against the wild creatures (Green and Woodruff, 1985). The Kangal dog is one of the important shepherd dogs in Turkey. The town of Kangal in Sivas province of Turkey gives the name of this dog (Kirmizi, 1991; Tepeli et al., 2003). The number of dog breeds originated from Turkey is small, but they are interesting and important due to their distinct characteristics and are important genetical sources (Aritürk, 1983). Among them are Catalburun, Kars (relative to Ovcharka), Akba° and Kangal shepherd dogs. In the diversification of Anatolian shepherd dogs, Turkish tribes played important roles because during their migration from Asia to Anatolia, they brought their dogs along with them (Daskiran, 1995; Davis and Valla, 1978).

There have been few studies on the determination of the breed characteristics of Kangal shepherd dogs. Therefore, this study was carried out to determine some of their morphological traits.

MATERIALS AND METHODS

Thirty eight Kangal shepherd dogs which were in different ages and raised in Ula° State Farm were employed in this. The dogs in this station had been fed with a cereal mixture called yal two times a day. Once in a while, butchery and slaughter remains had been given to these dogs. The body weights of dogs were weighted with a sensitive scale (±100 g). The various body measurements were done with a measurement stick and a strip-meter. Body measurements of dogs were measured according to the methods used by Onar et al. (2001), Tepeli et al. (2003). Format and Bone indexes were calculated according to the formulas given below (Kirmizibayrak, 2004).

Format index = body length×100/height withers.
Bone index = wrist circumference×100/height withers.

A two-way analysis was performed in order to define the difference within age and gender groups according to the characteristics above-mentioned. A Duncan Multiple Comparison testing was also performed by using Minitab for Windows packet programme for determining different groups (Anonymous, 1993).

RESULTS AND DISCUSSION

Some morphologic measurements of Kangal shepherd dogs raised in Ula° Station based on their ages and sexes are presented in Table 1.

There is no significant difference within age and gender groups with regard to LL, FL, FI and BL characteristics. Accordingly, these characteristics do not vary by age and gender. A significant difference (p<0,05) was observed within age groups, with regard to LW, BL, CC, EL, WC, HI and HW characteristics whereas, no significant difference was observed between females and males. Except EL, these characteristics were found higher in males. Only EL was higher in females. An interaction between gender and age groups was observed with regard to RH and HW characteristics (p<0,05). Namely, the difference between males and females by RH and HW

Table 1: Some morphologic measurements of Kangal shepherd dogs raised in Ula° Station based on their ages

Traits	G	N ♀:2 ♂:3	1 X̄±Sx̄	N ♀:8 ♂:4	2 X̄±Sx̄	N ♀:3 ♂:2	3 X̄±Sx̄	N ♀:5 ♂:2	4 X̄±Sx̄	N ♀:4 ♂:5	5 X̄±Sx̄	N ♀:22 ♂:16	General X̄±Sx̄
LW (kg)	F	32.5±0.50		32.9±1.99		32.3±0.33		36.2±1.50		36.7±2.39			34.2±0.94b
	M	40.0±2.89		42.5±2.02		46.0±4.00		37.0±1.0		47.7±1.79			43.4±1.33a
	Total	37.0±2.43		36.1±1.98		37.8±3.58		36.4±1.07		42.8±2.35			-
HW (cm)	F	66.5±0.50aAB		64.9±0.90bAB		62.8±1.45bB		66.8±0.97aA		65.0±1.08bAB			65.2±0.53
	M	69.0±1.53a		73.5±0.65a		75.0±1.00a		67.5±1.50a		72.2±1.02a			71.7±0.76
	Total	68.0±1.05		67.7±1.37		67.6±3.14		67.0±0.76		69.0±1.44			-
RH (cm)	F	66.5±1.50aA		63.3±1.32bA		63.3±0.88bA		66.8±0.37aA		63.7±1.65bA			64.5±0.65
	M	70.2±1.36aB		72.7±0.75aAB		76.0±1.00aA		68.7±0.75aB		72.4±1.44aAB			72.1±0.73
	Total	68.7±1.26		66.5±1.61		68.4±3.16		67.4±0.47		68.6±1.83			
BL	F	65.0±1.00		66.5±1.61		64.3±0.67		66.2±2.44		67.7±2.93			66.2±0.93b
	M	69.0±1.00		73.0±1.22		70.0±5.00		70.0±0.00		71.8±1.56			71.1±0.81a
	Total	67.4±1.17		68.7±1.45		66.6±2.14		67.3±1.82		70.00±1.62			
CC (cm)	F	78.2±3.75		78.1±1.55		75.7±2.40		81.0±1.18		80.2±3.20			78.8±0.95b
	M	84.3±3.18		81.7±6.20		93.5±1.50		85.5±0.50		87.9±1.58			86.1±1.81a
	Total	81.9±2.58		79.3±2.19		82.8±4.59		82.3±1.17		84.5±2.05			
LL (cm)	F	40.0±1.00		43.6±8.04		34.7±0.33		37.4±0.87		36.7±1.80			39.4±2.92
	M	41.3±0.88		44.0±0.71		44.0±3.00		39.5±0.50		40.6±0.68			41.9±0.60
	Total	40.8±0.66		43.7±5.24		38.4±2.48		38.0±0.72		38.9±1.06			
EL (cm)	F	13.5±0.50		11.0±1.67		12.7±0.33		12.7±0.25		8.7±2.93			11.4±0.86a
	M	4.0±4.00		3.5±3.50		-		6.2±6.25		5.0±3.07			4.00±1.52b
	Total	7.8±3.20		8.5±1.85		7.6±3.11		10.6±2.12		6.7±2.11			
WC (cm)	F	14.0±0.00		12.7±0.23		12.0±0.00		13.2±0.20		13.0±0.41			12.9±0.16b
	M	14.5±0.50		14.9±0.66		14.7±0.25		13.5±0.50		14.8±0.34			14.6±0.23a
	Total	14.3±0.30		13.5±0.39		13.1±0.68		13.3±0.18		14.0±0.40			
FL (cm)	F	11.5±1.00		10.8±0.31		10.7±0.67		10.7±0.44		10.9±1.01			10.8±0.24
	M	10.7±0.33		11.2±1.11		11.2±0.25		11.2±0.75		11.3±0.44			11.2±0.30
	Total	11.0±0.42		11.0±0.40		10.9±0.40		10.9±0.36		11.1±0.48			
HL (cm)	F	22.5±0.50		24.1±0.44		22.7±0.67		23.6±0.51		24.7±1.03			23.8±0.31b
	M	23.7±0.33		24.1±0.88		26.5±0.50		25.0±0.00		25.1±0.75			24.7±0.37a
	Total	23.2±0.37		24.1±0.39		24.2±1.02		24.0±0.44		24.9±0.58			
HW (cm)	F	12.5±0.50		12.9±0.52		13.0±0.00		13.3±0.20		13.5±0.20			13.1±0.20b
	M	14.3±0.33		14.5±0.35		15.2±0.25		14.5±0.50		15.4±0.40			14.8±0.20a
	Total	13.6±0.51		13.5±0.42		13.9±0.56		13.6±0.28		14.6±0.40			
FI	F	99.0±2.24		102.6±2.74		102.78±2.78		99.16±3.83		104.26±4.45			101.71±1.55
	M	100.4±0.84		99.4±2.50		93.26±5.42		103.75±2.31		99.50±2.34			99.32±1.25
	Total	99.1±1.01		101.5±1.99		98.97±3.27		100.48±2.82		101.62±2.35			
BI	F	21.0±0.16		19.7±0.25		19.2±0.45		19.8±0.50		20.0±0.34			19.8±0.19
	M	21.0±0.54		20.3±1.04		19.7±0.07		20.0±1.19		20.5±0.55			20.4±0.33
	Total	21.0±0.30		19.9±0.36		19.4±0.27		19.8±0.43		20.3±0.33			

LW: Live Weight, HW: Height at Withers, RH: Rump Height, BL: Body Lenght, CC: Chest Circumference, LL: Leg Lenght, El: Ear Lenght, WC: Wrist Circumference, FL: Face Lenght, HL: Head Lenght, HW: Head Width, FI: Format Index, BI: Bone Index G: Gender, F: Female, M: Male

varies according to age groups. In the group 1st and 4th years-old, RH and HW do not vary significantly by gender whereas, males of 2, 3 and 5 years-old have higher value. Otherwise, RH does not vary in females by age groups, but this was found significant in males ($p < 0.05$). In males, although the difference was not significant between 2 and 5 years-old, highest RH value as 76.0 cm was observed in dogs 3 years-old.

The live body weights for female and male Kangal shepherd dogs (34.2 and 43.4 kg, respectively) in the present study (Table 1) were found to be in the range of the findings other researchers (Ozbeyaz, 1994; Ancona, 1985; Kirmizi, 1991; Anonymous, 1989, 1990).

One, two, three, four and five years old (and above) Kangal shepherd dogs had 37.0, 36.1, 37.8, 36.4 and 42.8 kg live body weights, respectively (Table 1). In overall, although the values for various body traits obtained in the present study were in agreement with the findings of other national studies (Anonymous, 1997, 1990), these values were relatively lower than those of foreign dog clubs and FCI due to the difference in raising conditions and feeding practices.

CONCLUSION

In the future studies, the large scaled field studies should be carried out to determine the all breed characteristics of Kangal shepherd dog and to register morphological and genetic characteristics of this important breed without any question in international ground.

REFERENCES

Anonymous, 1989. F.C.I. Standart No. 331. 06. 06. 1989/GB. Anatolian Shepherd Dog. Federation Cynologique Internationale. Secretetariat General. 14 rue Leopold II.6530. Thuin, Belgique.

Anonymous, 1990. Breed standard of the Anatolian shepherd dog. Newsletter of the Anatolian Karabash Dog, Club.

Anonymous Minitab, 1993. Minitab Reference Manuel Released 9 for Windows by Minitab, Inc.

Anonymous, 1997. Damızlık Hayvanlar. Kangal Köpeği. ICS 65.020.30. Türk Standardı. Türk Standartları, Enstitüsü.

Anonymous, 2001. Tarımsal Yapı ve Üretim. T.C. Basbakanlık. DIE Yayınları, Ankara.

Ancona, G., 1985. Sheep Dog. Lorthrop Lee and Sheepherd Books. New York.

Arıtürk, E., 1983. Genel Zootekni. A.Ü. Veteriner F. akültesi Yayınları. Ankar, pp: 395.

Daskiran, I., 1995. Kangal köpeği yetistiriciliği. Doktora semineri. A.Ü. Fen. Bil. Enst. Zootekni, A.D., pp: 64.

Davis, S.J.M. and F.R. Valla, 1978. Evidence for Domestication of the Dog 12 Years Ago in Natufian of Israel. Nature, 279: 608-610.

Green, J.S. and R.A. Woodruff, 1985. Summary of the livestock guarding dog research at the US sheep Exp. Station. Sheep, Prod.

Kirmizi, E., 1991. Türk çoban köpeği ve Alman çoban köpeğinin çesitli özelliklerinin karsılastırılması. I.Ü. Sağlık Bil. Enst. Doktora Tezi (Basılmamıs), pp: 85.

Kirmizibayrak, T., 2004. Some morphological chararacteristics of Kars dogs. Turk. J. Vet. Anim. Sci., 28: 351-353.

Onar, V., S. Ozcan and G. Pazvant, 2001. Skull typology of adult male Kangal, Dogs.

Ozbeyaz, C., 1994. Kangal Köpeklerinde Bazı Morfolojik Özellikler. Lalahan Hayvancılık Arastırma Enstitüsü Dergisi. Yıl: Cilt: 34. Sayı: 1-2. S: 38.

Tepeli, C., O. Çetin, S. Inal, K. Kırıkçı, A. Yılmaz, 2003. Kangal ve Akbas ırkı Türk çoban köpeklerinde büyüme özellikleri. Turk. J. Vet. Anim. Sci., 27: 1011-1018.