



## RESEARCH ARTICLE

### Basic exterior characteristics of Serbian Yellow Hound in Southern Serbia

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#### Özet

**Drobnjak D, Urošević M, Oğrak YZ, Matarugić D.** Güney Sırbistan'daki Sarı Sırp kopoylarının temel dış özellikleri. *Eurasian J Vet Sci*, 2012, 28, 2, 111-115

**Amaç:** Bu çalışma güney Sırbistan'daki, Sarı Sırp kopoylarının temel dış özelliklerinin belirlenmesi amacıyla yapıldı.

**Gereç ve Yöntem:** Araştırma, 1-9 yaş arası 37 Sarı Sırp kopoyunun (20 erkek, 17 dişi) dış ölçümleri üzerine yapıldı. Çalışmada, dış ölçümlere ait (cidago yüksekliği, vücut uzunluğu, baş uzunluğu, kafatası uzunluğu, burun uzunluğu ve göğüs çevresi) altı farklı değişken incelendi.

**Bulgular:** Sarı Sırp kopoylarının yapılan ölçümlere ait ortalama değerleri, cidago yüksekliği için  $52.41 \pm 0.71$  cm, vücut uzunluğu için  $60.91 \pm 0.68$  cm, baş uzunluğu için  $23.53 \pm 0.24$  cm, kafatası uzunluğu için  $12.03 \pm 0.17$  cm, burun uzunluğu için  $11.53 \pm 0.15$  cm ve göğüs çevresi için  $64.15 \pm 0.97$  cm olduğu belirlendi. Ölçümler, dişi ve erkekler için ayrı ayrı değerlendirildiğinde, burun uzunluğu hariç diğer tüm değerler için cinsiyetler arası farklılıklar istatistikî olarak önemli ( $p < 0.05$ ) bulundu. Köpekler yaşlarına göre sınıflandırıldığında, genç ( $\leq 1$  yaş) ve erişkin ( $> 1$  yaş) köpekler için tüm ölçümler arası farklılıklar istatistikî olarak önemsiz ( $p > 0.05$ ) bulundu. Kafatası ve burun uzunluğu arası hariç, diğer tüm değişkenler arası korelasyonlar önemli ( $p < 0.05$ ) bulundu.

**Öneri:** Bu çalışma temeliyle, Sırbistan'ın bahsedilen bölgedeki Sarı Sırp Kopoylarının sistemli yetiştiricilikle birlikte, tanımlanmasına yönelik, daha kapsamlı çalışmaların yapılması gerekli görülmektedir.

#### Abstract

**Drobnjak D, Urošević M, Oğrak YZ, Matarugić D.** Basic exterior characteristics of Serbian Yellow Hound in Southern Serbia. *Eurasian J Vet Sci*, 2012, 28, 2, 111-115

**Aim:** This study was carried out to determine the basic exterior characteristics of Serbian Yellow Hounds in southern Serbia.

**Materials and Methods:** Research was conducted through measuring of exterior on 37 Serbian yellow hounds (20 males and 17 bitches) aged 1-9 years. Six exterior parameters (height at withers, body length, head length, skull length, nozzle length, chest circumference) were measured.

**Results:** In males and bitches of the Serbian Yellow Hounds, average height at withers was  $52.41 \pm 0.71$  cm, average body length was  $60.91 \pm 0.68$  cm, average head length was  $23.53 \pm 0.24$  cm, average skull length was  $12.03 \pm 0.17$  cm, average nozzle length was  $11.53 \pm 0.15$  cm, and average chest circumference was  $64.15 \pm 0.97$  cm, respectively. When the measurements were separately evaluated as male and bitch of the dogs, differences between the genders were statistically significant ( $p < 0.05$ ) for all measurement except for nozzle length. Dogs are classified according to their age, differences between young ( $\leq 1$  year) and mature ( $> 1$  year) dogs were statistically insignificant for all metrics ( $p > 0.05$ ). Correlations among the all measurement values except for between skull length and nozzle length were statistically significant ( $p < 0.05$ ).

**Conclusion:** Further research of dogs on other mentioned locations in Serbia is necessary and all parameters necessary for standard creation and systematic breeding of Serbian yellow hound must be determined, based on thus obtained data.

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## ► Introduction

A group of dogs known as hounds is well-spread and highly appreciated among the hunters on the Balkans. Hounds are referred to as hunting dogs that engage in loud pursuit of game along its trail. These dogs do not need to see the game in order to pursue it and begin to bark once they stumble upon game trail (Urosevic 2006).

Different breeds of hunting dogs appear every time in human history when hunting techniques changed. Thus hunting dogs diverge in groups such as hounds, gundogs, retrievers, sight hounds and spaniels. Hounds are referred to as hunting dogs that bark when engaged in pursuit of the game (Urosevic 2006).

First serious research along with zootechnical measurement was conducted by Franz B. Laska in 1905, when measurements were taken from 1036 individual hounds found in Serbia and Bosnia-Herzegovina, at which occasion three large groups of hounds that inhabit the Balkans were described (Laska 1905). This undertaking provided a solid foundation for further research and standardization of certain hound breeds. Results from the research led author to conclusion that Balkan Peninsula is a place from where hound are spread to other parts of the West Europe (Urosevic 2006). Though a lot of field work and standardization efforts were undertaken since then, there are still groups of hounds not encompassed in previous research work that are well-spread on the field and frequently utilized as hunting companions. Most numerous varieties among these non-standardized breeds are Serbian yellow hounds, which differ from described hound breeds by certain exterior characteristics (Pavlovic 1950, Drobnjak and Urosevic 2009).

According to hair type, Laska divided Balkans' hounds to: flat-haired (short-haired), long haired and wire-haired hounds and wrote a detailed description in form of a standard for each group of hounds. These types were the first standards written for hounds from Balkans peninsula (Laska 1905, Urosevic 2006). Hound breeds native to Balkans that are standardized and approved by FCI (Federation Cynologique Internationale) are: Serbian hound (standard no. 150) and Serbian tricolor hound (standard no. 229). According to the official FCI nomenclature, they are classified in Group VI, Section 1 (hounds) and subsection 1.2 (middle-sized hounds) (Anonym 2010). Beside these standardized and worldwide officially accepted breeds, there are also populations of dogs not encompassed by previous standardizations. Cynology association of Yugoslavia formed an Autochthonous breeds Committee in 1954. Among others, Committee proposed a standard for Balkans yellow hound. Unfortunately, the Committee was cancelled in 1956 and further research and work on standardization ceased. Another initiative for continuation of standardization was given on Judge Committee meeting in 1959, but

this proposal was rejected as well (Pavlovic and Antic 1954, Urosevic 2006).

Inquiry in archive of Yugoslav cynology Association revealed that studbook for Balkans yellow hounds was kept, and original pedigrees from 1950 were found. These documents prove that this breed is not newfound, but has been long in existence on the Balkans (Drobnjak and Urosevic 2009).

Available literature yields no data on Yellow hound. Literature data on Serbian hound and Serbian tricolor is provided herein, for easier insight and possibility of morphology comparison between Serbian yellow hound and its closest relatives on the territory of Serbia.

First study on Serbian hound, then known as Balkans hound was published based on research conducted by S. Pavlovic and S. Antic in 1954. These authors determined that mean height at withers of bitches was 47.29 cm, mean body length was 52.72 cm and mean head length was 19.72 cm. In males, mean height at withers was 50.16 cm, mean body length was 56.18 cm and mean head length was 20.98 cm. Work of these authors was used as basis for revision of breed standard from that time.

Exterior of Balkans hounds was studied by Urosevic and associates in 1988. Undertaken research determined that mean height at withers in males of Serbian (then Balkans) hound is 50.70 cm, mean body length is 56.20 cm and mean head length was 22.90 cm. In bitches, mean height at withers was 47.90 cm, mean body length was 52.80 cm and mean head length was 21.60 cm. In males of Serbian tricolor, mean height at withers was 51.10 cm, mean body length was 56.20 cm and mean head length was 22.50 cm, wherein bitches had mean height at withers 48.60 cm, mean body length was 53.70 cm and mean head length was 21.50 cm. (Urosevic et al 1988, Urosevic et al 2009a, Urosevic et al 2009b, Drobnjak and Urosevic 2010).

The purpose of this research was to detect basic exterior characteristics of Serbian Yellow Hounds in southern Serbia.

## ► Material and Methods

The population of Serbian yellow hounds currently has about 200 individuals. Research was conducted through measuring of exterior on 37 Serbian yellow hounds (20 males and 17 bitches) aged 1-9 years. This sample represents measures approximately 13.5% of the population. All measured dogs are from area of Southern Serbia (area of Nis, Aleksinac, Svrlijig).

Six exterior parameters (height at withers, body length, head length, nozzle length, skull length, chest circumference) were measured. Measuring was executed with small Lidtin's stick, a measuring tool comprised of a vernier scale and a ribbon. Dogs were measured at dog shows or directly at the owners' home. Height at withers is the linear distance from the

ground to the cranial angle of the scapula (withers). Measured the dog is in an upright, stacked position. Body length is the distance along the body from the greater tubercle of the humerus to the caudal point of the pelvis. This is measured along the median plane of the dog. Head length is the distance from the tip of the nose to the external occipital protuberance. Skull length is the distance along the skull from the stop to the external occipital protuberance. Nozzle length is the distance from the tip of the nose to the stop (imaginary line drawn between medial eye angles). Chest circumference is the circumference of the deepest part of the thoracic cavity in a plane with both the sternum and withers (Drobnjak, 2009.)

Obtained data was processed statistically and descriptive statistical parameters were calculated (mean value with SE and range of measured values), as well as relative measures. Differences among the groups for the measurements were analyzed with the Independent Samples t test using by SPSS 14.0.

### ► Results

Results for observed parameters obtained through morphometric values are displayed separately for males and bitches as well as for both sexes together in Table 1. Except for nozzle length, differences of all measurements between male and bitch Serbian yellow hounds were statistically significant. Classifying age of the dogs as young ( $\leq 1$  year) and mature ( $>1$  year), mean values of morphometric measurements of the Serbian Yellow Hound are given in Table 2. Mean value differences of body measurements were statistically insignificant between young and mature dogs. 100% based on the height at withers, the percentage values of the other body measurements are given in Table 3. Body length of the bitch and male

dogs was 15% and 17.9%, respectively, and greater than the height at withers. Head length has been compared to height at withers. Average head length in observed population was 44.08% of height at withers. Nozzle length to skull length ration in this case equals 48.3:51.7, which means that nozzle comprises 48.3% of mean head length and was shorter than skull. Mean body length in bitches was 57.94 cm, with range from 52.00 to 61.00 cm. As males, bitches also have a rectangular frame and mean body length is 17.90% greater than mean height at withers, which was 2.90% more than at males. Mean head length of bitches was 22.76 cm and it stands for 46.07% of height at withers. Overall nozzle length to head length ratio was 49.62%, indicating that nozzle was slightly shorter than cranial region. Mean height at withers of dogs in this population was 52.41 cm and CV was 8.93. Range was rather large and was from 45.00 to 64.00 cm. Mean body length was 60.91 cm with range from 52.00 to 70.00 cm. Mean head length was 23.53 cm. It comprised 44.92% of height at withers. Mean nozzle length of 11.53 cm comprised 49.04% of Serbian yellow hounds' mean head length. Mean skull length comprised with 50.96% of mean head length. Mean chest circumference was 64.15 cm with range from 46.00 to 77.00 cm. CV was 10.57.

Pearson's correlation coefficients for the observed traits were given in Table 4. There were significant correlations among the all measurement values except for between skull length and nozzle length.

### ► Discussion

Most of the body measurement's differences according to gender are compatible with a lot of researches made a similar manner (Ozcan and Altinel 1997, Tepeli and Cetin 2003, Atasoy et al 2004). All dogs

Table 1. Basic body morphology variables of Serbian yellow hounds according to gender.

Measures	Sex	N	$X_{\min}$	$X_{\max}$	CV	Mean $\pm$ SE	t	P
Height at Withers	Male	20	48.5	64.0	7.78	54.98 $\pm$ 0.84	5.17***	0.001
	Bitch	17	45.0	54.0	6.30	49.38 $\pm$ 0.63		
	Total	37	45.0	64.0	8.93	52.41 $\pm$ 0.71		
Body Length	Male	20	57.0	70.0	6.80	63.43 $\pm$ 0.84	5.57***	0.001
	Bitch	17	52.0	61.0	4.32	57.94 $\pm$ 0.52		
	Total	37	52.0	70.0	7.42	60.91 $\pm$ 0.68		
Head Length	Male	20	21.0	29.0	7.10	24.17 $\pm$ 0.35	3.36**	0.002
	Bitch	17	21.0	24.0	3.81	22.76 $\pm$ 0.20		
	Total	37	21.0	29.0	6.67	23.53 $\pm$ 0.24		
Skull Length	Male	20	11.0	15.0	9.03	12.50 $\pm$ 0.23	3.41**	0.002
	Bitch	17	10.0	12.0	5.72	11.47 $\pm$ 0.19		
	Total	37	10.0	15.0	8.82	12.03 $\pm$ 0.17		
Nozzle Length	Male	20	10.50	14.0	8.92	11.72 $\pm$ 0.23	1.43 <sup>ns</sup>	0.162
	Bitch	17	10.0	12.0	7.18	11.29 $\pm$ 0.18		
	Total	37	10.0	14.0	8.34	11.53 $\pm$ 0.15		
Chest Circumference	Male	20	46.0	77.0	10.27	66.25 $\pm$ 1.31	2.52*	0.017
	Bitch	17	50.0	70.0	9.88	61.68 $\pm$ 1.23		
	Total	37	46.0	77.0	10.57	64.15 $\pm$ 0.97		

<sup>ns</sup> Not Significant ( $p > 0.05$ ), \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

Table 2. Basic body morphology variables of Serbian yellow hound according to ages.

Measures	Age	N	X <sub>min</sub>	X <sub>max</sub>	Mean±SE	t	P
Height at Withers	Young	4	45.0	56.0	50.75±2.56	0.82 <sup>ns</sup>	0.422
	Mature	33	46.0	64.0	52.61±0.74		
Body Length	Young	4	55.0	70.0	61.75±3.50	0.27 <sup>ns</sup>	0.806
	Mature	33	52.0	70.0	60.80±0.66		
Head Length	Young	4	23.0	25.0	23.75±0.48	0.33 <sup>ns</sup>	0.749
	Mature	33	21.0	29.0	23.50±0.26		
Skull Length	Young	4	11.0	13.0	11.75±0.48	0.56 <sup>ns</sup>	0.580
	Mature	33	10.0	15.0	12.06±0.18		
Nozzle Length	Young	4	11.0	12.0	11.50±0.29	0.06 <sup>ns</sup>	0.952
	Mature	33	10.0	14.0	11.53±0.17		
Chest Circumference	Young	4	59.0	70.0	64.13±2.44	0.01 <sup>ns</sup>	0.993
	Mature	33	46.0	77.0	64.15±1.06		

<sup>ns</sup> Not Significant (p>0.05)

Table 3. Relative measures in % relative to height at withers.

Genus	N	Measures					
		Height withers	Body length	Head length	Skull length	Nozzle length	Chest circumf.
Males	20	100.00	115.00	44.08	22.68	21.41	120.55
Bitches	17	100.00	117.90	46.07	23.20	22.87	124.88
Both sex	37	100.00	116.20	44.92	22.90	22.02	120.55

body length greater than the height at withers, so this frame of both sex are rectangular and this format is typical characteristics of hound, which is confirm in this case.

Statistically insignificant between young and mature dogs of mean value differences of body measurement can be connected to a small number of young dogs used to study despite of relatively sufficient number mature dogs. Evaluated according to the values of CV, head length variable of these dogs was very homogenous and with high heredity throughout the population. External factors exert little to no influence on it. Height at withers valuable of dogs in this population indicates that paragenetic factors influence this trait to a certain level. Chest circumference value of dogs is not homogenous and does not have high heredity, and that it is under strong influence of paragenetic factors. Range of height at withers, as can be seen from the results, is lesser in bitches than in males, as is CV, which indicates that this trait is less variable and more homogenous in bitches. Examined the

mean head length and this trait proportion to height at withers, it can be said that head of Serbian yellow hound is dolichocephalic type.

### ► Conclusion

It can be concluded that population of Serbian yellow hounds, based on basic exterior characteristics, confirms to basic characteristics of hound body morphology. Body length is greater than height at withers. Research results show that Serbian yellow hound has strong skeleton and rectangular body format. Dog's length is greater than height at withers. Height at ridges range is large, so it may be concluded that this trait is strongly influenced by breeding conditions. Range and variation coefficient of head length value is small so it may be concluded that this trait varies little. Same may be told for skull length to nozzle length ratio. Further research of dogs on other mentioned locations in Serbia is necessary and all parameters necessary for standard creation and systematic breeding of Serbian yellow hound must be determined, based on thus obtained data.

Table 4. Correlations between the morphometric measurements of Serbian Yellow Hounds.

Measures	Height at withers	Body length	Head length	Skull length	Nozzle length
Body length	0.091**				
Head length	0.091**	0.721**			
Skull length	0.610**	0.566*	0.665**		
Nozzle length	0.360*	0.401*	0.653**	-0.015	
Chest circumference	0.618**	0.714**	0.565**	0.444**	0.385*

\*p<0.05, \*\*p<0.01

**► References**

- Anonym, 2010. Archive of Kennel Association of Serbia, Belgrade.
- Atasoy F, Unal N, Kanli O, Yakan A, 2004. Body weight and some body measurements of breeders Kangal dogs (oral presentation). 1st National Veterinary Zootechnic Congress, Elazig.
- Drobnjak D, Urosevic M, 2009. Origin and exterior characteristics of the Serbian yellow hound from the area of western Serbia. Almanac of the 8th Congress of Serbian Veterinaries with International Participation, Belgrade, pp: 534-541.
- Drobnjak D, Urosevic M, 2010. Head exterior parameters of Serbian yellow hound. Almanac of the 21st Symposium of Serbian Veterinaries with International Participation, Zlatibor, pp: 380-385.
- Laska FB, 1905. Das Weidwerk in Bosnien un der Hercegovina, 1st edition, Verlag von Johsen, Klagenfurt, pp: 110-118
- Ozcan M, Altinel A, 1997. Some morphological characteristics of Kangal dogs and German shepherd dogs. J Fac Vet Med Istanbul Univ, 23, 413-422.
- Pavlovic D, 1950. Nasi zecari, Lovac (Hunter) - Informative and professional. Journal of Yugoslavian Hunting Association, 2, 17-18.
- Pavlovic S, Antic S, 1954. Balkanski gonici. Vet Arhiv, 24, 29-37.
- Tepeli C, Cetin O, 2003. A Study on head measurements of Kangal and Akbaş Turkish Shepherd Dogs. 1st International Kangal Dogs Symposium, Kangal, Sivas, pp: 94-101.
- Urosevic M, 2006. Srpski i slicni gonici. Kennel Association of Serbia and Montenegro, 1st edition, Belgrade, pp: 7-65.
- Urosevic M, Drobnjak D, Zivkovic B, 2009a. Yellow Serbian Hound. Almanac of the International Conference on Hunting, Zagubica, pp: 189-192.
- Urosevic M, Drobnjak D, Zivkovic B, Matarugic D, 2009b. The basic exterior parameters of Yellow Serbian Hound. Agro-Knowledge J, 10, 127-130.
- Urosevic M, Latinovic D, Spoljaric B, 1988. Komparativna ispitivanja osnovnih karakteristika telesne razvijenosti balkanskog, jugoslovenskog trobojnog i jugoslovenskog planinskog gonica. Book of Abstracts of the First Yugoslav Conference on the Domestic Breeds of Hound, Valjevo, pp: 49-69.