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Phenotypic Characteristics of the "Kazakh Tazy" Sighthound

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Abstract

Sighthounds were once the primary hunting dogs, playing a central role in the hunt. According to the Fédération Cynologique Internationale (FCI), sighthounds belong to Group 10, divided into three sections: (1) long-haired or fringed, (2) rough-haired, and (3) short-haired dogs. This study focuses on the Kazakh Tazy, a sighthound breed officially recognized by the FCI on September 3, 2024. Morphometric measurements were conducted on 30 individuals, comprising 15 males and 15 females from the Tazy population. It is important to note that these results do not provide a comprehensive overview of the breed's population in Kazakhstan but can serve as indicative markers. The standards for recognized breeds include a wide range of morphometric traits, with WH (withers height), BL (body length), and CC (chest circumference) being among the most significant. This study examined 19 morphometric characteristics.

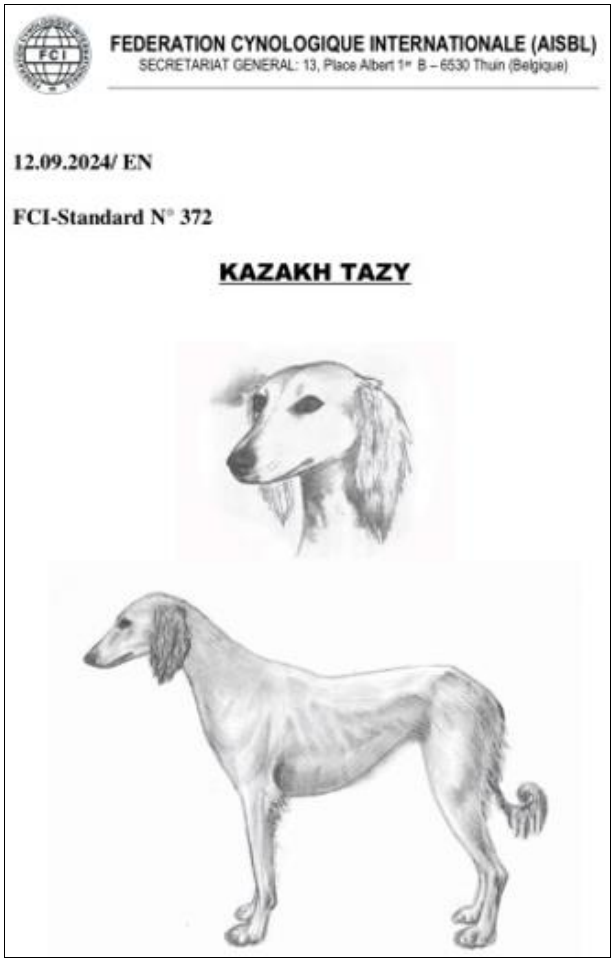
Keywords: Kazakh Tazy, Morphometric Parameters, Breed Standard

Introductions

All dogs were initially hunters, later diverging into specialized groups based on the specific tasks they performed or continue to perform today. Depending on hunting types and methods, several groups of hunting dog breeds exist today, including scent hounds, pointers, retrievers, spaniels, blood trackers, dachshunds, and, in some regions, sighthounds. Each group has distinct hunting characteristics (Matejević, 2017) [4]. Hunting dogs perform various tasks, such as pointing, flushing, chasing, retrieving, or tracking wounded game. Sighthounds are also considered hunting dogs, recognized as one of the oldest hunting breeds, though they are rarely used for hunting today (Taubert *et al*., 2007; Matejević, 2017) [8, 4].

Historically, sighthounds were primary hunting dogs, crucial to the hunt. They pursued game visually, unlike scent hounds that use their noses. Sighthounds would spot the prey, chase it, and capture it using their speed. The primary difference between sighthounds and scent hounds lies in this hunting technique (Urošević, 2006; Taubert *et al*., 2007) [10, 8]. According to the FCI, sighthounds belong to Group 10, subdivided into three sections: (1) long-haired or fringed, (2) rough-haired, and (3) short-haired dogs. This study focuses on the Kazakh Tazy, a sighthound breed officially recognized by the FCI on September 3, 2024. This breed is classified under long-haired or fringed sighthounds. Its standard is listed under number 372. The breed is conditionally recognized, meaning its population trends will be monitored for 10 years, including potential expansion to other countries.

Similar breeds known as Tazy exist in other countries, and phenotypically similar breeds have various names. In India, they are called Gazelle Hounds, in Turkey "Sultani Tazy," and in ancient Persia "Kuse Tazy." The term "Saluki" refers to the internationally recognized Saluki breed, standard number 269, officially recognized on April 8, 1966, with the latest standard published on October 25, 2000. This breed originates from the Middle East and is under the patronage of the International Canine Federation.


FEDERATION CYNOLOGIQUE INTERNATIONALE (AISBL)
SECRETARIAT GENERAL: 13, Place Albert 1er B – 6530 Thuin (Belgique)

12.09.2024/ EN

FCI-Standard N° 372

KAZAKH TAZY

Fig 1: Illustration of the head and body profile on the cover page of the official FCI standard

Materials and Methods

Measurements were conducted on 30 Tazy individuals (15 males and 15 females) at a dog show in Almaty. The following external parameters were measured: Withers height (WH), back height (BH), rump height (RH), tail root height (TRH), hock height (HH), elbow height (EH), body length (BL), chest depth (CD), chest width (CW), chest circumference (CC), pastern circumference (PC), pelvis length (PL), rump width (RW), head length (HL), head width (HW), muzzle width (MW), muzzle length (ML), ear length (EL), and coat length (CL). All measurements were non-invasive and did not harm the animals.WH was measured using a Lydthin measuring stick (Urošević and Drobnjak, 2019) [11]. Other parameters were measured using a measuring tape, with all values expressed in centimeters.

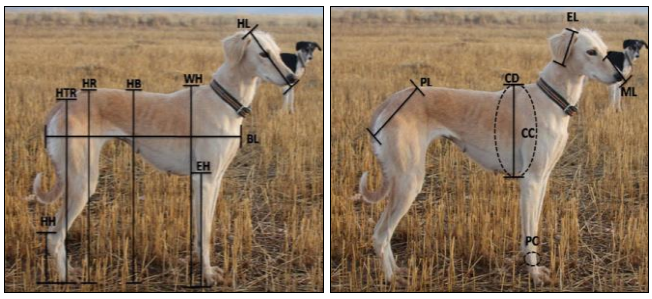


Fig 2: Measurement points on the body

The characterization of constitution was based on the mean value (M) and standard deviation (SD) for all variables. A t-test was applied to determine statistically significant differences between sexes, with results presented as t-values (t), degrees of freedom (df), and significance levels (sig). To provide a more comprehensive analysis, the frame index was calculated, representing the body length-to-withers height ratio, expressed as: (body length / withers height) × 100. ANOVA was used to assess differences in measured parameters at a significance level of $P<0.05$ among three groups within the observed population. Results were presented as F-statistic values (F), degrees of freedom (df), and significance levels (sig). Data were analyzed using the Statistical Package for Social Sciences (SPSS) for Windows, version 23.0.0.

Results

It is emphasized that these results are not representative of the broader population in Kazakhstan but serve as indicative markers.

The standards for each recognized breed encompass a wide range of morphometric traits, with WH, BL, and CC being among the most significant. This study examined 19 morphometric characteristics (Table 1 and 2). The findings indicate that the average WH is 61.7167 cm, while the average BL is 62.2667 cm. The traits with the lowest coefficients of variation include PC, PL, ML, EL, SL, and HL. In contrast, HTR exhibited the highest variability, with noteworthy variability also observed in BL and HR. In Table 2 are presents the differences in average values of the key morphometric parameters between males and females. The results of T-test indicate that there were no significant statistical differences between the sexes regarding just mean muzzle length.

Table 1: Descriptive statistic for morphometric parameters

Parameter	N	Minimum	Maximum	Mean	Std. Deviation
Withers height (cm)	30	58.00	66.50	61.7167	2.22324
Height of the back (cm)	30	55.50	63.50	59.4667	2.54928
Height at rump (cm)	30	55.50	66.00	61.2333	2.65139
Height of the tail root (cm)	30	50.50	63.00	57.3500	3.08542
Height of the hock (cm)	30	14.00	18.00	16.0000	0.98261
Elbow height (cm)	30	31.00	35.00	33.3333	1.12444
Body length (cm)	30	56.00	68.00	62.2667	2.96745
Chest depth (cm)	30	23.50	29.00	26.2333	1.41868
Chest width (cm)	30	11.00	19.00	16.6000	1.53353
Chest circumference (cm)	30	60.00	73.00	65.2200	2.78486
Pastern circumference (cm)	30	9.00	12.50	10.4167	0.85181
Pelvis length (cm)	30	15.00	18.00	16.9333	0.90719
Rump width (cm)	30	5.00	10.00	7.0667	1.13512
Ischial tuberosity width (cm)	30	4.00	8.00	5.7167	1.24349
Rump width (cm)	30	22.00	27.00	24.4833	1.38018
Scull length (cm)	30	12.00	14.50	13.4500	0.75829
Head width (cm)	30	10.00	13.00	11.9333	0.78492
Muzzle width (cm)	30	5.00	8.00	5.8500	0.88230
Muzzle length (cm)	30	6.00	8.00	7.1333	0.60077
Ear length (cm)	30	11.00	14.00	12.5333	0.78711
Valid N (listwise)	30				

Table 2: Descriptive statistic for males and females

Parameter	Sex	N	Mean	Std. Deviation	Std. Error Mean
Withers height (WH)	Male	15	63.0333	2.00416	0.51747
	Female	15	60.4000	1.58340	0.40883
Height of the back	Male	15	60.6333	2.27931	0.58851
	Female	15	58.3000	2.31301	0.59722
Height at rump	Male	15	62.6667	2.02367	0.52251
	Female	15	59.8000	2.46258	0.63583
Height of the tail root	Male	15	59.3667	2.19957	0.56793
	Female	15	55.3333	2.48328	0.64118
Height of the hock	Male	15	16.4000	0.73679	0.19024
	Female	15	15.6000	1.05560	0.27255
Elbow height	Male	15	34.0000	0.84515	0.21822
	Female	15	32.6667	0.97590	0.25198
Body length	Male	15	64.1667	2.31198	0.59695
	Female	15	60.3667	2.27146	0.58649
Chest depth	Male	15	27.0667	1.27988	0.33046
	Female	15	25.4000	1.02120	0.26367
Chest width	Male	15	17.2333	0.92324	0.23838
	Female	15	15.9667	1.77750	0.45895
Chest circumference	Male	15	66.2400	2.91910	0.75371
	Female	15	64.2000	2.30527	0.59522
Pastern circumference	Male	15	10.9000	0.80623	0.20817
	Female	15	9.9333	0.59362	0.15327
Pelvis length	Male	15	17.4000	0.63246	0.16330
	Female	15	16.4667	0.91548	0.23637
Rump width	Male	15	7.8667	0.81211	0.20969
	Female	15	6.2667	0.79881	0.20625
Ischial tuberosity width	Male	15	6.6333	0.89576	0.23128
	Female	15	4.8000	0.77460	0.20000
Rump width	Male	15	25.4333	1.20811	0.31193
	Female	15	23.5333	0.74322	0.19190
Scull length	Male	15	13.8333	0.48795	0.12599
	Female	15	13.0667	0.79881	0.20625
Head width	Male	15	12.3333	0.61721	0.15936
	Female	15	11.5333	0.74322	0.19190
Muzzle width	Male	15	6.2000	0.77460	0.20000
	Female	15	5.5000	0.86603	0.22361
Muzzle length	Male	15	7.3000	0.59161	0.15275
	Female	15	6.9667	0.58146	0.15013
Ear length	Male	15	12.9333	0.70373	0.18170
	Female	15	12.1333	0.66726	0.17229

T-test showed statistically significant difference between males and females for morphometric variables: WH (t = 3.993, df = 28, sig = 0.000), HB (t = 2.783, df = 28, sig = 0.010), HR (t = 3.483, df = 28, sig = 0.002), HTR (t = 4.709, df = 28, sig = 0.000), HH (t = 2.407, df = 28, sig = 0.023), EH (t = 4.000, df = 28, sig = 0.000), BL (t = 4.541, df = 28, sig = 0.000), CD (t = 3.942, df = 28, sig = 0.000), CW (t = 2.449, df = 28, sig = 0.021), CC (t = 2.124, df = 28, sig = 0.043), PC (t = 3.739, df = 28, sig = 0.001), PL (t = 3.249, df = 28, sig = 0.003), RW (t = 3.249, df = 28, sig = 0.003), RW (t = 5.440, df = 28, sig = 0.000), ischial tuberosity width (t = 5.996, df = 28, sig = 0.000), HL (t = 5.188, df = 28, sig = 0.000), SL (t = 3.172, df = 28, sig = 0.004), HW (t = 3.207, df = 28, sig = 0.003), and EL (t = 3.195, df = 28, sig = 0.003).

Table 3: The frame index in analyzed population

	N	Minimum	Maximum	Mean	Std. Deviation
Frame index	30	93.02	104.92	100.7740	3.14897
Valid N (listwise)	30				

Table 4: The frame index by gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Frame index	Male	15	101.3893	3.23787	0.83601
	Female	15	100.1587	3.04059	0.78508

The frame index for each individual dog was calculated, but the frame index was analyzed also separately for males and femalesIn dogs with a square format, the index is 100, meaning the body length is equal to the height at the withers. If the index is greater than 100, the body is more elongated and has a rectangular format. The minimum value of the frame index established in the observed population sample was 93,02, and the maximum frame index established was 104,92 (Table 3). The one third of individuals in the observed sample (30%) has a frame index smaller than 100, while the smallest percentage (10%) of the individuals in the observed sample has a frame index equal to 100. When looking at the frame index separately by gender, it could be seen that the average frame index in males is 101.4. However, females tend to have more square body frame, and their average frame index is 100,15 (Table 4).

Discussion

In the available literature, there is only one reference to the morphological characteristics of the Kazakh Tazy. These are data from 1939, published in the book "The Asian Sighthound Tazy and Hunting with It." The author is Dr. A. A. Sludsky (А.А. Слудский, "Азиатская борзая таза и охота с ней," 1939). Excerpts from this book, along with data accessible to us, were published in 2007 in the "Promotional and Informational Digest" of the Kazakhstan Kennel Union (СОЮЗ КИНОЛОГОВ КАЗАХСТАНА).

Fig 3: Document (Catalog, 2007) in which the results of scientific research from 1939 were first published (Archive. M. Urošević).

The same data was also published on the website https://mydog.press/a-a-sludskij-aziatskaya-borzaya-taza-i-ohota-s-nej-1939-g-otryvki-iz-knigi/. The author (Sludsky) states that in 1938, the Tazy was found in all parts of Kazakhstan, though with varying population densities. It was more prevalent in the western parts of Kazakhstan than in the eastern ones. He noted that in 1938, there were 7,000 of these dogs. He published a table with 25 morphological parameters measured in both males and females. Interestingly, the number of measured dogs was not specified. Measurements were conducted according to the following scheme:

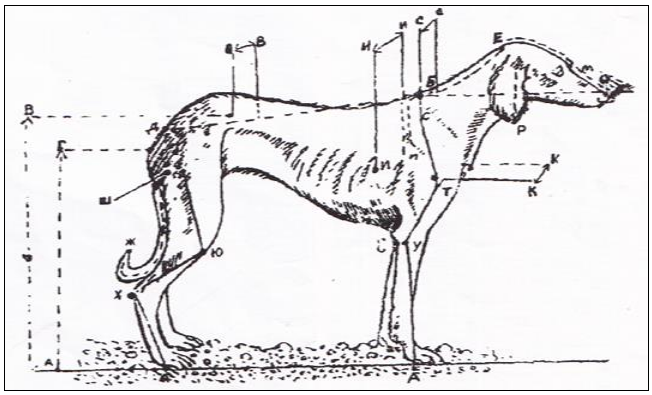


Fig 4: Morphometric measurement sketch (Sludsky, 1939; cited in Catalog 2007).

The height at the withers in males ranged from 59 to 71 cm, with the most common height being 63 cm. The croup height ranged from 52 to 73 cm, with the most common value being 62 cm. The root of the tail in males was at a height of 49 to 70 cm, with the most common height being 59 cm. An interesting parameter is the length from the withers to the tail root, which ranged from 41 to 63 cm, most commonly 52 cm. This was not measured along the top line of the body but from the side. The neck length ranged from 16 to 23 cm, with the most common value being 24 cm. The most common tail length was 45 cm. The chest depth ranged from 20 to 39 cm, with the most common value being 27 cm. The width of the rib arc ranged from 15 to 27 cm, with the most common value being 18 cm. Interestingly, the chest width, measured from the front, varied significantly, ranging from 13 to 24 cm, with 16 cm being the most common value.

Fig 5: Kazakh family in the late 1930s and early 1940s (Catalog, 2007)

The distance between the tips of the iliac bones was 6 to 10 cm, with 7 cm being the most common. The distance from the iliac crest to the tail root ranged from 5 to 13 cm, with 9 cm being the most common. The head length in males ranged from 20 to 27 cm, with most males having a head length of 24 cm. The muzzle length ranged from 8 to 14 cm, most commonly 11 cm. The skull width ranged from 9 to 11 cm, with 11 cm being the most common. The author also measured the circumference of the muzzle at the stop level, which ranged from 16 to 25 cm, with the most common value being 21 cm.

Fig 6: Tazy as a motif on a postage stamp (https://mydog.press/a-a-sludskij-aziatskaya-borzaya-taza-i-ohota-s-nej-1939-g-otryvki-iz-knigi/)

The circumference of the muzzle at its midpoint ranged from 16 to 25 cm, with the most common value being 21 cm. The ear length in measured males (1939) ranged from 9 to 15 cm, with most dogs having an ear length of 13 cm. The body width between the shoulders (withers) ranged from 4 to 9 cm, with the most common value being 6 cm. The scapula length ranged from 16 to 24 cm, with the most common value being 20 cm. The humerus length in males ranged from 15 to 24 cm, with the most common value being 21 cm.

Fig 7: Hunting dog exhibition in Alma-Ata, 1961 (Catalog, 2007)

The height of the elbow joint ranged from 30 to 39 cm, with the most common value being 31 cm. The height of the hock joint ranged from 14 to 22 cm, with the most common value being 17 cm. The pelvis length ranged from 14 to 23 cm, with the most common value being 18 cm. The femur length

ranged from 18 to 28 cm, with the most common length being 22 cm, while the tibia length ranged from 17 to 30 cm, with the most commonly measured value being 23 cm. The author (Sludsky, 1939) measured the same morphological parameters in females. The height at the withers in females ranged from 52 to 67 cm, with the most common height being 60 cm. The croup height ranged from 52 to 67 cm, with the most common value being 63 cm. The root of the tail in females was at a height of 47 to 66 cm, with the most common height being 59 cm. An interesting parameter is the length from the withers to the tail root, which ranged from 36 to 63 cm, most commonly 52 cm. This was not measured along the top line of the body but from the side. The neck length ranged from 17 to 28 cm, with the most common value being 21 cm. The most common tail length was 44 cm. The chest depth ranged from 21 to 37 cm, with the most common value being 26 cm. The width of the rib arc ranged from 13 to 28 cm, with the most common value being 17 cm. Interestingly, the chest width, measured from the front, varied significantly, ranging from 12 to 24 cm, with 15 cm being the most common value.

Fig 8: Hunting dog exhibition in Alma-Ata, 1961
https://mydog.press/a-a-sludskij-aziatskaya-borzaya-taza-i-ohota-s-nej-1939-g-otryvki-iz-knigi/

The distance between the tips of the ilium was 6–10 cm, most commonly 7 cm. The distance from the tip of the ilium to the root of the tail was 5–14 cm, with 8 cm being the most common. The length of the female's head ranged from 20 to 27 cm, with most females having a head length of 22 cm. The muzzle length ranged from 8 to 13 cm, with the most common value being 11 cm. Skull width ranged from 9 to 16 cm, with 10 cm being the most frequent value. The author also measured muzzle circumference at the stop, which ranged from 16 to 23 cm, with the most common value being 19 cm. The circumference of the muzzle at its midpoint was between 16 and 23 cm, with the most common value being 19 cm. The length of the ears in females (measured in 1939) ranged from 10 to 18 cm, with most having an ear length of 12 cm. The width of the body between the shoulder blades (withers) was 4–9 cm, with 6 cm being the most common value. The length of the shoulder blade ranged from 15 to 24 cm, with the most frequent measurement being 19 cm. The upper arm length in females was 13–21 cm, with the most common value being 20 cm. The height of the elbow joint was 27–38 cm, with the most common value being 32 cm. The height of the hock ranged from 13 to 20 cm, with 17 cm being the most frequent value. The length of the pelvis ranged from 12 to 20 cm, with 16 cm being the most common value. The femur had a length of 14–25 cm, most commonly 21 cm, while the tibia measured 17–38 cm, with the most frequent value being 25 cm.

Photo: B. Špoljarić

Fig 9: Dr. Urošević in the Kazakh steppe with a Tazi

When comparing the data provided in standard No. 372, it seems that the standard's proponents did not consider the real situation or the basic principles of biomechanics. Namely, it is defined that the height at the withers is approximately equal to the height at the croup. The term "approximately" is quite vague and open to various interpretations. In general, considering the laws of biomechanics, which enable adequate biodynamics—and in turn, the generation of an appropriate level of bio-kinetic energy—the height at the withers must not exceed the height at the croup. For dogs whose primary mode of movement is the trot, the body length should be greater than the height at the withers, with the height at the withers being equal to the height at the croup; the croup should not be lower than the withers. Regarding the height at the withers, the standard foresees a fairly wide range, from 63 to 70 cm for males and 58 to 65 cm for females. The difference between the minimum and maximum values, both for males and females, is 7 cm, which is more than 10% of the minimum value. Additionally, a tolerance of ±2 cm is allowed, provided that the proportions are not disrupted. It is interesting to consider a male dog of 61 cm and one of 72 cm and question how the proportions could remain consistent. The standard also specifies that the back between the withers and the croup should have a slight depression. This appears to be a mistranslation from the original language, as the backline has absolutely no connection to the hips. However, the degree of this depression is not specified. Such vagueness allows for subjective interpretations.

Photo: B. Špoljarić

Fig 10: Winner of the specialized Tazi exhibition in Alma-Ata, judged by Dr. Urošević

The standard for the Kazakh Tazi, still unofficially recognized at the time, can also be found in the collection of standards compiled by Natalia Drovosekova in 2008. At the beginning of the document, there is a diagram of measurements from 1939, but the source is not cited. The author states that the Tazi must have a square body shape and that the height at the withers should be equal to the height at the croup. If an animal has a body index of 100, meaning the body is square, it implies that galloping is the typical form of movement. Moreover, the claim that the body is square—considering that dogs grow, develop, and perform on flat terrain—has little biological justification, as the body is always slightly longer than the height at the withers. In this proposed standard, the height at the withers for males is listed as 61–71 cm, and for females as 55–65 cm. The same author (Drovosekova) published a new collection of official FCI standards in 2011, including the standards for breeds not yet officially recognized at the time. This standard replicates the one published three years earlier. Interestingly, it is stated that the height at the withers is equal to the height at the croup, but the illustration accompanying the standard completely contradicts this.

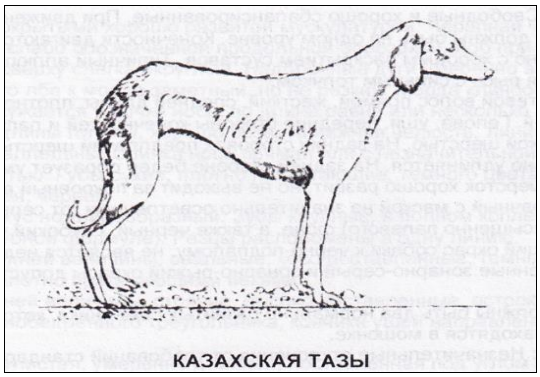


Fig 11: It is clear that the height at the croup is greater than the height at the withers, although this is not stated in the text (Drovosekova, 2011)

Photo: M. Urošević

Fig 12: Typical profile of the Kazakh Tazi's head

Kazanskij (1984) [2] uses the term "Taza" rather than "Tazi" for this breed of dogs. The author states that the height at the withers for males is 60–65 cm, with females being 3–4 cm shorter. In the brief description, it is not mentioned that the rear part of the body is higher than the withers, but this is clearly visible in the photograph provided as an illustration.

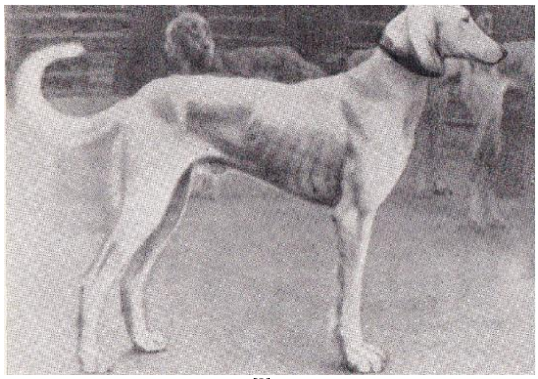


Photo: (Kazanskij, 1984) [2]

Fig 13: Tazi from Kazakhstan

Beckmann (1894) [1] also wrote about these dogs. He described the Tazi as an Asian form of sighthound, but with drooping ears. The tail and ears have slightly longer hair. The height at the withers is 61 cm, while the height at the croup is 63 cm, thus clearly defining that the rear part of the body is higher than the withers.

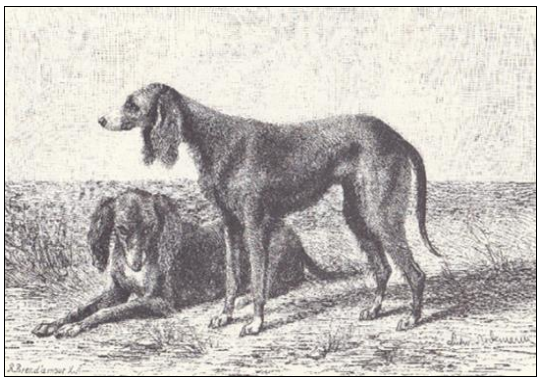


Fig 14: Central Asian Greyhound "Tazi," with dropped ears. The hind part of the body is higher than the withers (Beckmann, 1894) [1]

Habidžvašili *et al*. (2003) state that the back line is straight or slightly raised. The withers height of males is 60-70 cm, and females 55-65 cm. Markanov (1993) [3] writes about the Tazi as a hunting dog. The withers height of males is 60-70 cm, and females 55-65 cm. The body format index is around 103. The author states that the shoulder angle value is 90-100°. The back is straight or slightly raised. Thus, this author also mentions that the dogs are elevated in the rear.

In addition to these references about the Kazakh Tazi Greyhound, it is essential to consider the results of morphological research on a very similar breed, the "Sultani Tazi" in Turkey, which is officially unrecognized. The Tazi is a greyhound breed historically bred for hunting (Yılmaz and Ertuğrul, 2011; Yilmaz *et al*., 2012) [15, 13]. A key characteristic is its long and narrow skull, long neck, slender body, deep chest, long front and hind limbs, and thin tail (Yılmaz, 2008) [14]. The literature contains information that the Tazi resembles the Saluki but is larger (Yılmaz and Ertuğrul, 2012 [13]; Yılmaz, 2018). According to available research, Tazi dogs are of average size and weight. Their average withers height was 62 cm (Yılmaz and Ertuğrul, 2011) [15]. Earlier data from Tepeli (2003) [9] mention a withers height of 68 cm and body length of 49.9 cm. When investigating the Tazi in Turkey, Yılmaz and Ertuğrul (2011) [15] found a larger average body length (60.3 cm), indicating that it is a medium-sized greyhound. In their subsequent study, these authors stated that the Tazi reaches its mature body weight and size around the age of 1 (Yılmaz and Ertuğrul, 2012) [13]. Celik and Yılmaz (2018) [7] analyzed the body weight of Tazi dogs and the most important body measurements that can predict their weight. The Tazi is a racing dog with short fur, most often black or yellowish in color. Yilmaz *et al*. (2012) [13] analyzed the morphological characteristics of Tazi dogs in the Turkish province of Konya and found that the average withers height is 62.0±0.44 cm, withers height 62.1±0.50 cm, body length 60.7±0.55 cm, chest circumference 63.9±0.64 cm, chest depth 23.1±0.21 cm, chest width 17.4±0.25 cm, pelvis width 16.4±0.18 cm, tail length 45.7±0.37 cm, limb length 38.9±0.31 cm, forearm circumference 10.2±0.11 cm, head length 24.0±0.36 cm, and ear length 12.8±0.19 cm.

An exceptionally extensive morphometric study of the Sultani Tazi Greyhound's build in Turkey was conducted by Urošević *et al*. (2020) [12]. The authors, who are also licensed cynological judges for evaluating greyhound conformation, performed a triage, or grouping of greyhounds in Turkey based on body format. According to this principle, three groups of greyhounds were identified in Turkey: a) with a body format greater than 100, b) with a body format of 100, and c) with a body format less than 100.

Conclusion

This breed belongs to the greyhound group, sub-group long-haired greyhounds or with fringes. The breed standard is registered under number 372. The breed is conditionally recognized, which means that the population will be observed over the next 10 years, with monitoring of the increase or decrease in the number of individuals and potential expansion to other countries. The findings indicate that the average WH is 61.7167 cm, while the average BL is 62.2667 cm. The traits with the lowest coefficients of variation include PC, PL, ML, EL, SL, and HL. In contrast, HTR exhibited the highest variability, with noteworthy variability also observed in BL and HR. The minimum value of the frame index established in the observed population sample was 93,02, and the maximum frame index established was 104,92. The one third of individuals in the observed sample (30%) has a frame index smaller than 100, while the smallest percentage (10%) of the individuals in the observed sample has a frame index equal to 100.

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