

# A Study on the Temperament Type of Puppies in the Animated Toy Test with Regard to Their Proper Socialization and Specific Behaviour Build-up

*Ivanka STOYCHEVA<sup>1</sup>, Krassimira UZUNOVA<sup>2\*</sup>, Rumen BINEV<sup>2</sup>, Boycho BIVOLARSKI<sup>2</sup>, Violeta GEORGIEVA<sup>3</sup>, Anton RUSENOV<sup>2</sup>, Todor SLAVOV<sup>3</sup>*

<sup>1</sup>*Faculty of Economics, Trakia University, Student's Campus, 6000 Stara Zagora, Bulgaria*

<sup>2</sup>*Faculty of Veterinary Medicine; Trakia University, Student's Campus, 6000 Stara Zagora, Bulgaria*

<sup>3</sup>*Faculty of Agriculture, Trakia University, Student's Campus 6000, Stara Zagora, Bulgaria*

*\*Corresponding Author: Krassimira UZUNOVA Department of Animal husbandry, Faculty of Veterinary Medicine, Trakia University, Student's Campus 6000 Stara Zagora, Bulgaria  
e-mail: mira60bg@yahoo.com*

**Geliş Tarihi / Received: 27.11.2011**

## ABSTRACT

In order to typify their temperaments and facilitate their training and formation of desired behaviour, 24 7-week-old Pointer, Boxer, and German Shepherd puppies were tested twice in an ethological test. Emphasis was put on behavioural activities such as fear, orientation, purposefulness, curiosity, confidence, indifference and aggression. The Quéinnec animated toy test was applied, the results of which indicated that the German Shepherd breed was the most balanced, oriented, purposeful and non-aggressive. It was followed by the Boxer and the Pointer. According to our experiments, it became clear that this test was easy to perform and did not stress the puppies.

**Key Words:** Behaviour, puppies, socialization, temperament

## ÖZET

### YAVRULARDA UYGUN SOSYALLEŞMENİN VE SPESİFİK DAVRANIŞLARIN GELİŞTİRİLEBİLMESİ İLE İLGİLİ OLARAK ANİMASYONLU OYUNCAK TESTİNDE YAVRULARIN MİZAÇ TÜRÜ ÜZERİNE BİR ÇALIŞMA

Arzu edilen davranışların oluşumu, eğitimlerinin kolaylaştırılması ve mizaçlarının simgelenebilmesi amacıyla 24 adet 7 haftalık Pointer, Boxer ve Alman Çoban köpeği yavruları etholojik test ile iki kez test edilmişlerdir. Korku, uyum sağlama, amaç, merak, güven, kayıtsızlık ve saldırganlık gibi davranışsal aktiviteler üzerinde durulmuştur. Yapılan Quéinnec animasyonlu oyuncak testi sonuçları, Alman Çoban köpeği ırkının en dengeli, amaçlı, kararlı ve

saldırgan olmayan ırk olduğunu göstermiştir. Bu ırkı, Boxer ve Pointer ırkları takip etmektedir. Çalışmamızın sonuçlarına göre, bu testin uygulanabilirliğinin kolay olduğu ve yavru köpeklerde strese sebep olmadığı netleşmiştir.

**Anahtar Kelimeler:** Davranış, yavru köpek, sosyalleşme, mizaç

### **Introduction**

Dogs are the first animal species to be domesticated by man. Nowadays it serves in a variety of occupations: companion, hunter, shepherd, rescuer, courier, postman, border patrol, criminal investigator, customs officer, natural resources detector, children guardian, disabled people's assistant, healer (the dog can detect emotions and recognizes psychoses) and odorologist (in service of the police) (Denkov, 1996; Haverbeke et al. 2010; McDonald and Carr, 1995; Uzunova, 2006; Uzunova et al., 2008 and 2009). The determination of a dog's temperament during the process of socialization (its adaptation to the environment between the 3<sup>rd</sup> week and 3<sup>rd</sup> month after birth), with regard to its easier training and formation of desired behaviour, has been a subject of interest to numerous ethologists (Giffroy, 1994; Lapras, 1994; Montagnier, 1998; Renaud, 1996; Saetre et al., 2006; Simpson, 1997; Vastrade, 1998). The proper socialization of a puppy is of major importance because it will reflect on its overall behaviour later (Giffroy, 2005). This way, many unexpected stress situations can be avoided over the course of training. Many common pathological conditions can be avoided when the puppy may develop tics, manias, depression, fear, aggression, and ill temper.

Just as with humans, there are 4 basic temperament types (Vastrade, 1998; Queinnec, 1996):

L – strong, balanced, equivalent to sanguine;

F – strong, perceptive and unbalanced, equivalent to choleric;

G – strong, unbalanced, slow, equivalent to phlegmatic;

A – strong, unbalanced, indifferent, passive, yet sometimes prone to bad temper, equivalent to melancholic.

Some ethologists (Renaud, 1996; Vastrade, 1998) claimed that there is also a “mixed” temperament type, in which case the puppy demonstrates the traits of two temperaments simultaneously, e.g. sanguine and choleric. They made research, which showed that socialization is fastest and least problematic in dogs with temperament types L and F, after applying various tests. It is still not clear which tests (Campbell's, the animated toy test, the bait test, the mirror test or the statuette test) is easiest to apply and least stressful when determining the temperament type of a puppy.

Data related to the temperament of Pointers, Boxers, and German Shepherds during the socialization period are sporadic and few. There have been contradictory reports about the extent of fear in the abovementioned breeds. Some authors (Lapras, 1994; Vastrade, 1998) believe that Boxers are braver than German Shepherds regardless of the animals' sex. Others (Michaux, 1998; Queinnec, 1996) consider the above statement dubious.

The described problematic is still an important issue, which was the motivation for the present study.

The present investigation was conducted to establish: 1) which of behaviour tests for determination of temperament type of dogs existing so far (Campbell test, bait test, mirror test, statuette test etc.) are most appropriate and could be performed with least stress for the animal; 2) which of examined dog breeds (Pointer, Boxer, German Shepherd) are the bravest and could develop most rapidly and most successfully the desired personality traits.

### Materials and Methods

The experimental work was performed during the month of October 2009 for duration of 3 weeks in a private licensed kennel in Kazanlak, Bulgaria. The test animals were young puppies at the age of 7 weeks from 6 litters (2 of each breed – Pointer, Boxer and German Shepherd). These breeds were selected because they are among the most preferred for hunting, police work, companions, and guides for blind people.

It was mentioned that there is controversy regarding the extent of bravery and balance in Boxers and German Shepherds. The 24 puppies (of equal weight and raised under the same conditions), equal number of each breeds (8 animals, equal number males and females) were tested twice ethologically by ethologists unfamiliar to the puppies, separating them from their litters and mothers. Tests were performed in a specially designated empty room (area of 10 m<sup>2</sup>, unfamiliar to the puppies), in which three wooden chairs were arranged in a circle. At about 1-1.5 m away from them a plush toy dog was placed, making dog sounds when pushed, yet not having the specific scent of a real dog, of a size as the tested puppies and light brown in colour.

For duration of 30 minutes each animal was tested in the described environment. Using the methods of observation and chronometry, their behavioural activities were studied (purposefulness and orientation, fear, confidence, aggression, curiosity, indifference), taking consideration only of the breed.

Evaluation of the abovementioned behavioural activities was based on a simple single-degree scale (+ and –), applied in other areas of cynology, e.g. when assessing a dog's intelligence.

For greater convenience, the animals were numbered as follows:

- Litter A1 of the Pointer breed - puppies № 1, 2, 3, 4;

- Litter A2 of the Pointer breed - puppies № 5, 6, 7, 8;

- Litter B1 of the Boxer breed - puppies № 9, 10, 11, 12;

- Litter B2 of the Boxer breed - puppies № 13, 14, 15, 16;

- Litter C1 of the German Shepherd - puppies № 17, 18, 19, 20;

- Litter C2 of the German Shepherd breed - puppies № 21, 22, 23, 24.

The results from the ethological tests were presented descriptively in a table format, not as an ethogramme, as preparing it would have taken at least 48 hours of behavioural observation, which is incompatible with the test used.

The entire experimental setup was prepared in compliance with the requirements for protection and humane treatment of test animals, as well as the zoo hygienic and food standards established for this category of dogs.

The Pearson chi-square, as well as the maximum likelihood chi-square were used for comparisons. The extent of dependence between characteristics was measured through association ratios, based on the  $\chi^2$  value.

### Results and Discussion

Puppies № 13, 15, 17, 19, 20, 21, 22 and 24 demonstrated throughout the 1<sup>st</sup> testing calmness, trust, and curiosity. They noticed the plush dog immediately, approached it in a calm and confident manner, ignoring the circle of three chairs (2 minutes). They sniffed the toy with curiosity and started playing with it without being disturbed by the sounds it made and without biting it (28 minutes). During the 2<sup>nd</sup> testing, the same behaviour was observed, with the only difference being that the time it took them to approach the toy was 3 minutes. Specific behavioural activities shown by these puppies were purposefulness, calmness,

balance, confidence, curiosity, non-aggression, very good orientation.

Puppies № 1, 2, 3, 4, 6, 7, 10, 12 and 23 demonstrated throughout the 1<sup>st</sup> testing slight hesitation during the first two minutes (they stood still and whimpered quietly). During the next 10 minutes the puppies moved cautiously towards the toy, starting sniffing, biting, and turning it over. Throughout the last 18 minutes they stood close to it demonstrating calmness and curiosity. Interest towards the plush dog was exhibited. During the 2<sup>nd</sup> testing, the reactions were the same. The observed specific behavioural activities were slight hesitation followed by low extent of aggression (biting), confidence and curiosity, purposefulness, good orientation.

Puppies № 5, 9, 11, 14 and 18 during the 1<sup>st</sup> testing demonstrated, throughout the first 3 minutes, slight irritability and fear (stood still and whimpered). In the next 10 minutes, the puppies got oriented in the room, calmed down slowly and started playing with the plush dog (pushed it, turned it over) and stopped making sounds, even though they could hear the ones produced by the toy. Only № 5 and № 18 bit the toy. During the last 17 minutes, № 14 and № 18 stood aside and remained indifferent, as if the toy and the other puppies did not exist. None of the examined puppies paid any attention to the circle of three chairs. Their movements were slower and the interest towards the toy was not as strongly expressed as in the first two cases.

During the 2<sup>nd</sup> testing the behavioural reactions were different. At first the puppies approached the toy slowly. They started sniffing it, turned it over, observed it, did not whimper (7 minutes). After that, № 14 moved 1 meter away from the others next to one of the chairs (as if looking for shelter) and stood calm until the end of the test. The rest remained near the plush dog and examined it without clearly expressed curiosity (23 minutes). The exhibited

behavioural activities were categorized as irritability, fear slowly fading into calmness, slight curiosity and indifference, bad orientation, occasional aggression.

Puppies № 8 and № 16 during the 1<sup>st</sup> testing stood and whimpered (5 minutes). Afterwards № 16 moved towards the plush toy, sniffed it, and then moved towards one of the three chairs and remained there until the test's end (25 minutes). The other puppy followed it without approaching the toy. During the 2<sup>nd</sup> test, the puppies stood next to each other for 7 minutes, shivering and whimpering, then cautiously approached the toy, sniffed it (1 minute) and afterwards moved to the circle of three chairs and stood next to one of them until the end of the test (22 minutes). To sum up, they showed lack of purposefulness and good orientation, fear gradually fading into calmness, lack of interest, indifference, non-aggression.

Table 1 shows the behavioural activities of all tested puppies.

The behaviour of puppies № 13, 15, 17, 19, 20, 21, 22 and 24 were marked by purposefulness, very good orientation, calmness, non-aggression, and curiosity. Therefore the animals have a type L temperament, as they exhibit the behavioural traits of the so-called sanguine.

The behaviour of puppies № 1, 2, 3, 4, 6, 7, 10, 12, and 23 corresponds to the type F temperament - i.e. choleric. The members of this group have a strong yet unbalanced character. They would be brave, well-oriented, purposeful, sometimes aggressive, unpredictable, and curious.

Puppies № 5, 9, 11, 14, and 18 demonstrated behavioural traits typical for the type G (phlegmatic) temperament. They were slowly orienting, non-purposeful, fearful, non-aggressive, and slightly curious.

Most intriguing was the behaviour of puppies № 8 and № 16 because their behavioural traits were typical of both

temperament type G (phlegmatic) and type A (melancholic or asocial). It was therefore hard to typify their temperaments. Puppy № 16 exhibited slightly better orientation and purposefulness than № 8. It reached the plush toy, although very slowly (phlegmatic), and yet both animals were indifferent, fearful, and did not establish contact with the test toy – proof of their asocial character. Based on the results, puppy № 16 was considered to have a “mixed” temperament (both type G and type A - melancholic or asocial), whereas № 8 was definitely only of type A.

The analysis of the results presented in Table 1 could be statistically summarized as follows. The 24 puppies from three breeds were divided according to the temperament type to establish the uniformity of the observed sign, to perform a comparative analysis and to determine between-group and within-group structure.

The first row describes the temperament types: A - Melancholic, G - Phlegmatic, F - Choleric, L – Sanguine. The first column lists the three dog breeds – Pointer, Boxer and German Shepherd. The table cells contain the number of dogs possessing the respective combination of both characteristics (Table 2).

Apart from absolute values, the distributions of animals can also be expressed via several types of relative ratios (Table 3).

The greatest share of the Pointer group had a choleric temperament, and of the German Shepherd group – sanguine. It accounted for 75% of both breeds, compared to the total number of observed dogs in the respective group. Of the examined 8 dogs from the Boxer breed, most fell into the phlegmatic category. Relatively, their share was 37.5% compared to the entire observed group of the breed. The lowest relative shares were of dogs with melancholic or phlegmatic temperament from the Pointer breed, dogs with melancholic temperament from the Boxer breed, and dogs

with phlegmatic and choleric temperament from the German shepherd breed. They accounted for 12.5% of the total number of animals in the respective group. There were no sanguine dogs from the Pointer breed and melancholic dogs from the German shepherd breed.

From the total number of dogs with the melancholic temperament, 50% belonged to the Pointer breed and 50% - to the Boxer breed. This temperament was not established in the German shepherd breed. The share of the phlegmatic temperament was distributed per breeds as follows: 20% in Pointers, 60% in Boxers, and 20% in German Shepherds. In the group of dogs with the choleric temperament, the greatest relative share belonged to the Pointer breed, compared to all examined animals with this temperament type, and accounted for 66.7%, followed by the Boxer breed with 22.2%, and lowest is the share of choleric German Shepherds – 11.1%. Among the dogs exhibiting a sanguine temperament, German Shepherds had the largest share (75%), whereas Boxers accounted for 25%. There were no sanguine dogs from the Pointer breed.

The share of animals in each cage against the total number of dogs is presented in the third row of the test groups. It was established that Pointers melancholic and phlegmatic Pointers made up the lowest percentage (4.2%), compared to the total number of animals. The same relative share (4.2%) was observed for Boxers with melancholic temperaments, as well as phlegmatic and choleric German Shepherds. There were no dogs with asocial behaviour among German Shepherds. Compared to the total number of dogs, the share of Boxers with choleric and sanguine temperaments was 8.3%, whereas phlegmatic Boxers accounted for 12.5% of all animals. The relative share of choleric Pointers and sanguine German Shepherds was 25% of the total number of animals.

Overall, among the three examined breeds (each of them representing 33.3% of the whole), it was established that 8.3% were asocial, 20.8% were phlegmatic, 37.5% - choleric, and 33.3% - sanguine.

The distribution of the studied three dog breeds according to their temperament type is illustrated on Table 2.

**Table 1.** Behavioural activities of young puppies, tested with the Quéinnec test.

**Tablo 1.** Quéinnec testine göre yavru köpeklerin davranış aktiviteleri.

Puppy No	Purposefulness Orientation	Fear	Confidence	Aggression	Curiosity	Indifference
<b>Pointer</b>						
1	+	-	+	+	+	-
2	+	-	+	+	+	-
3	+	-	+	+	+	-
4	+	-	+	+	+	-
5	-	+	-	+	-	+
6	+	-	+	+	+	-
7	+	-	+	+	+	-
8	-	+	-	-	-	-
<b>Boxer</b>						
9	-	+	-	+	-	+
10	+	-	+	+	+	-
11	-	+	-	+	-	+
12	+	-	+	+	+	-
13	+	-	+	-	+	-
14	-	+	-	+	-	+
15	+	-	+	-	+	-
16	-	+	-	-	-	-
<b>German Shepherd</b>						
17	+	-	+	-	+	-
18	-	+	-	+	-	+
19	+	-	+	-	+	-
20	+	-	+	-	+	-
21	+	-	+	-	+	-
22	+	-	+	-	+	-
23	+	-	+	+	+	-
24	+	-	+	-	+	-

Key: (+) positive behavioural activity; (-) negative behavioural activity.

**Table 2.** Grouping of dogs according to the temperament type and breed in absolute values (numbers).**Tablo 2.** Mizaç tipi ve ırka göre köpeklerin gruplandırılması (köpek sayıları).

Breed	Temperament type				Total
	A	G	F	L	
Pointer	1	1	6	0	8
Boxer	1	3	2	2	8
German Shepherd	0	1	1	6	8
Total	2	5	9	8	24

**Table 3.** Grouping of the dogs according to their temperament type and breed in relative ratios (%).**Tablo 3.** Mizaç tipi ve ırka göre köpeklerin gruplandırılması (nispi oranlar).

Breed	Temperament type				Total
	A	G	F	L	
Pointer	12.5	12.5	75.0	0	33.3
	50.0	20.0	66.7	0	
	4.2	4.2	25.0	0	
Boxer	12.5	37.5	25.0	25.0	33.3
	50.0	60.0	22.2	25.0	
	4.2	12.5	8.3	8.3	
German Shepherd	0	12.5	12.5	75.0	33.3
	0	20.0	11.1	75.0	
	0	4.2	4.2	25.0	
Total	8.3	20.8	37.5	33.3	100

**Table 4.** Values of the  $\chi^2$ - characteristic,  $\phi$  and association coefficients.**Tablo 4.**  $\chi^2$ ,  $\phi$  ve ilgili katsayılarla ait değerler.

Parameters	Value	Degrees of freedom (df)	Level of significance
Pearson Chi-square ( $\chi^2$ )	14.267	6	0.027
M-L Chi-square ( $\chi^2_c$ )	16.184	6	0.013
Phi ( $\phi$ )	0.7710		
Contingency coefficient (C)	0.6106		
Cramer's (V)	0.5452		

The relationship between the breed and temperament type was verified by two statistical hypotheses:  $H_0$  - there is no relationship between dog's breed and the

respective temperament or if any, it is not statistically significant; and  $H_1$ , opposite to the null hypothesis (Table 4).

At degrees of freedom of  $v=(\kappa_1-1).(\kappa_2-1)=6$  and a critical level of significance  $\alpha=0.05$ , the value of the theoretical characteristic of  $\chi^2$  was 12.5916. The empirical characteristic of  $\chi^2$ , based on the study data, was greater than the theoretical  $\chi^2 > \chi^2_{(0.05,6)}$  ( $14.267 > 12.5916$ ). We compared the level of significance  $\alpha_s=0.027$ , correlating to the empirical characteristic and the critical level of significance  $\alpha=0.05$ . The null hypothesis was rejected as  $\alpha_s < \alpha$  ( $0.027 < 0.05$ ).

It could be therefore assumed that there was a significant correlation between the dogs' breed and their temperament types.

The association power was determined by three measurements of association, based on the  $\chi^2$  characteristic. The value of the phi ratio ( $\phi = 0.7710$ ) indicates a strong interdependence and the contingency ratio ( $C = 0.6106$ ) and the Kramer association ratio ( $V=0.5452$ ) determine the correlation between the two variables as significant.

### Conclusion

The greatest number of puppies with strong temperament (types L and F) were found among Pointers and German Shepherds. These dogs were fastest to orient, purposeful, brave, and curious, i.e. this experiment confirmed that these two breeds are braver and more reliable than Boxers. They would therefore socialize easier and faster.

Puppies of the Boxer breed would require a longer period of training and more patience from the part of owners.

The animated toy test is easy to implement, well accepted by the animals and not stressful for them. Therefore its wider application is recommended in order to properly typify the temperaments of young puppies to ensure their correct socialization and formation of specific behaviour.

Due to the limitation arising from the small number of tested puppies, the present results

depict only a tendency. More categorical affirmations could be given after observations on a larger cohort of subjects.

### REFERENCES

- Denkov, V., 1996.** Dog Encyclopaedia, Horizon Publishing House, Sofia, pp. 30-35.
- Giffroy, J-M., 1994.** Apprentissage et therapie comportementale. Le comportement social du chien- Seminaire de Nantes, pp. 331-351.
- Giffroy, J-M., 2005.** Comportement social et communication chez le chien. Le chien, le chat et l' homme. "Le chien dans la societe", 1998, Seminaire, Paris, pp. 22-50.
- Haverbeke, A., Messaudi F., Depiereux E., Stevens M., Giffroy, J-M., Diedrich, C., 2010.** Efficiency of working dogs undergoing a new human familiarization and training program. Journal of Veterinary Behavior, Clinical Applications and Research 5, 112-119.
- Lapras, M., 1994.** Substances modifiant le comportement chez le chien- Seminaire de Nantes.
- Mcdonald, W., Carr G., 1995.** Freelifving dogs in the Abruzzi: the behaviour and ecology of contrasting populations. In: Serpell (Ed.) The Domestic Dog: Its Evolution, Behaviour And Interactions With People. Cambridge Universal Press.
- Michaux, J-M., 1998.** Renspolabite individuelle et collective vis- a- vis du chien. Les devoirs du maitre- Seminaire de Paris, pp. 220-240.
- Montagnier, H., 1998.** Le chien et l'enfant. Aspects medicaux et comportementaux. Le chien dans la societe, Séminaire de la Société Francophone de Cynotechnie, Paris, France.
- Queinnec, G., 1996.** Les troubles du comportement et leurs corrections. Le comportement social du chien, Séminaire de la Société Francophone de Cynotechnie, Lyon, France, pp. 76-120.
- Renaud, S., 1996.** Testes utilises pour l'analyse du caractere. Le comportement social du chien, Séminaire de la Société Francophone de Cynotechnie, Lyon, France, tome 2, pp. 30-39.



- Saetre, P., Strandberg, E., Sundgren, P.E., Pettersson, U., Jazin, E., Bergstrom, T.F., 2006.** The genetic contribution to canine personality. *Genes, Brain, Behavior* 5, 240-248.
- Simpson, S. B., 1997.** Canine communication. *Veterinary Clinics of North America: Small Animal Practice* 27, 445-464.
- Uzunova, K., 2006.** Investigation of some hygienic and technological parameters of rearing facilities for dogs. PhD Thesis, Stara Zagora, pp. 114.
- Uzunova, K., Semerdjiev, V., Stoyanchev, K., Russenov, A., Tsandev, N., Yonkova, P., 2008.** Effect of temperament type on socialization among companion dogs, *Trakia Journal of Sciences* 6, 33-35.
- Uzunova, K., Mitev, Y., Miteva, Tch, Vashin, I., 2009.** Prediction of the behaviour of puppies using tests with regard to their humane treatment and welfare, *Trakia Journal of Sciences* 7, 51-53.
- Vastrade, F., 1998.** Appreciation des aptitudes chez le chien. *Le chien dans la societe- Seminaire de Paris*, pp. 312-333.