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Evaluation of the usefulness of the temperament tests in utility dog breeding on the example of a Boxer breed

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Abstract: *Evaluation of the usefulness of the temperament tests in utility dog breeding on the example of a Boxer breed.* Boxer is a German utility dog breed, for which in some European countries the temperament tests are the part of breeding qualification. The aim of this study is the evaluation of usefulness of such tests in breeding process. Data for the analysis originated from the results of international dogs' sports competitions organized by Association Technique Internationale du Boxer (ATIBOX) in the years 2002–2015. It was found that the use of temperament tests in breeding qualifications has a very small effect on the results achieved in the competitions. It may result from differences in tests between different countries. The use of temperament tests in Boxer breeding is justified by the preservation of the breed's character.

Key words: dog, dog breeding , utility dogs, temperament tests, Boxer

INTRODUCTION

The main reason for the domestication of dog, as well as other animals, was their usefulness for humans. Over time, different types of dogs were created, adopted to different climatic zones, predisposed to various tasks given by man (Fiszdon 1999). Nowadays, World Canine Organisation (Fédération Cynologique Internationale – FCI) recognizes 346 dogs breeds, majority of them originate from 19th century, when planned breeding based not only on utility but also on exterior traits started (Monkiewicz et al. 2003). With the development of civilization, the traditional use of dogs in the protection of territory, pastoralism and hunting was losing its importance. More and more dogs of different breeds, originally utility ones, were kept exclusively as companion animals.

In order to preserve the character traits typical for certain breeds of dogs, the FCI counts a part of breeds as subjected to working trials. In some countries where cynological organizations belong to the FCI, working trials are an obligatory part of the breeding qualification of utility dogs. In countries in which cynological organizations belong to clubs analogous to the FCI (British Kennel Club or American Kennel Club), working trials are not used in breeding selection or they are organized optionally. In the FCI sense, temperament tests are considered to be a part of working trials. The main purpose of those tests is to exclude cowardly dogs from breeding. The course and degree of testing difficulty may vary depending on the test regulations adopted in

a given country. Some cynological organizations prepare multi-stage tests, dedicated to a specific group of breeds (for example defensive dogs), or only one breed. Tests dedicated to a particular breed or group of breeds may additionally distinguish dogs with preferred psychological properties – predisposing them to a specific job.

An example of a dog breed for which temperament tests are used is a Boxer. His ancestors include a non-existing anymore breed bullenbeisser, used for hunting big game, and a bulldog whose original purpose was also to fight animals. According to the breed standard, the Boxer should have confidence, control, vigilance, courage, and attachment to the household. These qualities make this breed the world-famous companion, defensive dog, versatile dog, and sports dog.

Historically, Boxers were used as military working dogs (Wagner 1946, Marekowska 1989, Abraham 2000, Kłys 2015) and in the USA as sightless people guides (James and Berryman 2011). Currently they work as police dogs (Persson 2007), search and rescue groups (Spitzer 1998, Fiszdon 1999, Abraham 2000), as therapy dogs (Lettis 1998, Abraham 2000, Woźniak 2014) and assistance dogs (Abraham 2000). They are also used in many sport activities, like IPO (protection training), Obedience, Agility, Flyball (Wieczorek 2003), Dock Diving (American Boxer Club 2014), herding (James and Berryman 2011, Abraham 2012) and others. According to the FCI classification, Boxers are considered utility breed, so in many European countries temperament tests are one of the elements of their breeding qualification (Marekowska 1989). Examples of temperament tests in different countries are shown in Table 1.

The aim of this paper was to determine whether the use of temperament tests as a compulsory element of the Boxer's breeding qualification influences their use and achievements as working and sports dogs.

MATERIAL AND METHODS

In order to investigate the suitability of the use of temperament tests in Boxer breeding and the impact of such selection on sport performance of dogs of this breed, the results of the world championship sporting events, organized annually by the Association Technique Internationale du Boxer (ATIBOX), were analyzed.

TABLE 1. Types of obligatory temperament tests, being an element of breeding qualifications of boxers in some cynological organizations belonging to the Fédération Cynologique Internationale

Country	Test name/ /Symbol	Number of stages	Testing the guarding predispositions	Dedicated for boxer breed	Relevant for breeding qualification
Germany	ZTP	2	+	+	+
Czech Republic	ZH	2	+	+	+
Poland	mental tests	1	+	–	+
Sweden	MH	1	–	–	+

Since 1950 ATIBOX brings together 30 Boxer breeders clubs around the world. The competition is played in two categories: the ATIBOX IPO WM Guard Dogs Championship and the ATIBOX FH WM Tracking Dogs Championship.

The results include data published on the ATIBOX website covering the years 2002–2012, supplemented by results from the years 2013–2015 published on the website of the German Boxer club and in the club's monthly newsletter "Boxer Blätter". The number of dogs participating in both championships is shown in Table 2. The results of the competition were divided into two groups: ATIBOX IPO WM Championship (Table 3) and ATIBOX FH WM Championship (Table 4). Each of these tables provides detailed results of the competition in 14 columns corresponding to the years 2002–2015. ATIBOX IPO WM Championship is played in three categories: IPO I, IPO II and IPO III. ATIBOX FH WM Championship is played in FH I, FH II, and FH III categories. The tables indicate which country was represented by competitors ranked in the top three places in each category in following years.

The relationship between the use of temperament tests in breeding qualification and the highest results in the Guard Dogs championship – ATIBOX IPO WM was investigated. For this purpose, the results obtained by representatives of different countries were compared by the use of different coefficients of correlation (Yula coefficient, Czuprow coefficient, Cramer coefficient). For the purpose of the analysis, the first three

TABLE 2. Number of dogs participating in ATIBOX IPO WM Guard Dogs Championship and the ATIBOX FH WM Tracking Dogs Championship in 2002–2015

Year	ATIBOX IPO WM	ATIBOX FH WM
2002	48	32
2003	41	33
2004	39	32
2005	35	37
2006	18	36
2007	32	28
2008	32	34
2009	31	21
2010	34	20
2011	42	32
2012	24	30
2013	27	34
2014	25	40
2015	37	33
Total	465	442
Mean	33	32

TABLE 3. Results of the ATIBOX IPO WM World Dogs Championships in 2002–2015

Place	Year													
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
IPO I														
1	CZ	D	CZ	CH	CZ	IT	SE	A	CZ	CZ	IT	A	B	SLO
2	IT	B	D	D	B	CZ	PL	CZ	D	IT	CH	IT	B	H
3	E	IT	A	D	PL	CH	F	IT	IT	F	B	CH	H	B
IPO II														
1	IT	D	CH	NL	CZ	CZ	CZ	CZ	A	CZ	IT	IT	–	–
2	F	IT	CZ	CZ	–	CH	F	CZ	CZ	CZ	F	–	–	–
3	E	CZ	A	D	–	IT	E	PL	F	D	–	–	–	–
IPO III														
1	CZ	CZ	D	D	D	D	FIN	CZ	D	D	IT	IT	D	B
2	F	D	CZ	D	D	A	CZ	D	D	E	IT	D	D	D
3	D	SK	CZ	CH	D	D	CZ	A	A	D	FIN	CZ	D	D

The table includes the first three locations, in each of the three categories with increasing difficulty level: IPO1, IPO2, IPO3. The IPO3 category is a master category, the winner of the first place receives the title of the World Winner ATIBOX WM. A – Austria, B – Belgium, CH – Switzerland, CZ – the Czech Republic, D – Germany, E – Spain, F – France, FIN – Finland, H – Hungary, IT – Italy, NL – the Netherlands, PL – Poland, SE – Sweden, SK – Slovakia, SLO – Slovenia.

TABLE 4. Results of the ATIBOX FH WM World Dogs Championships in 2002–2015

Place	Year													
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FH I														
1	D	CZ	D	CZ	D	DK	D	H	EST	D	D	SLO	CZ	F
2	IT	D	D	CZ	D	D	CH	CZ	FIN	CZ	SLO	DK	CZ	DK
3	CH	CH	CZ	CH	B	D	CH	USA	D	CZ	CZ	SLO	D	D
FH II														
1	D	D	D	CH	D	D	CH	A	FIN	CZ	A	PL	DK	D
2	CH	CZ	D	D	D	DK	DK	CZ	FIN	A	D	A	CZ	A
3	D	D	D	FIN	A	DK	A/D	CZ	FIN	FIN	–	D	CZ	D
FH III														
1	D	D	D	F	D	D	D	DK	FIN	CH	FIN	D	A	F
2	NL	D	DK	D	D	D	D	FIN	EST	CZ	CZ	CH	D	D
3	D	DK	D	NL	NL	D	D	CZ	D/DK	D	D	F	A	D

The table includes the first three locations, in each of the three categories with increasing difficulty level: FH1, FH2, FH3. The FH3 category is a master category, the winner of the first place receives the title of the World Winner ATIBOX WM. A – Austria, B – Belgium, CH – Switzerland, CZ – the Czech Republic, D – Germany, DK – Denmark, E – Spain, EST – Estonia, F – France, FIN – Finland, H – Hungary, IT – Italy, NL – the Netherlands, PL – Poland, SE – Sweden, SK – Slovakia, SLO – Slovenia, USA – United States of America.

places in competitions were considered as high. The same comparison was made for the results of the championship in tracking championship – ATIBOX FH WM. Because in the course of temperament tests for Boxers, regardless of their variant, predispositions to tracking are unsuitable, the determination of correlation coefficients between the use of tests and the number of earned positions for this comparison was not valid.

Summing up the total number of highest places in competitions (I–III) from five different countries, five teams have been selected with best results in ATIBOX IPO WM and five with best results in ATIBOX FH WM Championship. In order to investigate whether there is a correlation between the results obtained in both types of competition (ATIBOX IPO WM and ATIBOX FH WM), Spearman's correlation coefficient was calculated.

Due to the fact that dogs could be purchased abroad, the country of their origin was analyzed. The identification of the country of dog's birth was based on the analysis of kennel names, which, according to the current FCI regulations, are unique – the name registered in one cynological organization affiliated to the FCI cannot be repeated in another. This analysis helped to describe from which country dogs were most often imported.

RESULTS AND DISCUSSION

The highest number of top places (places I–III) in the ATIBOX IPO WM championships in the years 2002–2015 were awarded to German competitors (11 times the second place and nine times the first and the third place) – Table 5. The Czech Republic was ranked in the first three places 26 times (13 times the first place, nine times the second place and four times the third place). The Italian team, the third in the classification, won the top three places 16 times, of which almost half was the first place – obtained seven times. Austrian representation was ranked the fourth in the ranking, obtaining in the analyzed years a total of eight highest positions. The top five are completed by three teams – France, Switzerland and Belgium. The coefficients of correlation (contingency) were determined by the following results: Yula coefficient: $\varphi = 0.09$, Czuprow coefficient: $T = 0.07$, Cramer coefficient: $V = 0.09$, Pearson coefficient: $P = 0.09$. The coefficients indicate a very poor correlation between the use of temperament tests in breeding selection and the results obtained at ATIBOX IPO WM Championship.

Similarly, as in the ATIBOX IPO WM championships, in ATIBOX FH WM the highest number of places I–III was awarded to the representatives of Germany – 52 in total (including 19 times the first place, 18 times the third place and 15 times the second place) – Table 6. The second place in the classification is occupied by the Czech competitors with the total of 19 highest places (nine times the second place, six times the third place and four times the first place). The difference between the places 3–5 in the competition is small: the third place Denmark with 11 places I–III, the fourth place Switzerland with 10 places I–III and the fifth place Austria and Finland *ex aequo* with nine places I–III, including the same proportion of achievements: three times the first place, three times the

TABLE 5. Comparison of the results of the ATIBOX IPO WM championships in the years 2002–2015, taking into account the number of positions achieved during the competition by representatives of different countries

Country	Symbol	Temperament tests	Number of positions I–III	I	II	III
Germany	**D**	**+**	**29**	**9**	**11**	**9**
Czech Republic	**CZ**	**+**	**26**	**13**	**9**	**4**
Italy	**IT**	**–**	**16**	**7**	**5**	**4**
Austria	**A**	**+**	**8**	**3**	**1**	**4**
France	**F**	**–**	**7**	**–**	**4**	**3**
Switzerland	**CH**	**+**	**7**	**2**	**2**	**3**
Belgium	**B**	**–**	**7**	**2**	**3**	**2**
Spain	E	+	4	–	1	3
Poland	PL	+	3	–	1	2
Finland	FIN	–	2	1	–	1
Hungary	H	–	2	–	1	1
Netherlands	NL	–	1	1	–	–
Slovakia	SK	–	1	–	–	1
Sweden	SE	+	1	1	–	–
Slovenia	SLO	–	1	1	–	–

TABLE 6. Comparison of the results of the ATIBOX FH WM championships in the years 2002–2015, taking into account the number of positions achieved during the competition by representatives of different countries

Country	Symbol	Temperament tests	Number of positions I–III	I	II	III
Germany	**D**	**+**	**52**	**19**	**15**	**18**
Czech Republic	**CZ**	**+**	**19**	**4**	**9**	**6**
Denmark	**DK**	**–**	**11**	**3**	**5**	**3**
Switzerland	**CH**	**+**	**10**	**3**	**3**	**4**
Finland	**FIN**	**-**	**9**	**3**	**3**	**3**
Austria	**A**	**+**	**9**	**3**	**3**	**3**
France	F	–	4	3	–	1
Netherlands	NL	–	3	–	1	2
Slovenia	SLO	–	3	1	1	1
Estonia	EST	–	2	1	1	–
Italy	IT	–	1	–	1	–
Belgium	B	–	1	–	–	1
Hungary	H	–	1	1	–	–
USA	USA	–	1	–	–	1
Poland	PL	+	1	1	–	–

second place and three times the third place. Due to the fact that the temperament tests for Boxers do not investigate predispositions for tracking, there was no analysis of the correlation between the occurrence of temperament tests in the breeding qualification of Boxers and getting high scores at the ATIBOX FH WM Championship.

Comparison of the ATIBOX IPO WM and ATIBOX FH WM championships classification in 2002–2015 is presented in Table 7. The best five positions (indicated in Tables 5 and 6 in bold font) were included in the classification.

In the presented list, it can be seen that the German team was the best in both competitions and the Czech Republic in both competitions was ranked in the second place. The third in the classification of the IPO WM, Italian national team, did not qualify to the top five best in the FH WM competition. Austria was the fourth in IPO WM and the fifth in FH WM, Switzerland inversely (the fifth in IPO WM and the forth in FH WM). The French national team qualified for the fifth place in the IPO championship, but failed to qualify for the top five of the FH WM championship classification. Scandinavian countries took the third place (Denmark) and the fifth place (Finland) in the ranking of the FH WM championship, but did not qualify for the five best places of IPO WM championship. This may indicate less interest in guarding dogs sports in Scandinavia.

In order to examine the relationships between the results obtained by the different representations in both types of professions, Spearman's correlation coefficient $r_s = 0.36$ was calculated. It indicates a poor, positive correlation between getting high positions in both types of competitions.

Analysis of country of origin of winning dogs shows that 30 individuals were born in another country than the one they represented in the competition. More than half of them (16 dogs) were bred in Germany, then in the Czech Republic (four), Italy and France (three).

TABLE 7. Comparison of the ATIBOX IPO WM and ATIBOX FH WM championships classification in the years 2002–2015. Numbers indicate place taken

Country	Obligatory temperament tests for boxer breed	ATIBOX IPO WM	ATIBOX FH WM
Germany	+	1	1
Czech Republic	+	2	2
Italy	–	3	–
Austria	+	4	5
France	–	5	–
Switzerland	+	5	4
Belgium	–	5	–
Denmark	–	–	3
Finland	–	–	5

The results indicate the lack of a definite influence of the use of temperament tests in the competition results obtained by Boxers.

During the analyzed period the highest number of best positions in the ATIBOX IPO WM and ATIBOX FH WM championships were won by the German and Czech teams (Tables 5 and 6). German dogs, and then Czech, are also the two largest groups among imported dogs submitted for competitions. In both countries Boxers used for breeding need to take two-stage temperament tests, which define the guarding predispositions. Third place in ranking of highest results in the ATIBOX IPO WM Championship belongs to dogs from Italy, where temperament tests are not required.

This can be a confirmation of the statistical results, indicating that the correlation between the use of temperament tests in breeding and the high results in the ATIBOX IPO WM is very poor.

The fact that the presence of temperament tests in breeding qualification is not reflected in the better performance in sport competitions can also be seen by analyzing which teams were ranked *ex aequo* on the fifth place in ATIBOX IPO WM. Those were representatives of France, Switzerland and Belgium. In France and Belgium there are no requirements for temperament tests in Boxer breeding, while in Switzerland Boxers are obliged to undergo a specific temperament test, which describe their predispositions, and in addition, there is the possibility of joining the non-compulsory tests of higher level of difficulty.

The poor, positive correlation between the achievements of the ATIBOX IPO WM and the ATIBOX FH WM championships, may be the consequence of the design of the IPO rules. One of the compulsory parts of the IPO competitions is tracking (in addition to the obedience and defence). Competitors preparing dogs for ATIBOX IPO WM can take advantage of the experience gained in IPO training. It is possible that the practice and achievements gained in one discipline of dog sport motivate competitors to compete in other disciplines, which may be one of the reasons for mentioned correlation.

The obtained results are similar to what reports Willis (1992) about Swedish and German studies on temperament tests and the inheritance of desirable traits in guard dog training. The tests carried out in about 900 German Shepherds at the age of 18 months at a Swedish military dog breeding and training center showed the low or zero inheritance of traits useful in training. The research conducted in Germany covered the 1,300 German Shepherds that have been trained for the first degree dog. The results showed a very small, near zero inheritance of traits desirable in training, including obedience, courage, predisposition to tracking and cooperation with man.

According to Willis (1992), the results obtained in Sweden and Germany, which do not confirm the inheritance of traits, and indirectly also the appropriateness of the use of temperament tests in dog breeding, may be the consequence of improper research methodology. He indicates that later studies, re-conducted in a Swedish dog breeding and training center for military purposes, including a group of eight-weeks old German Shepherd puppies, showed high inheritance

of some of the desirable traits. He claims that temperament tests in breeding utility dogs are essential in their breeding, and the results of the study do not support the lack of genetic conditioning of the desirable traits of these animals.

Similar conclusions are noted by Fiszdon (1999), who approve the use of temperament tests in dog breeding qualification, and recommending the general selection on the base of the character of dogs used in breeding irrespective of race, with particular emphasis on the elimination of anxious and aggressive individuals. She points out that the character of a dog is conditioned by the genotype and environment, but estimating the strength of the gene influence is very difficult.

By analyzing the variety of sports Boxers participate in the United States and the United Kingdom (Abraham 2000, Ray 2008, James and Berryman 2011, Abraham 2012, James and Berryman 2012, American Boxer Club 2014), where temperament tests are not part of the qualification for breeding, it's not valid to state that lack of tests has negative impact on the usefulness of dogs of this breed in different sports competitions.

However, it is important to note that in none of these countries Boxer dedicated championships for guard dogs are organized – not to compare them with ATIBOX competitions. Popular sports in Anglo-Saxon countries, such as obedience and agility, require from dogs to have good contact with the guide and – most often – high physical fitness. These disciplines are not, however, dedicated to working dogs, guarding in particular. In practice, this means that although American and English Boxers are frequent participants in different types of training and competitions in dog sports, they may have a different potential than European Boxers from other countries.

Similar conclusions are drawn from the summary of information on Boxers used as a working dogs. There have been various evaluations of the temperament of Boxers and their suitability for specialized training, particularly in the police and as therapy dogs, depending on the country of origin. American Boxers are prepared for police service, but European Boxers are more likely to be chosen for this kind of training, because of their more suitable temperament predispositions (Hubert-Markos 2015).

Also information on the Boxers working as therapy dogs suggests different temperament predisposition of American and European Boxers. While American publications emphasize that the Boxer is able to control his temper in the presence of a sick person, which is his advantage to be used as a therapist animal (Lettis 1998). Polish studies show that it is difficult to master his enthusiasm and underline its small delicacy (Woźniak 2014).

The distinctive character differences between the American and European Boxer populations can be attributed to the differences in the appearance of these dogs. Due to the different types of construction, American and European Boxers are rarely crossed, making the American population separate from the European population. American Boxers are still useful as working dogs, helping people with disabilities, but the loss of predisposition to defensive training is in opposition to the assumptions of the breed standard.

CONCLUSIONS

The presence of temperament tests in the breeding qualification of Boxers has a very small effect on the ATIBOX Guard Dogs Championship and the ATIBOX Tracking Dogs Championship results, and indirectly on dogs predispositions.

Boxers bred in Germany and the Czech Republic took high places more often than dogs from other countries. It may be the result of detailed, two-stages temperaments tests use in both country as a base for breeding principles.

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Streszczenie: *Ocena przydatności zastosowania testów psychicznych w hodowli psów użytkowych na przykładzie rasy bokser.* Boksery to niemiecka rasa psów użytkowych. W części europejskich krajów elementem ich kwalifikacji hodowlanej są testy psychiczne. Celem pracy jest ocena przydatności zastosowania testów psychicznych w kwalifikacji hodowlanej bokserów. W pracy przeprowadzono analizę wyników międzynarodowych zawodów sportowych organizowanych przez klub Association Technique Internationale du Boxer (ATIBOX) w latach 2002–2015. Stwierdzono, że wykorzystanie testów psychicznych w kwalifikacji hodowlanej ma bardzo mały wpływ na osiągane wyniki w zawodach. Może to być spowodowane dużym zróżnicowaniem rodzajów testów przeprowadzanych w różnych krajach. Zastosowanie testów psychicznych w hodowli bokserów jest uzasadnione zachowaniem właściwych tej rasie cech charakteru.

Słowa kluczowe: pies, hodowla psów, psy użytkowe, testy psychiczne, bokser

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