

## Behavioural Traits of Four Dog Breeds In Czech Households

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### Abstract

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Our study was aimed at the behavioral aspects of coexistence with people of four canine breeds in Czech households. From the original set of data in 305 earlier analyzed dogs we selected 89 animals, i.e. those concerning the four most numerous breeds, (34 Dachshunds, 16 Schnauzers, 23 German Shepherd Dogs and 16 Poodles), and compared their 85 behavioural traits and interactions with their household members. The results were evaluated using the chi-square test. Dogs belonging to these four breeds differed significantly in only 28 (32.9%) of the indicators under study. Except for a few German Shepherd Dogs all members of our group were considered to be companion animals and household members. They were no longer used as earth dogs or hunting, guarding/herding dogs. Breed characteristics were taken into consideration only exceptionally. People kept them for pleasure and not for their original skills, once carefully selected for and modified. On the contrary, these skills became undesirable in urban environment. Despite that, dog breeds are designated by their original functions and use, even though the anthropomorphic selection pressures continue. People want their dogs to adapt more and more to the intimate co-existence in rural and urban environments. Thus, canine behaviour is under massive selection pressures.

*Behaviour traits, questionnaire, Dachshunds, Schnauzers, German Shepherd Dogs, Poodles*

The time when dog packs and human crowds began to socialize is still a matter of debate and speculations. However, there is no doubt that dogs have been developing for thousands of years in close proximity to humans. They became a part of life styles and cultures of the most differing human societal formations. As a result of various, also anthropomorphic, selection pressures upon this long-time bond, dogs became phenotypically the most diversified mammalian species. They differ not only morphologically, i.e. in size, appearance, bodily proportions, coat colour and quality, but also physiologically and behaviourally (Wayne 2001).

Dogs were and are perceived by their behaviour as animals serving people. The study of behaviour of various dog breeds followed diverse paths, stopping at many crossroads. Overviews of its history can be found in numerous comprehensive studies of this phenomenon (Scott and Fuller 1965; Hart and Miller 1985; Mackenzie et al. 1986; Bradshaw and Nott 1995; Clutton-Brock 1995; Hart 1995ab; Serpell 1995ab; Willis 1995; Bradshaw et al. 1996; Coppinger and Coppinger 1998; Hahn and Wright 1998; Christiansen et al. 2001; Houpt and Willis 2001; Herzog and Elias 2004; Herzog et al. 2004; Mae et al. 2004; Parker et al. 2004; Houpt 2005; Svartberg and Forkman 2002; Svartberg 2006, Houpt 2007).

We decided to contribute to these studies by analyzing and comparing the behaviours of four popular breeds, namely Dachshunds, Schnauzers, German Shepherd Dogs (GSD) and Poodles in Czech households. These breeds have been selected and bred for various purposes for years and were sufficiently represented in our set of dogs as reported in earlier published papers (Baranyiová et al. 2001, 2004, 2005).

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### Materials and Methods

Data on dogs were collected from a questionnaire based on Askew (1997) and Podberscek and Serpell (1997), modified for our needs (Baranyiová et al. 2001, 2004, 2005). The questionnaire was published in a monthly magazine "Náš pes". About 90% of the data came from its readers and the rest were obtained from clients of veterinary practices.

From the basic set of dogs, we selected 89 animals belonging to four breeds. Group 1 consisted of Dachshunds ( $n = 34$ ), Group 2 Schnauzers ( $n = 16$ ), Group 3, GSD ( $n = 23$ ), and Group 4, Poodles ( $n = 16$ ). No distinctions were made among sizes within the breeds.

The data from the questionnaire were used as needed. We studied the frequencies of dog behaviours and conduct of their owners. The results were evaluated by  $\chi^2$  test (SPSS v. 8).

### Results

In the above-mentioned groups of dogs 85 behavioural traits were followed. Among them, 28 (32.9%) had a significant connection to the four breeds under study.

However, this was not the case with most dog behaviours. The Dachshunds, Schnauzers, GSD and Poodles were characterized as playful (95.3%), devoted (92.6%), protective of owners (84.3%), obeying (83.3%), dominant (44.1%), fearful (40.2%), submissive (33.8%). They were also perceived as annoying (24.6%), nervous (23.2%), and physically inactive (18.2%). No breed differences were found in being sometimes disobedient (59.1%), too loud, barking and growling at unknown, unfamiliar persons (52.3%), or biting them (17.2%). Dogs showed coprophagia (45.5%), stole human food (44.9%), growled at family members (17.0%), were sometimes difficult to control (15.3%), and soiled in the house (14.8%). Furthermore, there were no differences found between the four breeds in aggression when either the dogs were physically contacted (touched, patted, pushed or reached toward), when disturbed from sleep or feeding, or when threatened, where the number of threats or attacks was the highest, 47.1%.

On the other hand, the following traits differentiated in the four breeds significantly. For example, three fourths of Dachshunds were described as stubborn (78.6%,  $\chi^2 = 22.009$ ,  $df = 3$ ,  $p < 0.001$ ), whereas among GSDs it was only one fifth (20.0%), and among Poodles only 14.3%. GSD were significantly less frequently engaged in mounting people (8.7%,  $\chi^2 = 8.955$ ,  $df = 3$ ,  $p < 0.05$ ), Dachshunds destroyed gardens more often than other breeds (36.4%,  $\chi^2 = 8.632$ ,  $df = 3$ ,  $p < 0.05$ ), destroyed household items (33.3%,  $\chi^2 = 12.768$ ,  $df = 3$ ,  $p < 0.005$ ). Schnauzers were engaged in roaming more frequently than the other breeds (37.5%,  $\chi^2 = 9.117$ ,  $df = 3$ ,  $p < 0.05$ ).

In care for nutrition of these dogs, their daily feeding regime, significant differences were rare. The dogs were fed either once (62.9%), or twice (29.3%) daily, sometimes more often (7.9%), mostly (80.7%) before the family meals. Table scraps were fed only occasionally (4.6%). All dogs had water available at all times, day and night. People shared tidbits with them (85.2%). Poodles, however, were given food from table more often (75.0%) than GSDs (13.0%) and Schnauzers (6.3%,  $\chi^2 = 22.815$ ,  $df = 3$ ,  $p < 0.001$ ).

Social and physical environments in which the dogs lived differed. Households had various structures. They differed in the numbers of persons as well as in presence or absence of children and other living creatures. In the smallest, one-person households, significantly more Schnauzers were kept (12.5%,  $\chi^2 = 12.396$ ,  $df = 6$ ,  $p < 0.05$ ), and in households with one child Poodles (56.3%,  $\chi^2 = 15.765$ ,  $df = 6$ ,  $p < 0.05$ ) were most abundant. With more than a half of GSDs cats were kept too (56.5%,  $\chi^2 = 17.985$ ,  $df = 6$ ,  $p < 0.005$ ), whereas no cats at all were reared in households with Poodles.

The type of housing was a factor that strongly influenced the coexistence of humans and their dogs. This was most true for GSDs, where a significantly higher number, namely four fifths, lived in houses with a yard (81.8%,  $\chi^2 = 20.908$ ,  $df = 6$ ,  $p < 0.001$ ), and Poodles were more numerous, nearly nine tenths, in urban apartments (87.5%).

We found differences in the age of puppies at which they were acquired. A half of the

Schnauzers (50.0%) were acquired between 10 weeks and six months, whereas Poodles between 6 and 10 weeks ( $\chi^2 = 16.601$ ,  $df = 6$ ,  $p < 0.01$ ). No differences were detected in morbidity (reaching 34.9%) of the breeds under study.

More than two thirds of the dogs were taken for walks regularly (68.2%), among them one tenth were always leashed (10.1%), more often kept on leash when walked in the streets (80.9%). Poodles were never on leash when walked in a forest or a park.

Play belongs to the basic components of care for companion animals. Household members who did not play with their dogs were exceptions (1.1%). Most owners were involved in various types of plays with their dogs at home. However, with GSDs they preferred to play during walks (91.3%,  $\chi^2 = 7.905$ ,  $df = 3$ ,  $p < 0.05$ ) and retrieving was the preferred game (95.7%,  $\chi^2 = 11.155$ ,  $df = 3$ ,  $p < 0.01$ ). On the other hand, with Dachshunds, retrieving was significantly less frequent (61.8%). The dogs were allowed to play with their conspecifics (60.7%). Up to 24% of them were allowed to play with conspecifics frequently. Others were allowed to play with other dogs on a regular basis but with significant differences ( $\chi^2 = 18.224$ ,  $df = 3$ ,  $p < 0.001$ ); dachshunds most frequently (29.4%) and GSDs never (0.0%). Only one seventh of the dogs (13.5%) never engaged in games with conspecifics.

More than a half of the dogs experienced some form of obedience training, but there were clear breed differences ( $\chi^2 = 16.894$ ,  $df = 3$ ,  $p < 0.001$ ). Training was most frequently given to GSDs (87.0%), but only to one third of dachshunds (33.3%).

There were also differences in obedience of the four breeds ( $\chi^2 = 19.372$ ,  $df = 6$ ,  $p < 0.005$ ). GSDs obeyed the command "sit" always (91.3%), Dachshunds sat on command sometimes (42.4%) or rarely (15.2%). A similar situation was with the command "down" ( $\chi^2 = 24.750$ ,  $df = 6$ ,  $p < 0.001$ ): three quarters of GSDs always obeyed (73.9%) but Dachshunds only sometimes (39.4%) or rarely (39.4%). When called, dogs of all four breeds came always (74.2%), sometimes (19.1%) or rarely (6.7%). No significant differences were found. When trained, dachshunds were also given the least food rewards ( $\chi^2 = 11.403$ ,  $df = 3$ ,  $p < 0.001$ ). Differences were also found ( $\chi^2 = 29.627$ ,  $df = 3$ ,  $p < 0.001$ ) in the involvement of professional trainers in obedience training of these dogs. Their services were more frequently used by GSD owners (50.0%). Dachshunds and Poodles were never trained by professionals.

Nearly all Dachshunds, Schnauzers, GSDs and Poodles were closely integrated in the households. They were considered family members (98.9%). Almost three quarters of the dogs (73.0%) were companions for their owners but in significantly different ways ( $\chi^2 = 27.313$ ,  $df = 6$ ,  $p < 0.001$ ). Whereas Poodles were considered exclusively as companions (100.0%) and Dachshunds in 88.2%, half of the Schnauzers were not only companions, but also working dogs. GSDs were described in a similar way (39.1%), however, some of them were, contrary to the other breeds, described as working dogs only (13.0%).

The owners communicated daily with nearly all dogs, but in a differentiated way ( $\chi^2 = 11.849$ ,  $df = 3$ ,  $p < 0.005$ ). More than expected talking occurred to Dachshunds, people talked to all of them (100.0%). On the other hand, less frequent was talking to GSDs (78.3%). People confided in their dogs (78.2%). The household members believed that they understood the behaviours of their dogs (91.0%); always those of Poodles (100.0%), but significantly less those of GSDs 78.3% ( $\chi^2 = 7.732$ ,  $df = 3$ ,  $p < 0.05$ ). In a similar way they reported that nine tenths of their dogs perceived the moods of the owners (93.3%); again all Poodles (100.0%) but significantly fewer GSDs ( $\chi^2 = 11.323$ ,  $df = 3$ ,  $p < 0.01$ , 78.3%). There were no differences in people having their dogs' photographs (91.0%), but there were differences in celebrating their dog's birthdays ( $\chi^2 = 13.836$ ,  $df = 3$ ,  $p < 0.005$ ); with Poodles prevailing significantly (93.8%).

There were no significant differences in taking their dogs on vacations (84.1%). With

more than four fifths of dogs people shared their food and tidbits (85.2%). Almost two thirds of dogs were allowed to sleep in beds, but there were breed differences found ( $\chi^2 = 21.151$ ,  $df = 3$ ,  $p < 0.001$ ). In the beds of their owners Poodles slept most frequently (93.8%), and least frequently GSD (26.1%). In the same way people allowed their dogs to use furniture ( $\chi^2 = 39.144$ ,  $df = 3$ ,  $p < 0.001$ ): all Poodles (100.0%), nearly all Dachshunds (97.1%), but only 30.4% of GSDs were allowed to do so.

## Discussion

Dogs have shared their lives with people for tens of thousand of years (Savolainen et al. 2002). They were selected for various purposes. The ancient world of Egyptians and Romans used dogs for hunting, herding, and/or guarding but lap dogs were also known. The Romans were aware of the fact that selection could affect not only the appearance of a breed but also its capabilities and behaviour (Clutton-Brock 1995). Since Roman times dog breeds have been defined, developed and distinguished according to their role in human society, what needs of people they fulfilled, i.e. how their behaviour was modified by selection. Along with changing life styles of human societies the selection goals changed too. The middle ages, for example, was an era known for diverse hunting dog breeds (Clutton-Brock 1995). However, variations in behaviour of different breeds as obtained by previous modifications, persisted. This, too, is a reason for the immense unprecedented, unusual diversification of canine behavior.

In the second half of the 19<sup>th</sup> century dog breeding began to be influenced by breed societies and clubs. Kennel clubs and pedigree books were founded and only individuals with both parents recognized were included as true pedigree dogs. At present, some 400 breeds are recognized worldwide according to agreed arbitrary morphological standards. They are exhibited in show rings and judged mostly by their phenotype (Willis 1995; Lindsay 2000; Svartberg 2006) and bred. Nevertheless, a correlation between their breed physical characteristics and sequence of their mitochondrial DNA was not always documented (Parker et al. 2004). Dog breeds were, no doubt, started with dogs of various genetic pools. Phenotypically uniform and by breeders recognized dog breeds are not closed, they are heterozygous. For example, the breed of GSD consists of five different groups of mitochondrial DNA sequences (Vila et al. 1997ab).

Nevertheless, our results indicate that Dachshunds, Schnauzers, GSDs and Poodles did not differ significantly in two thirds of traits under study. Their coexistence with humans in Czech households showed a similar frequency of the traits as was true of the basic set of dogs reported earlier (Baranyiová et al. 2001, 2004, 2005). However, in the remaining 28 traits, significant differences were detected. This finding agrees with that of Svartberg and Forkman (2002) who found that dog breeds do differ in several traits.

The smallest number of differences was found in Schnauzers, an old German breed (only five, i.e. 5.9%). Originally, Giant Schnauzers were used for guarding cattle, Miniature Schnauzers for hunting vermin such as rats. At present, they belong to working breeds but most of them are kept as pets. This was the case in our group of Schnauzers. All of them were considered as companions but half of them were simultaneously described as working dogs. The owners did not specify for what kind of work the dogs were used. They were possibly used as guarding dogs but they did not obtain specific training more often than other breeds. A significantly larger number of them were kept in one-person households, and they were acquired younger than 6 months. Their owners claimed that they roamed and they were given food from the table less frequently.

In Dachshunds, a higher number of significantly differing traits was found, namely 11 (12.9%). Dachshunds are viewed as an old and thoroughly bred canine breed. Dogs of this phenotype, long-bodied on short legs were pictured as early as in ancient Egypt. In central

Europe, they have been used since medieval hunting events as earth dogs - terriers, hunters and bloodhounds. The first society of Dachshund breeders was founded in Germany in 1888. At present, Dachshunds are mostly kept as companion animals. Among their specific behaviour traits dominance aggression is mentioned (Rugbjerg et al. 2003). In our study they were described as stubborn. They were viewed more frequently as pets only. Only one tenth of them had a pedigree but no indication was made of any kind of work use. People spoke to them daily and they were allowed to use furniture despite the fact that they destroyed it. They also destroyed gardens more often, their games with owners involved retrieving less frequently than those of other breeds. They played with other dogs more often but they had some training only rarely and those who were trained obtained treats less frequently. No dog trainers were involved. This fact is in agreement with the statement of Kobelt et al. (2003) that small dogs are less likely to receive formal training than large dogs.

Only a few more significant differences than in Dachshunds were found in Poodles, namely 13 (15.3%). This breed originated in France, and Poodles once belonged to hunting dogs, specialized in retrieving game and birds. Very soon they became popular as pets. In our study all of them were pets and were most often kept in urban houses with two adults and one child. More than a half of the Poodles had a pedigree. They were mostly acquired at an age older than six months, given food from the family table, and their owners reported that their dogs understand the moods of the family members, and vice versa, that the owners recognize the dog's moods. More frequently than with other breeds, people celebrated their birthdays, they were allowed to sleep in beds and use furniture. These traits reported for Poodles may correspond with the description of this breed as spoiled (Mae et al. 2004). In our study, they were less frequently described as stubborn, were never trained by a professional trainer and were never kept with cats.

Most deviations from expected values were found in GSD, 17 (20%). They used to be a very popular herding/guarding breed in Germany. However, by the end of the 19<sup>th</sup> century they were almost extinct. In 1899, a German Shepherd Dog club was founded and its members attained a renewal and a new wave of their popularity as working dogs. After World War I, they also became very popular in other countries, and up to this day are considered working animals, and, continue to be popular in many countries. For example, in the American Kennel Club popularity, they ranked 3<sup>rd</sup> of 146 breeds (Welton 2000). Also in our data set this breed was significantly more often regarded as both companion and working or exclusively working dogs. One-fourth of them had a pedigree, they were more often kept along with cats, and their owners played with them on walks and let them fetch items. A higher number of them obtained formal training, and were trained by professionals. This finding is in agreement with data of Kobelt et al. (2003) who reported training given more often to large breed dogs. Significantly they were less frequently considered as stubborn and they never played with other dogs. They have shown less inappropriate mounting, they were only occasionally given treats - human food table and people communicated with them less frequently. Owners claimed that they did not understand well the moods of their dogs and that the dogs did not understand their moods. They were not allowed to sleep in beds and use the furniture. They were kept predominantly in rural households and were kept in yards more often than in apartments, similar to other studies (Kobelt et al. 2003).

Formal obedience training of dogs, working according to the FCI registry nomenclature is required only in working and hunting breeds of dogs. In our set of data Dachshunds, Giant Schnauzers, and GSD were concerned. Other breeds are judged in dog shows when they are to be bred. Exclusively as working dogs only 13% of GSDs were considered but they were perceived, similarly as about one half of Giant Schnauzers, as companions, too.

Except for about 1/8 of GSDs, all other dogs in our study were described as companions. This result agrees with the findings of Jagoe and Serpell (1999) and Kobelt et al. (2003).

We therefore analyzed the traits of coexistence of canine companions viewed as household members, not as earth dogs, hunters, rat catchers etc. People keep them exclusively for pleasure and not for their once specifically highly differentiated and long time selected for tasks. On the contrary, especially in urbanized environment, where the dogs lived in intimate contact with their owners, some previously desirable behaviour traits when present were undesirable (Baranyiová et al. 2005; Svartberg 2006).

Dogs continue to be described by their previous use although they no longer fulfill those roles. In Czech households, most dogs are just companions and at present only a few hunting or working breeds have been used for their original purpose. However, the anthropomorphic selection pressures do not cease, they continue, and may result in impaired welfare of the dogs (Haupt et al. 2007). People want their dogs to be adapted to intimate coexistence with household members not only in rural but especially in urban environment. Thus, canine behavior is being modified and continues to be under strong selection pressures.

### **Projevy chování psů čtyř plemen v českých domácnostech**

Předmětem našeho zájmu byl vliv plemenné příslušnosti psů na jejich soužití s lidmi v českých domácnostech. Proto jsme z výchozího souboru, jímž se opakovaně zabýváme vyjmuli 89 psů čtyř plemen a to 34 jezevčků, 16 kníračů, 23 německých ovčáků a 16 pudlů a porovnávali 85 charakteristik jejich chování a interakcí s členy domácností. Příslušníci jednotlivých plemen se od sebe průkazně lišili jen ve 28 (30,9 %) sledovaných ukazatelů.

Nejvíce (20 %) tomu bylo u německých ovčáků. Významně méně často byli hodnoceni jako paličatí a nikdy si nehráli s jinými psy. Kladně bylo oceňováno, že méně často skákali na nohu. Mělo se za to, že se jim rozumělo méně než ostatním a naopak, že oni méně chápali jednání záměry lidí. Méně se s nimi mluvilo. Lidé si s nimi hráli více na procházkách a nechávali je aportovat. Častěji se jim dostávalo výcviku, a to i pod dohledem cvičitelů. Vzácněji dostávali sousta se stolů. Nedovolovalo se jim tolik spát v postelích a využívat bytové vybavení. Žili častěji na venkově, společně s kočkami, mimo byty, ve výběžích, na dvorcích a v zahradách.

Méně jich bylo doloženo u pudlů (15,3 %). Byla jim průkazně méně často vytýkána paličatost. Mělo se za to, že rozumí náladám členů domácností a naopak, že lidé jejich chování spolehlivě dešifrují. Častěji než ostatní dostávali sousta se stolu, slavily se jejich narozeniny, dovolovalo se jim spát v postelích a užívat bytové vybavení. Nikdy neměli cvičitele. Nejčastěji byli chováni v domácnostech bydlicích v městských bytech, s jedním dítětem, bez koček.

Ještě méně jich bylo zaznamenáno u jezevčků (12,9 %). Vytýkala se jim paličatost. Frekventněji ničili zahradní porosty. S jinými psy si hrávali častěji, avšak méně často aportovali. Výcvikem procházeli jen vzácně a nedostávali při tom tak často pamlsky. Cvičitelům svěřování nebyli. Se všemi se denně slovně komunikovalo a dovolovalo se jim využívat bytového vybavení, byť je víc poškozovali.

Nejméně jich bylo prokázáno u kníračů (5,9 %). Vytýkalo se jim, že se toulali. Méně často se jim nabízely pokrmů se stolů. Průkazně častěji byli chováni v domácnostech jednočlenných.

Až na necelou osminu německých ovčáků byli členové našeho souboru, němečtí ovčáci, pudli, jezevčci i knírači označováni za psy společenské. Byli pokládáni za členy domácností. Nebyli již norníky, honiči, barváři, aportéři, lovci potkanů, krys a myší, či hlídači ovcí a skotu. Lidé je chovali pro radost a pro potěšení, ne pro jejich dříve využívané specificky modifikované, dlouhodobě selektované projevy chování. Ty byly naopak (hlavně v urbanizovaném prostředí, kde psi žili ve zvlášť těsném kontaktu s lidmi), ač v minulosti žádané a dlouhodobě cíleně selektované a posilované (pokud se ještě projevovaly), pokládány za nežádoucí.

Psi jsou u nás i nadále označováni podle své dřívější funkce, pracovní náplně. Její plnění se však již nevyžaduje. K jejich plemenným pracovním způsobilostem se obligatorně přihlíží jen zčásti, a to ještě jen u některých plemen. Selektivní antropomorfní tlaky však neustávají, pokračují. Žádá se, aby psi byli více adaptováni na těsné soužití s lidmi nejen v rustikálním, ale zvláště v urbanizovaném prostředí. Vývoj psiho chování je i u nás nadále silným selektivním tlakem masivně modifikován.

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