

## **The importance of educating prospective dog owners towards optimising the process of puppy acquisition**

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An urgent need to reduce the number of dogs that are relinquished or abandoned is now widely recognised by the scientific community, including ethologists, veterinarians expert in animal behaviour, dog trainers and breeders.

The occurrence of problematic behaviours is the most common reason why dogs are relinquished to shelters, abandoned or, in Countries where it is allowed, even euthanised.<sup>1</sup> This is mainly due to the fact that, besides being associated with a dog's distress, behaviour problems can be a huge source of discomfort for owners,<sup>2,3</sup> possibly determining the failure of the human-dog relationship.

Early separation of a puppy from the dam and littermates is a problematic husbandry strategy that may increase the animal's chances of showing potentially problematic behaviours as an adult.<sup>4</sup> The reason for this connection is rooted into a puppy's ontogenetic dynamics. Briefly, dogs go through a socialisation period which ranges between the end of the neonatal period, at two-and-a-half to three weeks, to between 12 and 14 weeks,<sup>5,6</sup> but the effective period can be significantly shorter.<sup>7</sup> During this early stage, social experiences and stimuli have a greater effect on the development of social and environmental behaviour patterns, including those associated with learning, which will define a dog's temperament and behaviour in later life.<sup>8,9</sup> Much of this learning, in fact, translates into long-lasting behavioural changes, potentially providing a foundation for many adult behaviour patterns.<sup>6,10</sup> When exposure to these experiences and stimuli is traumatic or absent, an alteration of normal social behavioural patterns may occur. Conversely, as stated by Howell et al.,<sup>11</sup> dogs that are appropriately socialised as puppies are less likely to exhibit behavioural problems as adults, including aggression. That is in line with what we found in a study<sup>12</sup> in which we evaluated whether the origin/source of puppies (pet shop vs. breeder) was associated with later potential problematic behaviours. The dogs that had been purchased from a pet shop as puppies were almost twice as likely to display owner-directed aggression than those purchased from a breeder. Most puppies sold by pet shops come from high-volume substandard breeding facilities, the so-called puppy mills or puppy factories, located in Eastern Europe,<sup>13,14</sup> where little care is taken about health and welfare. In general, after being abruptly and prematurely separated from their litter, these puppies arrive in shops, where they are sold at an earlier age than permitted under present laws. As a consequence, pet shop dogs have limited access to positive social interactions with the mother and siblings than have other dogs, right when they would need it the most. They miss the opportunity to be with their littermates for the entire primary socialisation period (approximately 3 to 6 weeks of age), which is when puppies learn to interact properly with conspecifics and to read canine body language. And they also miss the opportunity to be exposed to novel environmental stimuli under the guidance and reassuring presence of their dam, who provides the 'secure base'<sup>15</sup> from which the puppies normally explore their world and acquire confidence in it. Not surprisingly, from about three weeks of age, puppies become extremely distressed if they are placed in a novel situation without their dam, littermates and nest sites.<sup>16</sup> Overall, a lack of a known, secure social group has been shown to predispose dogs that had been separated when they were 30 to 40 days to develop fear and anxiety-related behaviours as adults, including fearfulness on walks, attention-seeking, reactivity to noises and excessive barking, compared to dogs that remained with their litters until 60 days.<sup>4</sup> On the other hand, some authors reported increased aggression to unfamiliar people outside the home<sup>17</sup> and a higher prevalence of avoidance and aggressive behaviour towards unfamiliar people in dogs that were obtained after 56 days of age.<sup>18</sup> The cause of these results could be the delayed opportunity for these puppies to adjust

to the benign stimuli and experiences they encounter out of the domestic environment provided by the breeder.

In general, we can deduce from what has been said so far that ownership dynamics are worth investigating, particularly when they shed light on potential risk factors for the development of problematic behavioural characteristics in pet dogs. The derived knowledge is essential to meeting the high need for valuable information regarding the best pet dog acquisition and husbandry practices.

A study by Kinsman and co-authors <sup>19</sup>, published on this issue of *Vet Record*, adds important knowledge to existing literature.

The authors explored risk factors for puppy acquisition age within a cohort of dog owners in UK and the Republic of Ireland who participated in the so-called “Generation Pup”, a longitudinal project of canine health, behaviour and welfare. Participants had to fill in three surveys eliciting information about them, their dogs and whether they intended for the puppy to be a family pet and a working dog. In a total sample of 1844 dog owners included in the analyses, the vast majority had purchased their puppies after 8 weeks of age, with the median acquisition age being 8.3 weeks. The remaining 25% of participants reported that they had bought their dog before she was 8 weeks old. This means that a considerable higher percentage of owners in the ‘Generation Pup’ had not followed advice regarding minimum acquisition age compared to what was reported by other studies. <sup>20, 21</sup> Owners who were more likely to exhibit this acquisition behaviour were those who had obtained a puppy of unknown breed composition, so probably not from a licensed breeder, and kept her for a specific working function in a multi-dog household. It is conceivable that these puppies have been passed onto owners with poor knowledge or advice <sup>22</sup> regarding dog socialisation practices and behaviour.

The same could be said of the 8.1% of owners included in the study by Kinsman et al. <sup>12</sup> who obtained their puppies without viewing the mother, a fifth of which (n=30) were also obtained under 8 weeks. These puppies did not come from licensed breeders and, perhaps as a consequence, were never visited by their owners prior to acquisition, which suggests, once again, poor owner knowledge of how puppies should be acquired and why it is important to follow specific recommendations. Official breeders, in fact, are more likely to conform to guidelines/legislation, and to provide to all new buyers responsible dog ownership information <sup>19</sup> than hobby breeders.

However, it is worth noting that the percentages of owners who did not visit their puppy prior to acquisition were quite low and, according to the authors, this could be considered, at least partially, as the successful outcome of awareness being raised on this specific aspect of puppy acquisition by some media-based campaigns in UK.

Given that fearfulness and anxiety are heritable, <sup>19-21</sup> and prenatal exposure to maternal stress can predispose to the development of problem behaviours in dogs, <sup>23</sup> it is highly recommended one sees a puppy they intend to buy while she is with her mother. This gives the opportunity to obtain useful information on the general condition, behaviour and temperament of the mother and, consequently, to predict the behaviour of the puppy as an adult, therefore helping find puppies who are best suited for specific individuals and circumstances.

An obvious conclusion that can be drawn from the paper by Kinsman and co-authors <sup>19</sup>, and previous literature, is that, despite many owners obtain their dogs as puppies, more research is needed on factors influencing how puppies are acquired and where from. Proper focus on highly effective risk factors associated with acquisition of puppies is critical to set priorities for any programs that are effective in reducing the prevalence of prematurely acquired dogs and allow intervention for those who have been adopted too early, ultimately reducing the number of dogs that are relinquished, abandoned or even euthanised.

#### WHAT YOU NEED TO KNOW

- Early separation of puppies (< 8 weeks) from their mothers and littermates has adverse, long-term neurodevelopmental consequences, which may affect their behaviour later in life.

- Impaired growth and early brain development of prematurely separated puppies negatively affects their ability to adapt to new stimuli and to develop good social skills as adults. These are puppies, who, as adults, have a high probability of exhibiting fear and anxiety-related behaviours, which are often perceived by owners as problematic.
- The development of problem behaviours is amongst the most common reasons for the relinquishment of dogs to animal shelters and for the euthanasia of pets.
- It is essential to encourage prospective owners to be well informed regarding dog behaviour and to be aware of the importance of correct socialisation.
- Seeing the mother before buying a puppy enables the prospective owner to ascertain that she is unstressed and free from behavioural problems, which in turn helps predict that the puppy will not develop behavioural problems later in life.

## References

- 1 MILLS DS. CABI. Dog. In: Mills DS, Marchante-Forde J, McGreevy PD, Morton DB, Nicol CJ, Phillips CJC, Sandøe P, Swaisgood RR, Eds. The Encyclopedia of Applied Animal Behaviour and Welfare. Wallingford, Oxon, CABI Publishing 2010;184.
- 2 BEERDA B, SHILDER MBH, VAN HOOFF JARAM, DE VRIES HW. Manifestation of chronic and acute stress in dogs. *Appl Anim Behav Sci* 1997;52:307e319
- 3 CASEY R. 2002. Fear and stress. In: Horwitz DF, Mills SD, eds.. BSAVA Manual of Canine and Feline Behavioural Medicine. BSAVA, Gloucester, UK 2002;144e153.
- 4 PIERANTONI L, ALBERTINI M, PIRRONE F. Prevalence of owner-reported behaviours in dogs separated from the litter at two different ages. *Vet Rec* 2011;169:468
- 5 FREEDMAN DG, KING JA, ELLIOT O. Critical period in the social development of dogs. *Science* 1961;133:1016-1017
- 6 FOX MW. Stages and periods in development: environmental influences and domestication. In: The Dog: Its Domestication and Behavior. Garland STPM Press 1978;153-176
- 7 WEBSTER SD. Being sensitive to the sensitive period. In: Proceedings of the First International Conference on Veterinary Behavioural Medicine. Universities Federation for Animal Welfare. Birmingham 1997;20-27
- 8 SERPELL JA & JAGOE A. Early experience and the development of behaviour. In: Serpell JA, ed. The Domestic Dog: Its Evolution, Behaviour and Interactions with People. Cambridge University Press 1995;80-102
- 9 OVERALL KL Fear, anxieties and stereotypies. In: Clinical Behavioural Medicine for Small Animals. Mosby, St. Louis 1997;209-250
- 10 GODBOUT M, PALESTRINI C, BEAUCHAMP G & FRANK D. Puppy behavior at the veterinary clinic: a pilot study. *J Vet Behav Clin Appl Res* 2007;2:126-135
- 11 Howell TJ, King T, Bennett PC. Puppy parties and beyond: the role of early age socialization practices on adult dog behavior. *Vet Med Res Rep* 2015;6:143e153

- 12 PIRRONE F, PIERANTONI L, PASTORINO GQ, ALBERTINI M. Owner-reported aggressive behavior towards familiar people may be a more prominent occurrence in pet shop-traded dogs. *J Vet Behav: Clin Appl Res* 2016;11:13-17
- 13 FERRARI A & ANTONIOLI M. Animali come oggetti: allevamento e vendita, 2016. Available at: [www.oipa.org/italia/fotografie/2013/dossier.pdf](http://www.oipa.org/italia/fotografie/2013/dossier.pdf). Accessed July 14, 2020.
- 14 FOUR PAWS International. Puppy trade in EUROPE research on the impact of illegal businesses on the market, on consumers, on the one-health concept and on animal welfare, 2013. Available at: [www.vier-pfoten.eu/files/EPO/Materials\\_conf/Puppy\\_Trade\\_in\\_Europe/REPORT\\_EUROPEAN\\_PUPPY\\_TRADE.pdf](http://www.vier-pfoten.eu/files/EPO/Materials_conf/Puppy_Trade_in_Europe/REPORT_EUROPEAN_PUPPY_TRADE.pdf). Accessed July 14, 2020.
- 15 BOWLBY J. The nature of the child's tie to his mother. *Int J Psychol Psychoanal* 1958;39:350-373
- 16 ELLIOT O & SCOTT JP. The development of emotional distress reactions to separation, in puppies. *J Genet Psychol* 1961;99:3-22
- 17 APPLEBY DL, BRADSHAW JWS, CASEY RA. Relationship between aggressive and avoidance behaviour by dogs and their experience in the first six months of life. *Vet Rec* 2002;150:434-438
- 18 JOKINEN O, APPLEBY DL, SANDBACKA-SAXÉN S, et al. Homing age influences the prevalence of aggressive and avoidance-related behaviour in adult dogs. *Appl Anim Behav Sci* 2017;195:87-92
- 19 KINSMAN R, CASEY RA, KNOWLES T, TASKER S, LORD M, DA COSTA R, WOODWARD J, MURRAY J. Factors associated with acquiring a puppy under eight weeks of age and without viewing the mother. *Vet Rec* 2020;xxx
- 20 PACKER RMA, MURPHY D, FARNWORTH MJ. Purchasing popular purebreds: Investigating the influence of breed-type on the pre-purchase attitudes and behaviour of dog owners. *Anim Welfare* 2017;26:191-201
- 21 PIRRONE F, PIERANTONI L, MAZZOLA SM, VIGO D, ALBERTINI M. Owner and animal factors predict the incidence of, and owner reaction toward, problematic behaviors in companion dogs. *J Vet Behav: Clin Appl Res* 2015;10:295-301
- 22 CASEY RA, LOFTUS B, BOLSTER C, RICHARDS GJ, BLACKWELL EJ. Human directed aggression in domestic dogs (*Canis familiaris*): occurrence in different contexts and risk factors. *Appl Anim Behav Sci* 2014;152:52-63
- 23 Radtke KM, Ruf M, Gunter HM, Dohrmann K, Schauer M, Meyer A, Elbert T. Transgenerational impact of intimate partner violence on methylation in the promoter of the glucocorticoid receptor. *Transl Psychiatry* 2011;1:e21

