SUPPORTIVE EVIDENCE SCIENCE PAPERS

TITLE: Differences in behavioural characteristics between dogs obtained as puppies from pet stores and those obtained from non-commercial breeders.

REFERENCE: Franklin D. McMillan, DVM, DACVIM; James A. Serpell, PhD; Deborah L. Duffy, PhD; Elmabrok Masaoud, PhD; Ian R. Dohoo, DVM, PhD

OBJECTIVE: To compare the owner-reported prevalence of behavioral characteristics in dogs obtained as puppies from pet stores with that of dogs obtained as puppies from non-commercial breeders.


RESULTS: Pet store–derived dogs received significantly less favorable scores than did breeder-obtained dogs on 12 of 14 of the behavioral variables measured; pet store dogs did not score more favorably than breeder dogs in any behavioral category. Compared with dogs obtained as puppies from non-commercial breeders, dogs obtained as puppies from pet stores had significantly greater aggression toward human family members, unfamiliar people, and other dogs; greater fear of other dogs and non-social stimuli; and greater separation-related problems and house soiling. Frank McMillan commented that the extent of the abnormalities in dogs sourced from large-scale breeders was a surprise. He said, “The problems span so many different types of behaviors, and the differences are rather extreme for some of the behaviours.”

The authors conclude that until the causes of the unfavourable differences detected in this group of dogs can be specifically identified and remedied, they cannot recommend that puppies be obtained from pet stores.

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TITLE: Mental health of dogs formerly used as ‘breeding stock’ in commercial breeding establishments.

REFERENCE: Franklin D. McMillan, Deborah L. Duffy, James A. Serpell

OBJECTIVE: Numerous anecdotal reports have suggested that after removal from CBEs many of the former breeding dogs display persistent behavioural and psychological abnormalities when compared with the general pet dog population. The purpose of this study was to determine if this anecdotal evidence could be confirmed empirically.


RESULTS: When compared with a convenience sample of pet dogs matched for breed, sex, age and neuter status, former CBE breeding dogs were reported as showing significantly higher rates of health problems (23.5% versus 16.6%, P = 0.026). With respect to behaviour, CBE dogs displayed significantly higher rates of fear (both social and nonsocial; ordinal GLM models, P < 0.001), house-soiling (P < 0.001), and compulsive staring (P < 0.005); and significantly lower rates of aggression (toward strangers and other dogs; P < 0.0001), trainability (P < 0.0001), chasing small animals (P < 0.0001), excitability (P < 0.0001), and energy (P < 0.0001).

By demonstrating that dogs maintained in these environments develop extreme and persistent fears and phobias, possible learning deficits as evidenced by lower trainability, and often show difficulty in coping successfully with normal existence, this study provides the first quantitative evidence that the conditions prevailing in CBEs are injurious to the mental health and welfare of dogs.

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TITLE: Association between prospective owner viewing of the parents of a puppy and later referral for behavioural problems.
OBJECTIVE: A case-control study was designed to test whether there is an association between the owners seeing the mother of a puppy, and later development of behavioural problems.

RESULTS: After adjustment for confounding factors using multivariable logistic regression, case dogs were more likely to be younger than controls (P < 0.001); less likely to be obtained at six (OR = 0.27, 95 per cent CI = 0.09 to 0.85, P = 0.03), nine (OR = 0.22, 95 per cent CI = 0.06 to 0.80, P = 0.02) or 10 weeks (OR = 0.35, 95 per cent CI = 0.12 to 1.01, P = 0.05), than eight weeks; more likely for the owner to have seen only one parent (OR = 2.49, 95 per cent CI = 1.15 to 5.37, P = 0.02) than both parents, and more likely to have not seen either parent (OR = 3.82, 95 per cent CI = 1.12 to 12.97, P = 0.03) than both. Advice to ‘see the mother’ has been shown to be partly scientifically accurate in relation to future unwanted behavioural problems among dogs; in fact, it may be better for prospective owners to be recommended to view both parents.

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TITLE: The Domestic Dog - Its Evolution, Behaviour and Interactions with People


OBJECTIVE: This unique book seeks to expose the real dog beneath the popular stereotypes. Its purpose is to provide a comprehensive, state-of-the-art account of the domestic dog's natural history and behaviour based on scientific and scholarly evidence rather than hearsay.


RESULTS: ‘... is not just for dog lovers but also for the curious. With enough detailed studies to interest specialists, this book is readable and stimulating. It ranges from the psychology of pets and their owners to the fascinating history of dogs' domestication and diversification as a species.’ New Scientist

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TITLE: Puppy socialisation and the prevention of behavioural problems.

REFERENCE: Irish Veterinary Journal 2010 Vol. 63 No. 10 pp. 630-633

OBJECTIVE: Establishing the importance of socialisation in ensuring a puppy is friendly and well-adjusted.

LINK: http://www.cabdirect.org/abstracts/20103297484.html

RESULTS: The most common cause of fear and aggression is lack of socialisation and behavioural problems often originate from fearful dogs. Indeed, behavioural issues are the most common cause of euthanasia in dogs under two years of age.

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TITLE: Relationship between aggressive and avoidance behaviour by dogs and their experience in the first six months of life.
**REFERENCE:** Appleby, D., Bradshaw, J. and Casey, R

**OBJECTIVE:** To test behavioural signs for association with the dog's maternal environment, the environment it experienced between three and six months of age, and the age at which it has been acquired.

**LINK:** [https://www.researchgate.net/publication/11376544_Relationship_between_aggressive_and_avoidance_behaviour_by_dogs_and_their_experience_in_the_first_six_months_of_life](https://www.researchgate.net/publication/11376544_Relationship_between_aggressive_and_avoidance_behaviour_by_dogs_and_their_experience_in_the_first_six_months_of_life)

**RESULTS:** Non-domestic maternal environments, and a lack of experience of urban environments between three and six months of age, were both significantly associated with aggression towards unfamiliar people and avoidance behaviour. Aggression during a veterinary examination was more likely in dogs from non-domestic maternal environments.

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**TITLE:** Human directed aggression in domestic dogs (Canis familiaris): Occurrence in different contexts and risk factors.

**REFERENCE:** Rachel A. Casey, Bethany Loftus, Christine Bolster, Gemma J. Richards, Emily J. Blackwell. School of Veterinary Science, University of Bristol, Bristol, UK

**OBJECTIVE:** The consequence for dogs of showing aggression towards people is often euthanasia or relinquishment. Aggression is also a sign of compromised welfare in dogs, and a public health issue for people. The aims of this study were to estimate the numbers of dogs showing aggression to people in three contexts (unfamiliar people on entering, or outside the house, and family members); identify whether these co-occur, and investigate risk factors for aggression in each context using multivariable analyses.

**LINK:** [http://www.appliedanimalbehaviour.com/article/S0168-1591(13)00292-X/abstract](http://www.appliedanimalbehaviour.com/article/S0168-1591(13)00292-X/abstract)

**RESULTS:** These data suggest that although general characteristics of dogs and owners may be a factor at population level, it would be inappropriate to make assumptions about an individual animal's risk of aggression to people based on characteristics such as breed.

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**TITLE:** Prevalence of owner-reported behaviours in dogs separated from the litter at two different ages.

**REFERENCE:** Pierantoni L1, Albertini M, Pirrone F.

**OBJECTIVE:** The present study examined the prevalence of behaviours in dogs separated from the litter for adoption at different ages.


**RESULTS:** These findings indicate that, compared with dogs that remained with their social group for 60 days, dogs that had been separated from the litter earlier were more likely to exhibit potentially problematic behaviours, especially if they came from a pet shop.

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**TITLE:** Owner-Reported Aggressive Behavior Towards Familiar People May Be A More Prominent Occurrence in Pet Shop Traded Dogs.

**REFERENCE:** Federica Pirrone, Ludovica Pierantoni, Giovanni Quintavalle Pastorino, Mariangela Albertini
OBJECTIVE: There is longstanding recognition of the adverse effect of stressful experiences during early critical developmental periods and the later association with problematic behavioral issues in dogs. The aim of this study was to evaluate whether the origin/source of puppies (pet shop vs. breeder) was associated with later potential problematic behaviors.


RESULTS: The odds of displaying owner-directed aggression were significantly greater for the dogs that had been purchased from a pet store as puppies than those purchased from a breeder (control group). We also found an association between a dog's pet store origin and other potential problem behaviors, including house soiling, body licking, and separation-related behavior, but this relationship was confounded by the effect of a set of owner-related factors. These findings indicate that obtaining puppies from pet stores may predispose them to potentially exhibit owner-directed aggression as adults. We suggest that further research in prevention of problem behaviors in adult dogs should be aimed at identifying the root causes of pet store-related behavioral issues, without ignoring confounding at a household level.