

### Acquired Bite Inhibition

By Jean Donaldson

*Reprinted with permission from Jean Donaldson.*

*In the last article we began discussing the assessment of prognosis in a dog presenting with aggression problems. 'Buster', the Old English Sheepdog rescue, had growled and snapped at, as well as bitten, his owners. In this article we'll look at acquired bite inhibition (ABI) – the degree of pressure a dog exerts with his jaws when he bites, and likely the most significant prognostic indicator in aggression. What makes ABI so crucial are ethics and liability considerations. Should a dog re-offend during or between treatment sessions, or post-treatment, ABI dictates the degree of damage done to whoever is bitten. Given that 100 per cent is hard to achieve when it comes to behaviour, there is thus a large ethical responsibility to protect the owner and the public. The potential liability to both owner and practitioner escalates astronomically when dogs do significant damage when they bite, especially when this is known ahead of time.*

Despite all the strides forward that have been made in the behaviour modification of aggression, ABI has proven virtually impossible to modify in an adult dog. (While the use of certain psychotropic medications has shown some promise in influencing ABI, this is not well established.) And, no studies exist on its acquisition - i.e., why one dog bites softly and another with mutilating force under similar circumstances. The generally accepted view in the dog-behaviour field is that ABI is a result of a genetic predisposition combined with certain early environmental influences. The key early influence is thought to be interactions among puppies in a litter, as well as subsequent play-biting up to the age when the dog's permanent teeth are fully erupted, between four and five months of age.

If you observe a litter of puppies, their primary activity - when not eating, sleeping or eliminating- is biting each other. Their sharp teeth inflict pain if a bite is too hard, in spite of the pup's weak jaw muscles. Play is derailed - a rotten consequence for the hard biter - and, over time, puppies learn to not bear down with full force when biting. They rehearse this restraint over and over. Adult dogs are then equipped to solve conflicts ritualistically, rather than bearing the expense of flat-out aggression in every encounter. ABI is thus the cornerstone of aggression ritualization. Bite inhibition acquisition is also believed to be part of the function of the ceaseless play fighting that takes place in the young of other social predatory species, such as hyenas.

The current thinking is that if a puppy does not get adequate rehearsal at biting softly, he is at risk of growing to adulthood without the capacity to inhibit his jaw force when biting under duress. This means that ABI can be installed in puppies but not in adult dogs, which elevates its priority level in puppy-education curricula. The study that cries out to be done is one where this hypothesis is tested. A design whereby puppies are divided into groups, one receiving standard measures to address ABI and the other not, may be deemed unethical if the study's result is thought to be somewhat pre-ordained, as the control group would be deliberately set up to become hard mouthed adults. A safer study design would be retrospective: to take careful histories of dogs with known adult ABI levels and correlate these with the kinds of interventions they received as puppies.

The other often discussed factor is breed. Akitas, chow chows and, to a lesser extent, English springer spaniels, for instance, are believed by some trainers to be harder biters (and in the case of akitas and chows, low on protracted warning). Again, there is no objective data to back this up. An interesting question is whether some individuals in the thought-to-be-higher-risk breeds are destined to have hard mouths regardless of efforts exerted in puppyhood, or whether additional attention will produce good ABI. My suspicion (and hope) is the latter. One of my primary projects with my chow, 'Buffy,' was to work diligently on her ABI as a puppy, and then to continue rehearsing her soft mouth with regular dog-dog play sessions and regular dog-human play-wrestling sessions that incorporate time-out penalties for all bites that are not gentle. My hope is that should she ever bite, it will be with restraint.

When presented with an adult dog, assessing ABI involves taking a comprehensive history of all bites and noting who was bitten, on what part of their body; through what kind of clothing and what degree of damage was inflicted. Consider the difference in jaw pressure between an 80-pound dog biting the face of a five-year-old child and leaving a minor laceration and a lot of saliva, and an 80-pound dog biting the calf of a 40-year-old man through denim jeans and leaving contusions that spread many inches beyond the margins of the bite. Phrases like a bite "breaking skin" or "drawing blood" give inadequate information. In the first case above, the dog broke skin and has good ABI, whereas the second dog did not and has poor ABI. Pressure exerted is the key factor, not blood.

A complete bite history will usually yield a pressure trend. In many cases, however, there are no bites on record, or not many, so ABI is unknown. Some hints at ABI may be gleaned from a dog fight history and play-biting history, though these are vastly inferior to the information obtained from jaw pressure under duress with a person. Remember: behaviour predicts behaviour. A dog with a long, colourful history of clean (non-injurious) dogfights, and regular bouts since puppyhood of playfully mouthing people (when invited, of course - this is obnoxious behaviour to most people), is a rosier ABI prospect than one that injures other dogs during scraps and has never mouthed a person softly. It would be extremely valuable for behaviour practitioners to know whether ABI is specific to people or to dogs, or whether one can extrapolate bite-severity information between these two targets. But, alas, this represents yet another area of logical speculation rather than scientific fact.

The final two areas of exploration in ABI assessment are the dog's early history and hints about jaw restraint in the way the dog accepts treats and cookies. Early history centres around whether the dog in question engaged in regular play-biting of other puppies, such as in his litter and at a puppy kindergarten class. Less favourable is a dog that was sequestered until after his permanent teeth were all in or, worst of all, was a singleton in his litter and thereafter did not play-bite any puppies.

Dogs vary greatly in how gently they take tidbits from human hands. Dogs that are very rough can have this modified with standard consequence-type training. The treat is withheld after the barracuda grab is marked with an "Ouch!" The dog is then invited to keep trying until he takes it more gently. With repetition, the dog eventually gets it right most of the time. This training, however, has no bearing on the dog's jaw pressure when he bites under duress, the so-far unmodifiable ABI. The question then is whether any ABI information can be gleaned from the dog's initial tendencies when taking treats. I don't know very many knowledgeable practitioners who would bet much either way here.