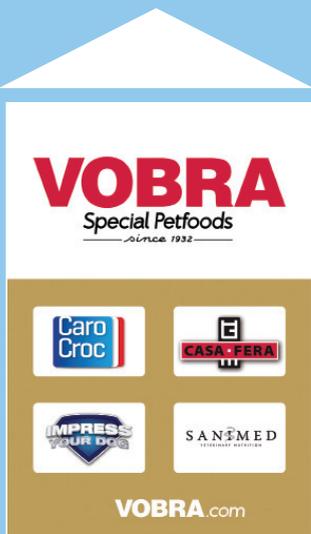




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Stress-relieving Dog Foods

Veterinary clinics and pet-supply shops sell a few diets for reducing anxiety and inducing calmness in dogs. These foods contain alpha-casozepine and/or tryptophan as purported effective substances. The food labels declare hydrolysed casein or milk proteins as source of alpha-casozepine and/or L-tryptophan as additive.

Increasing tryptophan intake is believed to stimulate brain serotonin synthesis which would promote better mood. Tryptophan is an amino acid present in proteins. It is an essential nutrient; the tryptophan allowance for adult dogs has been set at 0.13 percent in a dry food (providing 1.55 MJ metabolisable energy per 100 g). Complete dry foods for healthy adult dogs generally contain at least 0.18 percent tryptophan. Controlled research shows that extra tryptophan does not influence signs of anxiety in dogs.

Alpha-casozepine is a small protein (decapeptide) derived from bovine milk. It is supposed to inhibit anxiety. Dogs with anxiety-related disorders reportedly ameliorated after oral administration of capsules containing alpha-casozepine, but the design of the study does not separate a placebo effect due to positive thinking of the owners and investigators. Feeding a test diet with casein hydrolysate to anxious dogs changed various behaviours, pointing at both less and more anxiety.

There is no evidence that a diet supplemented with L-tryptophan and/or alpha-casozepine relieves psychological strain in dogs. In any event, a calming diet does not address the root cause of anxiety. Possibly, behaviour modification and training can produce long-term success. Advice may be sought from a veterinarian.



Supplemental L-tryptophan

For adult dogs the recommended tryptophan allowance is 84 mg per MJ of metabolizable dietary energy (1). The impact of supplemental tryptophan on behaviour, if any, depends on dose and intake from the base diet. Different anxious behaviours might be affected differently. Increasing the tryptophan ingestion level above its maximal response is fruitless and so will be very short-term intervention.

In dogs with territorial aggression (acting aggressively when strangers approach the house) or dominance aggression (reacting aggressively to family members), extra supply of tryptophan had a meaningless or no effect on behaviour according to the owners' evaluation (2). Owners and researchers were blinded to treatment modality. Dietary tryptophan levels in a low- and high-protein diet, respectively, were increased (at the expense of corn starch) from 116 to 189 and from 161 to 253 mg/MJ. Each dry diet was fed for one week (2).

Mildly anxious dogs were fed a dry food without or with supplemental L-tryptophan (at the expense of crude protein), the contents being 148 and 382 mg/MJ (3). In a double-blind, placebo-controlled set-up, dogs were fed their assigned diet for 8 weeks. Dogs' behaviour as recorded by their owners was unaffected by tryptophan intake. The two diet studies (2, 3) indicate that L-tryptophan intakes beyond 116 mg/MJ do not improve disturbed behaviour in dogs.

In two double-blind, placebo-controlled studies, L-tryptophan supplements were administered to dogs, but the intake of the amino acid from the diet was unmentioned. In dogs with abnormal repetitive behaviour, supplemental L-tryptophan (about 70 mg/MJ for 7 weeks) was ineffective (4). In another study, the supplement (about 50 mg L-tryptophan/MJ for 8 weeks) was found to produce a decrease in the anxiety signs of barking and staring (5).

Dietary Protein

Incorporating more protein in the diet is associated with higher tryptophan concentrations, but also with other dietary changes. In a Latin-square design, three diets with different protein content (11.8, 16.9 and 22.2 g/MJ) were fed to dogs with territorial or dominance aggression (6). Extra protein was added to the low-protein diet at the expense of an isoenergetic amount of fat. Dietary tryptophan levels were 67, 105 and 115 mg/MJ. The owners, who were unaware of diet coding, assessed behaviour of their dogs.

There was a trend towards decreased dominance aggression with higher protein intakes. In contrast, defensive (or fearful) territorial aggression increased in a dose-dependent fashion when dietary protein concentration was raised. Apparently, the associated increment of tryptophan intake did not suppress territorial aggression related to fear.

Supplemental Alpha-casozepine

In a double-blind study without placebo, but with an anxiolytic drug (selegiline) as positive, parallel control, the effect of oral

administration of alpha-casozepine (about 60 mg/MJ) was studied in privately-owned dogs with anxiety-related disorders (7). The signs of anxiety, as based on the owners' and veterinarians' assessments, became less severe during the 8-week study, the two treatments being equally efficacious. However, a placebo effect caused by capsule application cannot be excluded.

Anxious dogs kept in a research facility were fed a diet without or with casein hydrolysate in a double-blind, placebo-controlled trial (8). The hydrolysate containing alpha-casozepine was coated onto the extruded test kibbles, but the amount is not disclosed. The test diet made the dogs more confident around the investigators, but it diminished video-recorded exploratory behaviour and induced more passivity. Thus, the feeding of casein hydrolysate did not univocally reduce anxiety.

Therapeutic Calming Diet

Dogs with anxiety-related behaviour problems had been fed on a food containing 154 mg tryptophan/MJ for 8 weeks and then were switched to a veterinary stress-management diet (165 mg tryptophan and 73 mg alpha-casozepine/MJ). After 8 weeks there was an immaterial reduction of owner-scored anxiety-related behaviours. The owners were masked to diet type, but a time effect cannot be excluded.

List of references is available on request from the author (beynen@freeler.nl)



Dr Anton C Beynen writes this exclusive column on dog and cat nutrition every month. He is affiliated with Vobra Special Petfoods.