

EUDERMIS

Dietetic feed for dogs and cats intended for the support of skin function in case of dermatosis and excessive loss of hair

EUDERMIS < U-DÉ-RMIS

The name is inspired by the Greek words «εὖ», which means «good» and « δέρμα», which means «skin»

Liddell G, Jones HS, Scott R, McKenzie R. A Greek-English Lexicon. Oxford: Clarendon Press; 1940.

A high - quality combination of fish oil, blackcurrant and primrose oil, zinc and propolis to complement the dog or the cat with nutrients beneficial in case of dermatoses manifesting as pruritis, erythema, oiliness and scaling as is atopic dermatitis, papulocrustous dermatitis, seborrhoea etc. Compromised lipid balance in the upper epidermis and inflammation are common characteristics of these conditions. For example, the stratum corneum of atopic dogs is characterized by a significant decrease in lipid content when compared to healthy animals¹. Following oral supplementation with essential fatty acids, the overall lipid content of the stratum corneum increases², which may restore the skin barrier function. With regards to inflammation as a component of dermatosis, dietary supplementation with n-3 fatty acids (and some n-6 fatty acids) may be beneficial³ and can have a steroid sparing effect in animals⁴.

Fish oil

Fish oil (FO) is a rich natural source of n-3 poly-unsaturated fatty acids (PUFA), such as eicosapentaenoic acid (EPA, 20:5n-3) and docosahexaenoic acid (DHA, 22:6n-3), which are known to modulate immune functions.

Clinical evidence for fish oil was reported in a study in which dogs with pruritic skin disease were provided diets supplemented with high amounts of n-3 long chain fatty acids (660 mg/kg of body weight/d) during a 6-week period. At the end of the study, dogs had significant improvement for pruritus as well as skin and coat character⁵. In another study on the influence of an oil preparation with a n-3: n-6 ratio of 1:2 on cats with miliary dermatitis⁶, after 6 weeks of supplementation dermatological signs disappeared completely or were ameliorated in all affected cats.

Evening primrose oil

EPO is particularly rich in n-6 fatty acid γ -linolenic acid (GLA), but there are no studies in veterinary medicine evaluating the effect of GLA on its own.

Fourteen cats with crusting dermatoses ('miliary dermatitis') were supplemented with various combinations of evening primrose oil and fish oil⁷. The cutaneous signs improved when the cats were supplemented with either evening primrose oil alone or with a combination of evening primrose oil and fish oil. In another study on eleven cats with papulocrustous dermatitis⁸ supplemented with either evening primrose oil or sunflower oil for 12 weeks, the improvement for the evening primrose oil group lasted longer after the supplementation withdrawal.

Blackcurrant seed oil

BSO is particularly rich in n-6 fatty acid γ -linolenic acid (GLA), but there are no studies in veterinary medicine evaluating the effect of GLA on its own.

Preliminary studies in atopic dogs using blackcurrant seed oil reported a clinical improvement in 70.8% of cases⁹. In another study on twenty-four dogs with AD, the group taking BSO had best clinical improvement¹⁰.

Sunflower oil

Sunflower oil is rich in linoleic acid (LA, 18:2n6). Ceramides containing LA are extruded as intercellular lamellar granules from epidermal keratinocytes, which enhances cell cohesion and imparts the epidermis with an effective water barrier. Because LA is directly involved, many instances of dry, dull coats and scaly, nonpruritic skin disorders in dogs generally respond to dietary inclusion of vegetable oil supplements rich in this fatty acid.

In a study on twenty-one dogs with chronic seborrhea¹¹, cutaneous fatty acid concentration profiles showed elevations in oleic acid and arachidonic acid with decreased levels of linoleic acid. Following supplementation with oral sunflower oil (1.5 ml/kg body weight/day) for 30 days, the cutaneous fatty acid concentration profiles returned to near normal values and clinical signs of seborrhea lessened in severity.

Zinc

Zinc is required for the use of fatty acids and is a participant in both the inflammatory and immune systems¹². As a co-factor for RNA and DNA polymerases, zinc is also important for rapidly dividing cells, which include those in the epidermis. Although rare, common signs of zinc and EFA deficiencies are similar in that both are associated with sebaceous gland hypertrophy that leads to a greasy, dull coat. However, zinc deficiency typically results in a more profound seborrhea with distinctive keratinization (parakeratotic hyperkeratosis) that is evident during histologic examination¹³.

Dogs fed increased amounts of LA and zinc¹⁴ had less scaly skin, more luster of the coat, and a reduction in transepidermal water loss, compared with results for a

control group fed a basal diet containing the currently recommended minimal amounts of LA and zinc.

Propolis

Propolis is a resinous material collected by bees from plants exudates and buds and mixed with wax and bee enzymes. The most common compounds in propolis are flavonoids, aromatic acids, and phenolic esters¹⁵. It has been used empirically for centuries and has several biological applications as immunomodulatory, antimicrobial, antioxidant, analgesic, and anti-inflammatory agent¹⁶.

In a study on the effect of propolis paste on healing of cutaneous wound in dogs, wound reepithelization, contraction, and total wound healing were faster in propolis group than in control group during five weeks of study¹⁷. The evaluation of the antimicrobial potential of propolis extract by on coagulase-positive *Staphylococcus* isolates (*Staphylococcus aureus* and *Staphylococcus intermedius*) and *Malassezia pachydermatis* isolates demonstrated that propolis extract was found to exhibit antimicrobial activity against both pathogens¹⁸.

References

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