SKIN, COAT & HAIRBALL CARE

A SCIENTIFIC SUPPORT PAPER

95% of owners who participated in the Skin, Coat & Hairball Care feeding trial saw an improvement in their cat's coat condition

Vista Pet (2025) Study Report R25CT0714
Dry Cat Food Study

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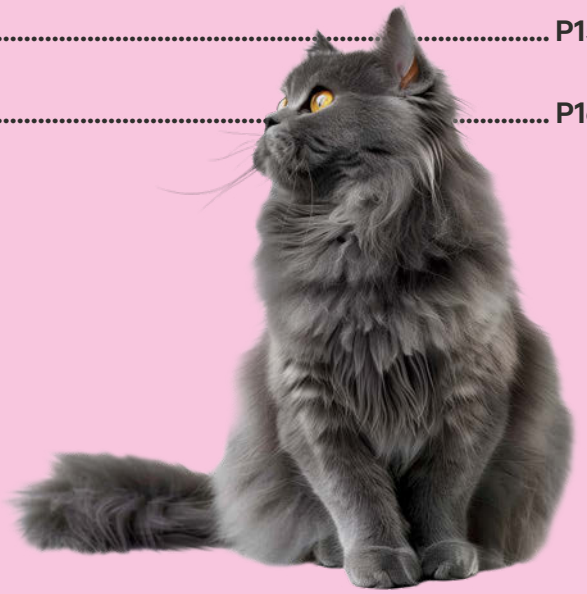


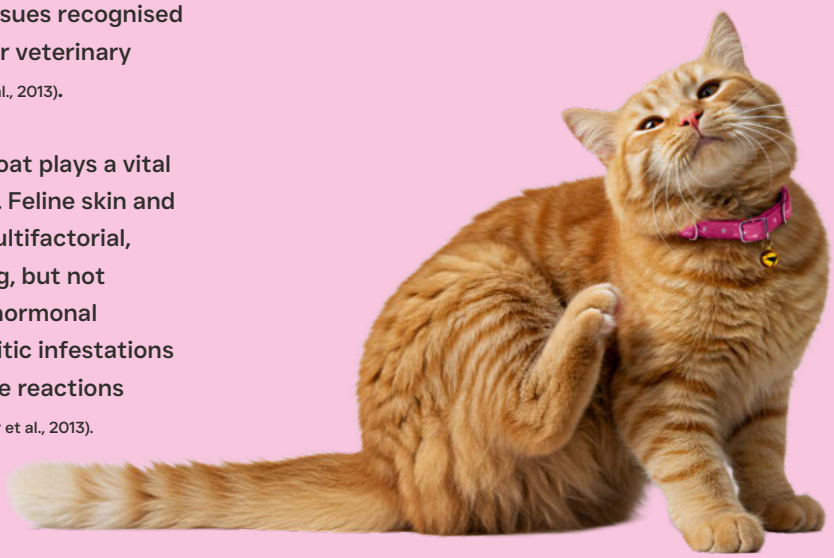
WHY IS SKIN & COAT HEALTH IMPORTANT FOR CATS?

A cat's skin and coat can be viewed as an immediate and visible indicator of overall health and wellbeing.

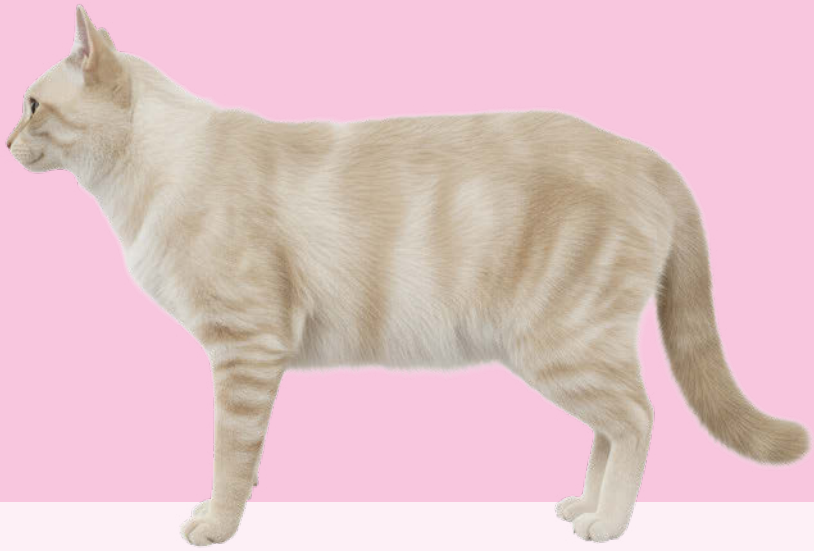
A healthy feline coat is typically soft, glossy and well-groomed, in addition healthy skin should be smooth, supple and free from lesions or breaks in the surface. Dermatological disorders are commonly encountered in feline veterinary practice and represent a significant proportion of clinical cases, with skin issues recognised as one of the most frequent reasons for veterinary consultation in cats (Scott et al., 2001; Miller et al., 2013).

The maintenance of healthy skin and coat plays a vital role in supporting a cat's overall health. Feline skin and coat conditions can be complex and multifactorial, arising from a range of causes including, but not limited to, stress or underlying illness, hormonal imbalances, metabolic disorders, parasitic infestations (both internal and external) and adverse reactions to food or environmental allergens (Miller et al., 2013).

Clinical signs associated with skin and coat issues in cats may include erythema, pruritus, excessive grooming, licking, biting or scratching, and in some cases alopecia. These signs can compromise the skin barrier, exacerbate inflammation and may lead to discomfort, behavioural changes and increased stress for both the cat and its owner (Scott et al., 2001).



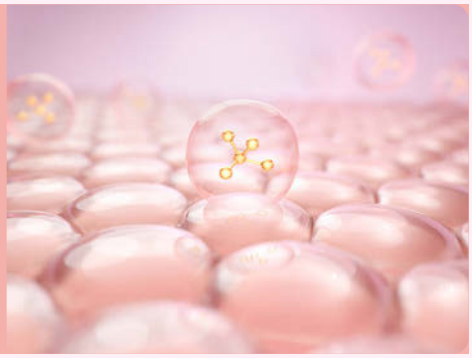
STRUCTURE AND FUNCTIONS OF THE SKIN AND COAT



Both the skin and coat are integral to providing a physical barrier that protects the cat from external objects, as well as physical, chemical and environmental stressors that may otherwise cause internal harm.

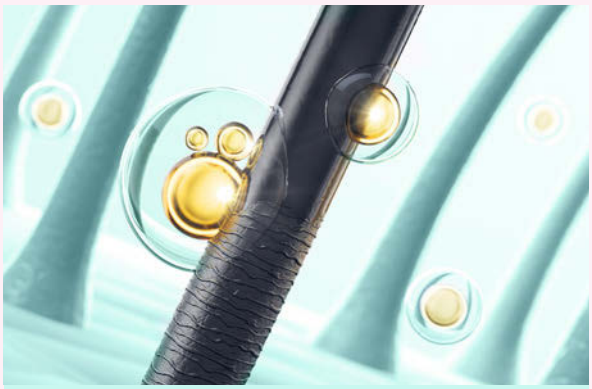
A PHYSICAL BARRIER & MOISTURE RETENTION

In addition to acting as a defence against pathogenic microorganisms and other potentially harmful substances, the feline skin barrier plays a key role in regulating transepidermal water loss, helping to maintain skin hydration and the integrity of the skin barrier function (Wertz, 2018).



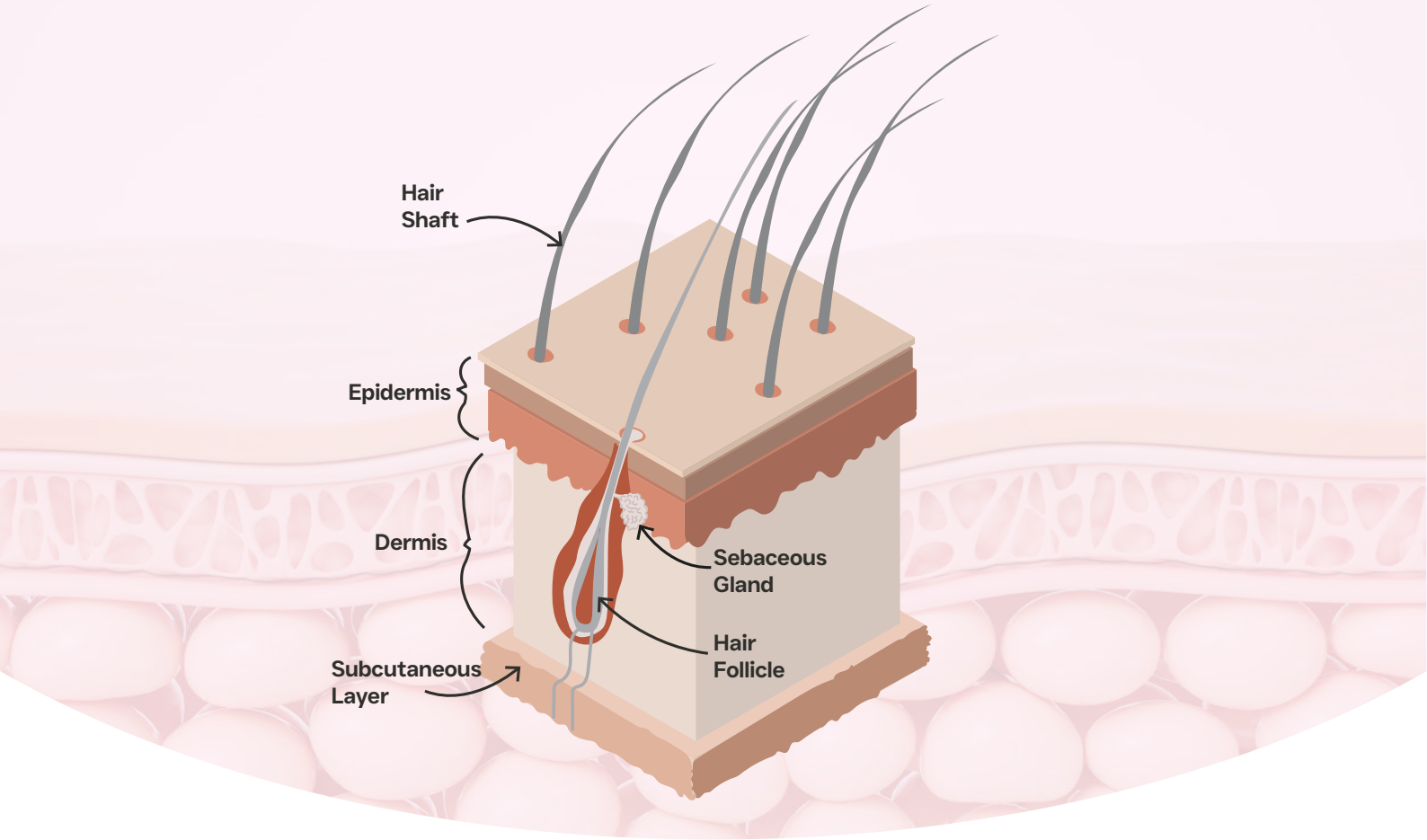
THE COAT

The hair coat covers the outer surface of the skin, and hair type, density and length vary considerably among cat breeds. The feline coat provides an insulating layer between the skin and the external environment, contributing to thermoregulation by helping maintain body temperature in cooler conditions and offering a degree of protection against contact with hot or cold surfaces, ultraviolet radiation and physical abrasion. In cats, the coat also plays an important role in sensory perception and social signalling, and its condition is closely linked to grooming behaviour and overall wellbeing (Scott et al., 2001).



KERATIN

Feline hair is primarily composed of keratin proteins, which provide strength, elasticity and structural integrity to the hair fibre, while also contributing to moisture retention. The outermost layer of the hair shaft, known as the cuticle, consists of overlapping scales formed from keratinised cells. This protective structure helps limit excessive water loss from the hair shaft and protects it from external damage caused by heat, ultraviolet radiation and environmental pollutants (Bragulla & Homberger, 2009).



WHAT IS THE STRUCTURE OF THE SKIN, AND WHY IS IT IMPORTANT?

The skin is composed of three main layers: the epidermis, dermis and hypodermis (or subcutaneous layer). The hypodermis is the deepest layer and is predominantly composed of adipose tissue supported by connective tissue. This layer provides cushioning to protect underlying structures, offers insulation to assist with thermoregulation and acts as an energy reserve, all of which are particularly important for cats with lower body fat reserves or increased metabolic demands.

The **dermis** is the middle and thickest layer of the skin and contains **hair follicles, sebaceous glands, sensory nerve endings and blood vessels** that supply oxygen and nutrients to skin cells. **Fibroblasts** within the dermis synthesise **collagen and elastin**, two essential structural proteins that provide tensile strength and elasticity, helping to maintain healthy, resilient feline skin (Scott et al., 2001).

The **epidermis** is the outermost layer of the skin and is composed primarily of **keratinocytes** arranged in distinct layers. New keratinocytes are generated in the basal layer of the epidermis and progressively migrate towards the surface, undergoing differentiation before eventually being shed and replaced by newly formed cells. This continual process is essential for maintaining an effective skin barrier and supporting normal skin turnover in cats.

Keratinocytes produce **keratin** and other structural proteins, as well as synthesising and accumulating **lipids**.

Keratins are the principal structural proteins of the epidermis and play a crucial role in providing mechanical strength. Through self-bundling and the formation of filament networks, keratin enables **epithelial cells** to withstand the physical and mechanical stresses experienced by the skin (Bragulla & Homberger, 2009).

The outermost layer of the epidermis, known as the **stratum corneum**, consists of flattened, keratinised cells embedded within a lipid matrix composed mainly of **ceramides, cholesterol and fatty acids**. This specialised structure forms a highly effective barrier that protects underlying tissues from environmental insults while limiting excessive water loss through the skin, a function that is critical to maintaining feline skin health (Wertz, 2018).

Given the essential roles of the skin and coat in protecting cats from daily physical and environmental challenges, maintaining their health is fundamental to overall feline wellbeing. Optimal skin and coat condition supports barrier function, comfort and normal grooming behaviour.

The Skin, Coat & Hairball Care recipe has been developed using targeted nutritional strategies, specific ingredients and controlled processing methods to support feline skin barrier function, promote healthy coat characteristics and help maintain optimal skin and coat health.

HAIRBALL

Cats are meticulous groomers, spending a significant portion of their day licking and cleaning their fur. During grooming, loose or shed hairs are ingested and pass through the gastrointestinal tract. Most of the ingested hair is expelled naturally through faeces, but some hair can accumulate in the stomach and form compacted masses known as hairballs, or trichobezoars (Rogers, 2011).

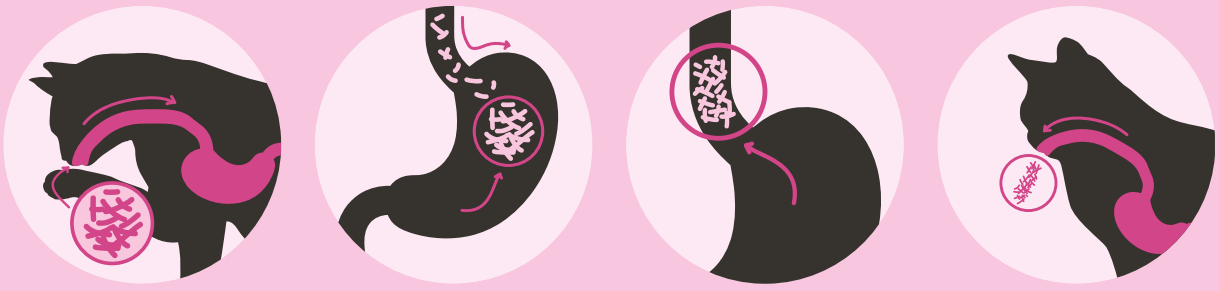
Hairballs can occasionally cause vomiting, regurgitation or gastrointestinal discomfort, and frequent hairball formation may be a sign of excessive shedding, long hair coat, or changes in grooming behaviour due to stress, illness, or age (Bradshaw et al., 1999).

Maintaining a healthy, manageable coat through proper nutrition and regular grooming support can reduce excessive hair ingestion and help minimise hairball formation, while also supporting overall skin and coat condition.

Diet plays a key role in supporting cats' coat condition and reducing the formation of hairballs. Diets that promote healthy skin and a strong, resilient coat help to minimise excessive shedding and improve hair strength, reducing the amount of hair ingested during grooming (Rogers, 2011).

Nutrients such as high-quality proteins, essential fatty acids, and specific functional ingredients can support skin barrier integrity, maintain coat shine, and improve hair fibre structure, making it less prone to breakage (Miller et al., 2013). Additionally, dietary fibres and specialised formulations can help hair pass more easily through the gastrointestinal tract, supporting natural hairball elimination. By combining optimal nutrition with normal grooming behaviour, cats are better able to manage loose hair, reduce hairball accumulation, and maintain overall skin and coat health (Bradshaw et al., 1999).

THE FORMATION OF A HAIRBALL



THE IMPORTANCE OF BIOAVAILABLE AND BIOACTIVE PEPTIDES FOR SKIN AND COAT HEALTH

Proteins are large molecules composed of amino acids, which act as the building blocks for many tissues and functional molecules in the body. In cats, dietary proteins are digested by enzymes throughout the gastrointestinal tract into smaller peptides and free amino acids. These building blocks are absorbed and used to synthesise new proteins, including those essential for skin, hair, muscle, antibodies, enzymes, and hormones (Fei et al., 1994).

Historically, it was believed that only free amino acids were absorbed from the gut; however, it is now recognised that the majority of amino acids are absorbed as di- and tri-peptides via the broad-specificity peptide transporter PepT1 (Fei et al., 1994). Hydrolysed proteins—proteins partially broken down into peptides—are absorbed more efficiently than intact proteins or free amino acids, making them particularly valuable for supporting skin and coat health in cats (Maebuchi et al., 2007; Zhao et al., 1997).

Collagen

Collagen is a major structural protein found in animal tissues, especially the skin, bones, and connective tissues. In the dermis layer of the skin, type I and III collagen provides structural support and elasticity, contributing to skin firmness and suppleness. Hydrolysed collagen peptides are more digestible and bioavailable, and dietary supplementation with these peptides has been associated with numerous benefits for feline skin, including:

- Increased skin hydration
- Increased dermis thickness
- Improved collagen content in the skin
- Greater skin elasticity

Studies in mammals, including cats, have shown that ingestion of collagen peptides can increase hydroxyproline levels—a measure of total collagen—enhance hyaluronic acid content, and improve skin moisture (Song et al., 2017a; Tanka et al., 2009). Collagen peptides may also stimulate dermal fibroblast proliferation, accelerating tissue repair and supporting overall skin integrity (Ohara et al., 2010; Mistry et al., 2021).

A strong skin barrier is critical for feline skin health. Damaged skin may be more prone to inflammation or sensitisation by environmental allergens, which can exacerbate pruritus and dermatological issues (Marsella et al., 2011; Marsella, 2021). Collagen peptides have demonstrated anti-inflammatory properties, reducing the expression of chemokines associated with atopic or allergic responses, and improving skin hydration and comfort in models of dry or inflamed skin (Hakuta et al., 2017; Okawa et al., 2012).

PEPTIDE+ SKIN, COAT & HAIRBALL CARE DIET HELPS THE BODY GET THE BUILDING BLOCKS EASIER

Hydrolysed proteins have been shown to be more readily absorbed from the digestive tract than intact proteins and even individual amino acids.

The hydrolysed protein in the Skin, Coat & Hairball Care recipe ensures an ideal supply of amino acid building blocks to synthesise key proteins such as keratin, collagen and elastin to maintain and repair the skin and its barrier function. Collagen also plays a significant role in repairing tissue, improving pruritus and healing wounds.

THE ROLE OF PEPTIDES IN DIETARY ALLERGY MANAGEMENT

Food allergies in cats are inappropriate immune responses to certain dietary proteins, leading to dermatological signs (e.g., pruritus, erythema) and gastrointestinal signs (e.g., vomiting, diarrhoea) (Verlinden et al., 2006).

The allergenic potential of a protein depends on its size and structure. Hydrolysing proteins into smaller peptides can reduce their immunogenicity, as peptides below a certain molecular weight may escape detection by the immune system (Cave, 2006; Hanaoka et al., 2019).

In veterinary hypoallergenic diets, the goal is to ensure that most peptides are smaller than 3 kDa, with stricter formulations aiming for <1 kDa to maximise the reduction of residual allergenic potential.

Studies in cats and other small animals have demonstrated that hydrolysed proteins significantly reduce adverse skin reactions compared with intact proteins (Ricci et al., 2010), making peptide-rich diets a valuable tool in managing feline food allergies while simultaneously supporting skin and coat health.

WHAT MAKES THE SKIN, COAT & HAIRBALL CARE DIET SO UNIQUE?

The development and formulation of the Skin, Coat & Hairball Care recipe has been centred around the 'Power of Peptides' using the latest Freshtrusion HDP technology.

HDP freshtrusion® HIGHLY DIGESTIBLE PROTEIN

Freshtrusion® HDP (Highly Digestible Protein) is the unique process of cooking fresh meat and fish ingredients in the presence of a natural enzyme, which digests (hydrolyses) the protein into a mixture of peptides and free amino acids.

This increases the digestibility and bioavailability of the protein and improves palatability, through what we like to refer it as Goldilocks Principle:

THE GOLDILOCKS PRINCIPLE

Instinctively, it would be assumed that intact protein would be best for a cat to digest as it contains all the nutritional elements together as one. Similarly, individual amino acids, broken down as small as possible, might be considered to be much easier to absorb. However, it has been proven in research studies that the ideal digestibility and absorption rates occur in small-chain peptides (≤ 3kDa). We like to refer to this as the 'Goldilocks principle'.

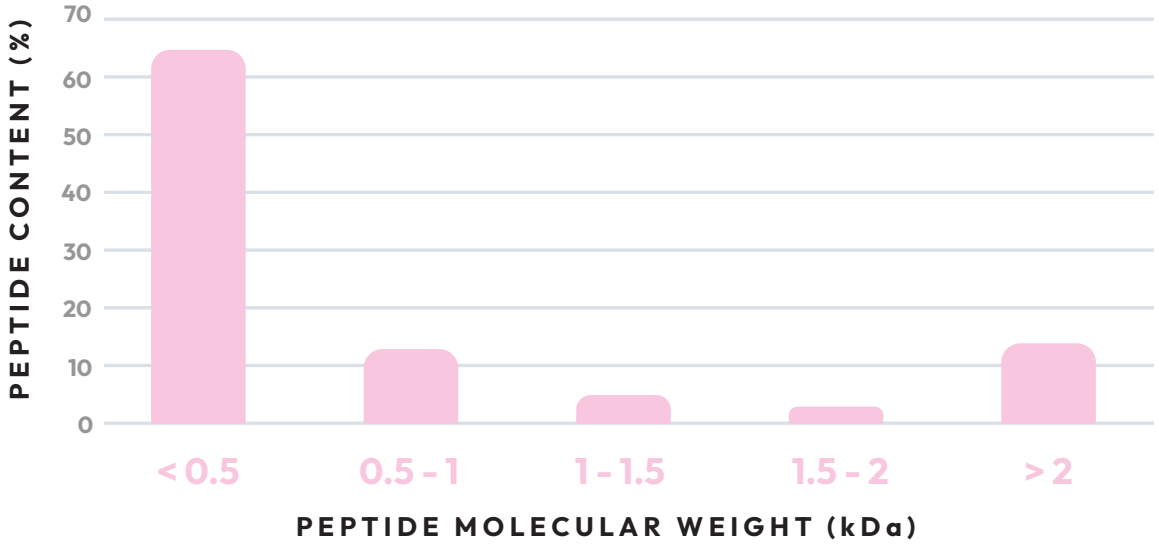
INTACT PROTEIN

DI AND TRI-PEPTIDES

SINGULAR AMINO ACIDS

TOO BIG — JUST RIGHT — TOO LITTLE

SKIN & COAT RECIPE: PEPTIDE CONTENT (%)

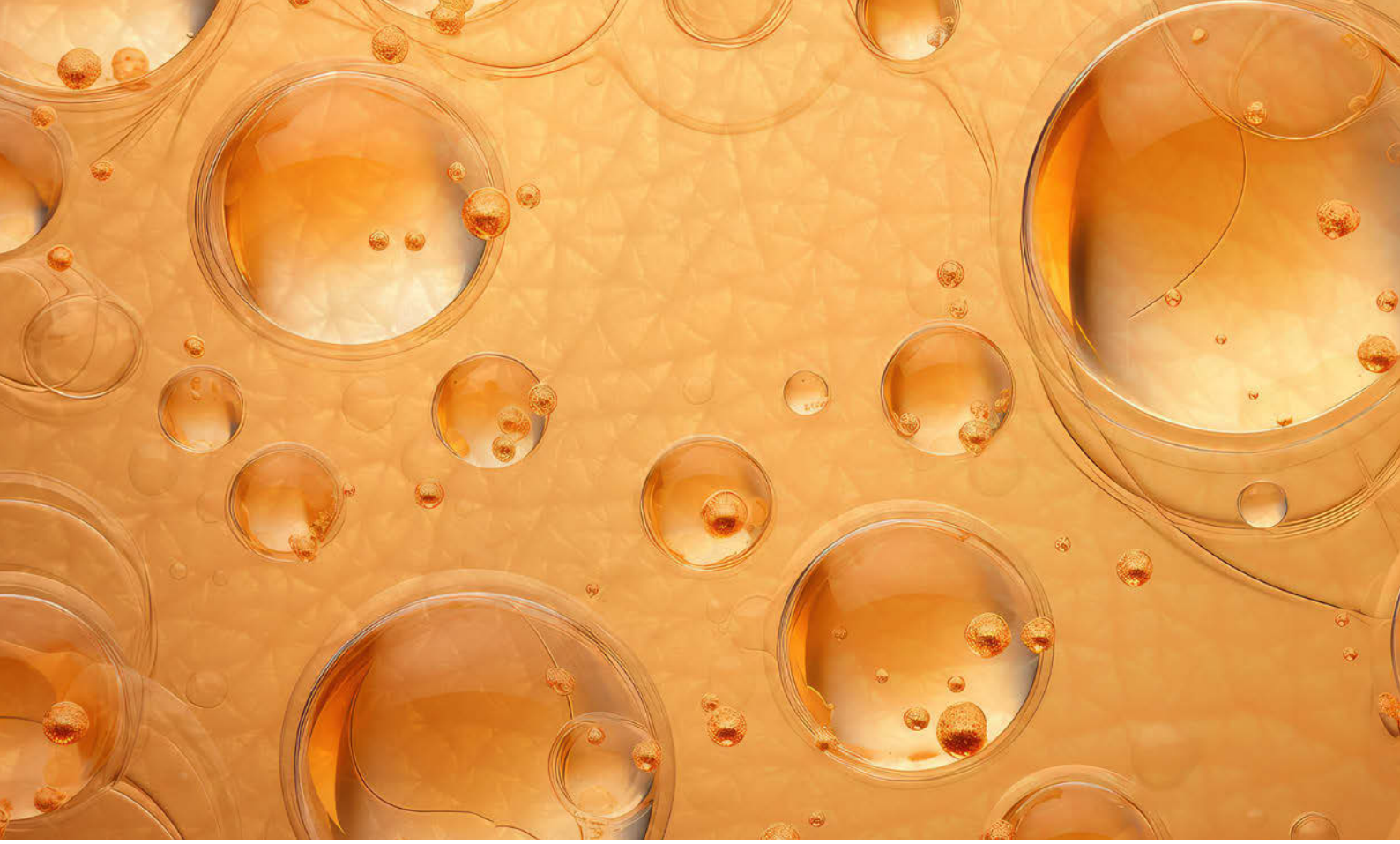


65% of the peptides in this recipe are <0.5 kDa with just 14% of the peptides >2 kDa.

These results show the majority of peptides in the finished kibble fall into the < 0.5 kDa category, which includes the highly digestible and nutritionally beneficial dipeptides and tripeptides - achieving the Goldilocks Principle.

THE POWER OF THE PEPTIDES FOR SKIN, COAT & HAIRBALL CARE

- ✓ **Increases the digestibility and bioavailability of the protein**
- ✓ **Improves palatability of the recipe**
- ✓ **Ensures an ideal supply of amino acid building blocks required for the synthesis of key proteins such as keratin (in hair shafts and skin epidermis) collagen and elastin (in skin dermis layer)**
- ✓ **Help to maintain and repair the skin and its barrier function**
- ✓ **Increases dermis thickness, skin hydration, elasticity, firmness and structure**
- ✓ **Reduces the allergenic potential of the protein to help reduce food-related allergic reactions**



THE LINK BETWEEN OMEGA-3 AND OMEGA-6 FATTY ACIDS AND FELINE SKIN AND COAT HEALTH

Historically, cats fed very low-fat diets were observed to develop dry, thickened, scaly, or peeling skin, along with a coarse, dull coat—conditions that could be resolved by including **linoleic acid (LA), an omega-6 fatty acid**, in the diet (Burr & Burr, 1930; Wiese et al., 1966; Elias et al., 1980). Cats, like other mammals, cannot synthesise LA endogenously, making it an essential dietary fatty acid. Ensuring **adequate LA intake is therefore critical for maintaining normal skin structure, coat condition, and the integrity of the epidermal barrier**.

Similarly, α-linolenic acid (ALA), an 18-carbon omega-3 fatty acid, cannot be synthesised by cats. While ALA is not considered essential in all adult cats, **omega-3 fatty acids in general play a key role in supporting skin health** and may be particularly beneficial in pruritic or inflammatory dermatological conditions (Elias et al., 2014).

In feline epidermal keratinocytes, LA is incorporated into ceramides, which are crucial for forming a functional epidermal water barrier and maintaining skin hydration (Elias et al., 2014). Both omega-6 and omega-3 fatty acids are also integrated into the phospholipid portion of cell membranes, where they act as precursors for eicosanoids—signalling molecules such as prostaglandins and leukotrienes that regulate normal skin physiology, immune responses, and inflammation.

The fatty acid composition of cell membranes is influenced by dietary intake. Different fatty acids give rise to different eicosanoids; some are pro-inflammatory, while others exhibit anti-inflammatory effects. The nutritional goal is to enrich cell membranes with fatty acids that favour anti-inflammatory mediators. For example, the omega-6 fatty acid γ-linolenic acid (GLA) is converted into dihomo-γ-linolenic acid (DGLA), which produces anti-inflammatory eicosanoids, whereas arachidonic acid (AA) generates pro-inflammatory mediators (Ziboh et al., 2000). Within the omega-3 family, long-chain polyunsaturated fatty acids such as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) give rise to anti-inflammatory eicosanoids, supporting skin health and helping to manage inflammatory conditions in cats.

WHY A BLEND OF OILS?

Essential fatty acids play a fundamental role in maintaining healthy skin and a glossy coat in cats. The Skin, Coat & Hairball Care diet contains a **carefully formulated blend of oils, including borage oil, salmon oil, and soya oil**, to provide bioavailable linoleic acid (LA), γ-linolenic acid (GLA), α-linolenic acid (ALA), eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA). These fatty acids are critical for skin barrier integrity, hydration, and the modulation of inflammatory processes in feline skin (Miller et al., 2013; Elias et al., 2014).

WHY BORAGE OIL?

Borage oil is a rich source of γ-linolenic acid (GLA), with concentrations reportedly 2–3 times higher than evening primrose oil (Barre, 2001; Gunstone, 1992). GLA is metabolised into dihomo-γ-linolenic acid (DGLA), which acts as a precursor for anti-inflammatory eicosanoids.

In companion animals, studies combining borage oil with fish oil have demonstrated reductions in erythema, pruritus, and self-trauma, suggesting potential **benefits for inflammatory skin conditions** (Harvey, 1999). While these studies were primarily in dogs, the underlying mechanisms of fatty acid metabolism and anti-inflammatory effects are also relevant to feline skin health, supporting the inclusion of GLA-rich oils in feline diets.

WHY SALMON OIL?

Fish oil, particularly salmon oil, is a concentrated source of long-chain omega-3 fatty acids, EPA and DHA, which have **anti-inflammatory and skin-supporting properties**.

In veterinary studies, supplementation with EPA and DHA has been shown to **improve coat quality**, reduce pruritus, and **support skin barrier function** in animals with inflammatory skin conditions (Logas & Kunkle, 1994; Mueller et al., 2004).

In cats, EPA and DHA are incorporated into skin cell membranes, where they help modulate inflammatory signalling and maintain skin hydration and elasticity (Miller et al., 2013).

The Skin & Coat diet also includes dried, whole-cell algae (Schizochytrium sp.) as a rich source of DHA, providing an alternative, sustainable source of these essential fatty acids.

WHY SOYA OIL?

Soya oil is a valuable source of omega-6 linoleic acid (LA) and omega-3 α-linolenic acid (ALA), both of which **support skin barrier function and coat quality**. LA is an essential component of ceramides, which form the lipid matrix of the epidermis and are crucial for maintaining the transdermal water barrier (Rabionet, 2014). Adequate dietary intake of LA ensures that the **skin remains hydrated, resilient, and able to withstand environmental stressors**.

Dietary ALA may complement LA by either being incorporated into skin ceramides or sparing LA from further metabolism, thereby increasing the availability of LA for ceramide synthesis.

In companion animal studies, supplementation with ALA and LA improved skin hydration, reduced trans-epidermal water loss, and enhanced overall coat condition (Rees et al., 2001; Mueller et al., 2004). While most studies have been conducted in dogs, the pathways for fatty acid metabolism, skin lipid incorporation, and anti-inflammatory effects are conserved in cats, supporting the use of a balanced blend of omega-3 and omega-6 oils in feline diets.

THE FATTY ACIDS PRESENT IN PEPTIDE+ SKIN, COAT & HAIRBALLCARE:

LA
LINOLEIC ACID

An essential omega-6 found in many vegetable oils, supporting cell function and skin health.

GLA
γ - LINOLENIC ACID

An omega-6 found in certain seed oils that helps maintain the skin barrier.

ALA
α - LINOLENIC ACID

An essential plant-based omega-3 that supports healthy skin and a shinier coat by reducing dryness and protecting the skin barrier.

EPA
EICOSAPENTAENOIC ACID

An omega-3 fatty acid from cold-water fish with anti-inflammatory benefits.

DHA
DOCOSAHEXAENOIC ACID

An omega-3 fatty acid found in salmon that supports healthy skin and coat condition.

WHAT OTHER INGREDIENTS ARE BENEFICIAL HAIRBALL CONTROL?

Skin, Coat & Hairball Care is formulated with cellulose and beet pulp. The type and amount of dietary fibre included in a cat's diet can significantly influence hairball formation and elimination.

Cellulose and Beet Pulp

Early studies investigating **fibre inclusion in cat diets demonstrated its potential to reduce hairball incidence**. In a crossover study involving 102 privately owned cats, adding fibre to the diet decreased the mean number of hairballs produced per household by 22% and reduced the frequency of vomiting by a similar margin (Hoffman & Tetrick, 2003). While details on the specific fibre type were not reported, this study highlighted the general benefit of dietary fibre in hairball management.

A more controlled, double-blind trial involving 24 cats evaluated the effects of 4% added cellulose on hairball-related clinical signs over four weeks. Owner-reported incidence of vomiting, retching, and coughing decreased by 79%, 91%, and 70%, respectively, in cats fed the cellulose-supplemented diet compared to controls. The mechanism proposed was that cellulose delayed gastric emptying, allowing ingested hairs to bind with food particles, which facilitated hair passage into the duodenum and subsequent faecal excretion (Beynen et al., 2011).

Laboratory-based studies have further clarified the role of different fibre types and inclusion levels in hairball control. In one study, adult cats fed diets containing 10% or 20% sugarcane fibre showed reduced hairball excretion in the faeces, while cats consuming 10% cellulose had a 29% increase in faecal hair mass, suggesting that fibre type and concentration influence hairball elimination (Loureiro et al., 2014). Similarly, a study investigating total dietary fibre (TDF) in long- and short-haired cats found that adding cellulose (up to 9.7% TDF) increased faecal hair excretion in long-haired cats, while short-haired cats showed no significant differences (Weber et al., 2015).

The inclusion of fermentable fibres such as beet pulp has also been shown to enhance gastrointestinal motility and support hairball management. In one study, cats fed diets with 8% or 16% beet pulp had increased faecal output and reduced gastrointestinal transit time, with the diet containing 16% beet pulp reducing transit time from 21.5 hours to 15.2 hours (Loureiro et al., 2017). Faster transit allows ingested hair to move more efficiently through the digestive tract, promoting elimination in the faeces rather than vomiting.

Overall, the evidence suggests that dietary supplementation with insoluble fibres such as cellulose and fermentable fibres like beet pulp can reduce the formation and clinical signs of hairballs in cats by improving gastrointestinal transit and facilitating the passage of ingested hair in the faeces.

WHAT ARE THE RESULTS?

As part of the development of the Skin, Coat & Hairball Care recipe, an independent 4-week study evaluated both the palatability of the test diet and its effects on skin and coat condition in cats with owner-observed issues. Cats were gradually transitioned to the diet and then fed exclusively with it. Owners completed standardized questionnaires at three timepoints (Week 0, 2, and 4) to assess diet acceptance and monitor changes in coat softness, itching, redness, and dandruff.

The study was conducted by Vista Pets, a specialised research service for the pet industry. They facilitate controlled in-home consumer studies to understand pets' food preferences and owners' expectations, using feedback from pet owners to guide the development of high-quality products.

The study population included 111 cats (49% female, 51% male; 89% neutered; average age 7.2 years; average weight 4.6 kg). Palatability results showed increased daily consumption compared with usual diets and high levels of acceptance: 87% of owners had a positive overall impression, 71% found the diet smelled appealing, and 90% were satisfied with kibble size/shape.

Significant improvements in skin and coat condition were observed by Week 2 and continued to increase by Week 4. Notably, 95% of owners reported an improvement in their cat's coat condition. Improvements included softer, glossier, and healthier coats, reduced itching, redness, and dandruff, and increased normal grooming behaviour. Owner satisfaction was high, with 88% very satisfied with the diet, 86% willing to continue feeding it, and 81% perceiving improvements in overall health and well-being.

Overall, the study demonstrates that the test diet delivers strong palatability alongside meaningful skin and coat health benefits in cats, with visible improvements within 2 weeks and continued enhancements over 4 weeks.

REFERENCES

Bradshaw, J. W. S., Healey, L. M., Thorne, C. J., & Macdonald, D. W. (1999). Feline grooming: its role in hairball formation. *Applied Animal Behaviour Science, 62(2–3), 153–162.*

Rogers, Q. R. (2011). Hairballs in cats: prevention and management. *Journal of Feline Medicine and Surgery, 13(6), 404–411.*

Bragulla, H. H., & Homberger, D. G. (2009). Structure and functions of keratin proteins in simple, stratified, keratinized and cornified epithelia. *Journal of Anatomy, 214(4), 516–559.*

Scott, D. W., Miller, W. H., & Griffin, C. E. (2001). *Muller and Kirk's Small Animal Dermatology (6th ed.). Philadelphia, PA: W.B. Saunders.*

Wertz, P. W. (2018). Lipids and barrier function of the skin. *Acta Dermato-Venereologica, 98(7), 647–651.*

Miller, W. H., Griffin, C. E., & Campbell, K. L. (2013). *Muller and Kirk's Small Animal Dermatology (7th ed.). St. Louis, MO: Elsevier.*

Bradshaw, J. W. S., Healey, L. M., Thorne, C. J., & Macdonald, D. W. (1999). Feline grooming: its role in hairball formation. *Applied Animal Behaviour Science, 62(2–3), 153–162.*

Cave, N. J. (2006). Hydrolysed protein diets in the management of adverse food reactions in cats. *Journal of Feline Medicine and Surgery, 8(3), 159–165.*

Fei, Y., Okamoto, K., & Terada, T. (1994). Functional expression of the H+/peptide cotransporter PepT1. *American Journal of Physiology, 267(4), G482–G488.*

Hanaoka, K., et al. (2019). Molecular weight distribution of hydrolysed proteins and allergenic potential in pet foods. *Journal of Animal Physiology and Animal Nutrition, 103(2), 510–519.*

Liang, J., et al. (2010). Effects of marine collagen peptides on dermal collagen in aged skin models. *Food Chemistry, 120(4), 1193–1198.*

Maebuchi, M., et al. (2007). Absorption of hydrolysed protein in cats. *Journal of Nutritional Science, 6(1), 23–30.*

Marsella, R., et al. (2011). Skin barrier dysfunction and feline allergic skin disease. *Veterinary Dermatology, 22(3), 213–222.*

Marsella, R. (2021). The role of the epidermal barrier in feline atopic dermatitis. *Current Allergy and Asthma Reports, 21(12), 62.*

Mistry, D., et al. (2021). Collagen peptide supplementation accelerates wound healing in vitro. *Journal of Cosmetic Dermatology, 20(3), 864–872.*

Ohara, H., et al. (2010). Stimulation of dermal fibroblast proliferation by collagen peptides. *Skin Pharmacology and Physiology, 23(1), 15–23*

Okawa, T., et al. (2012). Oral collagen tri-peptides improve dry skin and pruritus in mouse models. *Journal of Dermatology, 39(5), 464–471.*

Ricci, R., et al. (2010). Effectiveness of hydrolysed proteins in food-allergic dogs and cats. *Veterinary Dermatology, 21(4), 381–389.*

Rogers, Q. R. (2011). Hairballs in cats: prevention and management. *Journal of Feline Medicine and Surgery, 13(6), 404–411.*

Song, H., et al. (2017a). Effects of fish collagen peptides on skin hydration and collagen content. *Marine Drugs, 15(10), 307.*

Song, H., et al. (2017b). Bovine collagen peptides improve skin firmness and structure. *Journal of Cosmetic Dermatology, 16(3), 331–338.*

Tanka, T., et al. (2009). Protective effects of collagen peptides on UV-induced skin damage. *Journal of Dermatological Science, 53(3), 197–199.*

Verlinden, A., et al. (2006). Food allergy in cats: pathophysiology and management. *Veterinary Immunology and Immunopathology, 112(3–4), 201–209.*

Zhao, Y., et al. (1997). Peptide absorption and utilisation in the small intestine. *Journal of Nutrition, 127(12), 2506–2512.*

Burr, G. O., & Burr, M. M. (1930). On the nature and role of the fatty acids essential in nutrition. *Journal of Biological Chemistry, 86(2), 587–621.*

Elias, P. M., Feingold, K. R., & Schmuth, M. (2014). Skin lipids and the physiology of the epidermal barrier. *Dermato-Endocrinology, 6(1), e983401.*

Wiese, R., et al. (1966). Effects of essential fatty acids on the skin and hair of domestic animals. *Journal of Nutrition, 89(1), 45–52.*

Ziboh, V. A., Miller, C. C., & Cho, Y. (2000). Metabolism of gamma-linolenic acid in skin: Anti-inflammatory implications. *American Journal of Clinical Nutrition, 71(1 Suppl), 367S–372S.*

Beynen, A. C., et al. (2011). The effect of cellulose on hairball formation and gastric emptying in cats. *Journal of Animal Physiology and Animal Nutrition, 95(5), 574–581.*

Hoffman, L. M., & Tetrick, M. (2003). The effect of dietary fibre on hairball production in privately owned cats. *Journal of Feline Medicine and Surgery, 5(1), 27–33.*

Loureiro, A. P., et al. (2014). Effect of dietary fibre source on hairball excretion in adult cats. *Journal of Animal Physiology and Animal Nutrition, 98(3), 569–577.*

Loureiro, A. P., et al. (2017). Dietary beet pulp accelerates gastrointestinal transit and reduces trichobezoars in cats. *Journal of Feline Medicine and Surgery, 19(4), 392–399.*

Malik, R. (2003). Feline hairballs: formation, clinical signs, and management. *Veterinary Clinics of North America: Small Animal Practice, 33(4), 971–984.*

Weber, R., et al. (2015). Effects of total dietary fibre on faecal hair excretion in long- and short-haired cats. *Journal of Animal Physiology and Animal Nutrition, 99(6), 1104–1111.*

FEDIAF – European Pet Food Industry Federation. (2011). Nutritional guidelines for complete and complementary pet food for cats and dogs. *FEDIAF.*