

# **G**erman **Shepherd**

**Tailor-Made  
nutrition  
for German  
Shepherds**



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**Royal Canin scientific research:  
innovation in Health Nutrition**

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# **The German Shepherd:**

**N**o other breed has been such a part of the story of our company as the German Shepherd and every one of us feels an enduring rapport with this dog, the emblem of our brand from the very first day of our existence.

*How could we forget that Royal Canin owes its birth in 1967 to Dr Jean Cathary, who decided to perfect dry food to treat German Shepherds suffering from eczema?*

*Royal Canin was born.*

*A little later in 1980, thanks to the work on the articular specifics of German Shepherds led by Royal Canin Research Center Director Dr. Cloche, Royal Canin perfected the first food specially formulated for large-breed puppies.*

*AGR would be the big bang in nutrition, addressing for the first time ever the size parameter in the formulation of food. An advance that redefined the rules of nutritional science on a global scale.*

*So the perfection of our German Shepherd 24 food is much more than a simple launch or just another leg in the journey of our brand.*

*German Shepherd 24 is primarily a tribute to the German Shepherd, a breed of exceptional versatility and a personality, whose bravery and loyalty can never be adequately saluted.*

## **at the heart of the Royal Canin story**

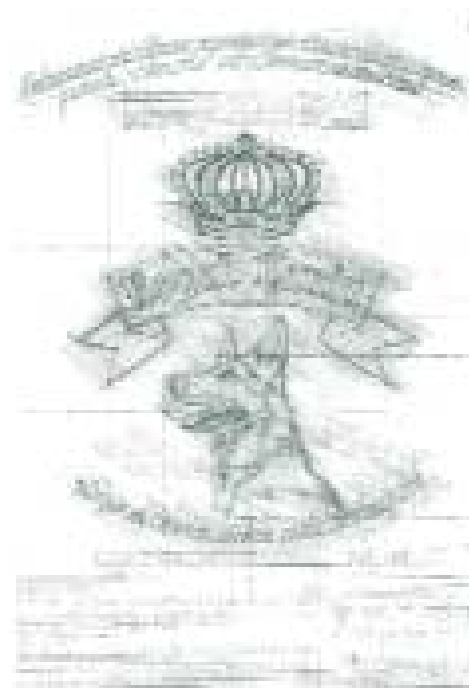
*We have once again pushed back the limits of knowledge of this exceptional dog, a wonderful companion and a lifesaver at one and the same time, in our quest to better understand its digestive, articular and immunology needs and then fulfill them.*

*As supreme homage to the German Shepherd, we have dedicated an encyclopedia to it, compiled under the authority of Umes (Unité de Médecine de l'Élevage and Sport de l'École Nationale Vétérinaire de Maisons-Alfort) and its founder, Professor Dominique Grandjean, expert and an eternal lover of German Shepherds.*

*For the first time this encyclopedia, already published in four languages and counting over 450 pages, brings together the wealth of knowledge on this fascinating breed.*

*We will start distributing this encyclopedia around the world in September 2003.*

*Our way of returning to the German Shepherd a little of what it has given us throughout our history.*



*1967: the German Shepherd was already present in this sketch of the Royal Canin logo.*

A handwritten signature in black ink that reads "H. Lagarde".

*Henri Lagarde  
Chief Executive Officer  
Royal Canin Group*

# **THE GERMAN SHEPHERD...**

*A dog of unequalled versatility*

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**1 AN ESTABLISHED DIGESTIVE SENSITIVITY**

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**2 AN IMMUNE SYSTEM  
PUT TO THE TEST EVERY DAY**

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**3 A SENSITIVE SKIN TO PROTECT**

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**4 A BONE STRUCTURE UNDER GREAT STRESS**

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**5 EATING BEHAVIOR**  
Higher requirements and distinct morphological traits

# GERMAN SHEPHERD 24...

## The nutritional response

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### 1 Promoting maximum digestive security (p. 8)

- Improves digestion and absorption
    - Limits fermentative activity
  - Protects and nourishes the digestive mucus
    - Improves the consistency of stools
- 



### 2 Reinforcing the natural defenses and combating oxidative stress (p. 15)

- Stimulates immune cells, thanks to the action of MOS
  - Reduces oxidative stress, thanks to an oxidative synergistic complex
- 



### 3 Reinforcing the integrity of the skin barrier and nourishing the hair and the skin (p. 20)

- Protects the skin and nourishes the hair, thanks to an association of vitamins and amino acids
- 



### 4 Protects articular capital (p. 24)

- Protects joints and slows down the gradual appearance of osteoarthritis, thanks to the synergistic action of chondroitin sulfate and glucosamine hydrochloride
    - Combats inflammatory mechanisms and oxidative injuries, thanks to omega 3 fatty acids (EPA and DHA)
- 

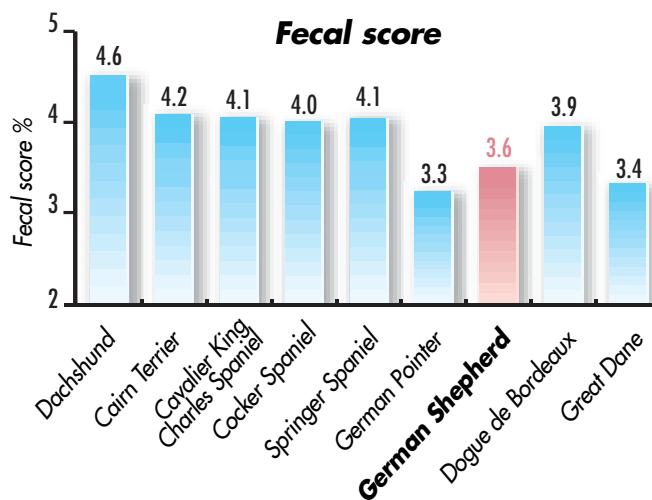
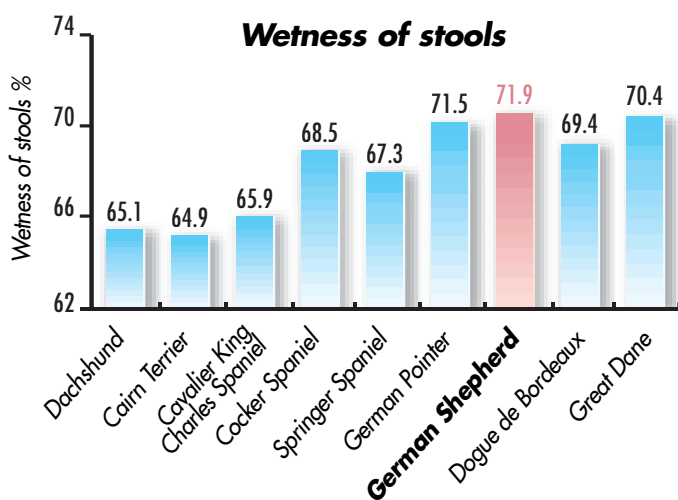


### 5 A made-to-measure kibble (p. 26)

- Optimizes appetite
  - Improves oral hygiene
  - Helps prevent stomach torsion-distension
-

# 1 An established digestive sensitivity

Empirical observations reported in recent scientific studies (Zentek and Meyer, 1995; Meyer et al, 1999; Weber et al, 2002 and 2003a) show a predisposition in large dogs to lower digestive tolerance (soft and solid stools) compared to small dogs on the same diet.



Average wetness values and scores for stools obtained during the past three years. The stools are graded on a scale from 1 (liquid stool) to 5 (dry and hard stool) according to their consistency. A fecal score of 4.0 is considered optimal (firm and solid stool). (Royal Canin Research Center 2000-2003).

The reason for this weak digestive tolerance in large dogs may be of an anatomic nature as suggested by the relative low weight of their digestive tract (2.7%) in comparison with that of small dogs (7%) (Meyer et al, 1993). An as yet undiscovered physiological reason may also exist.

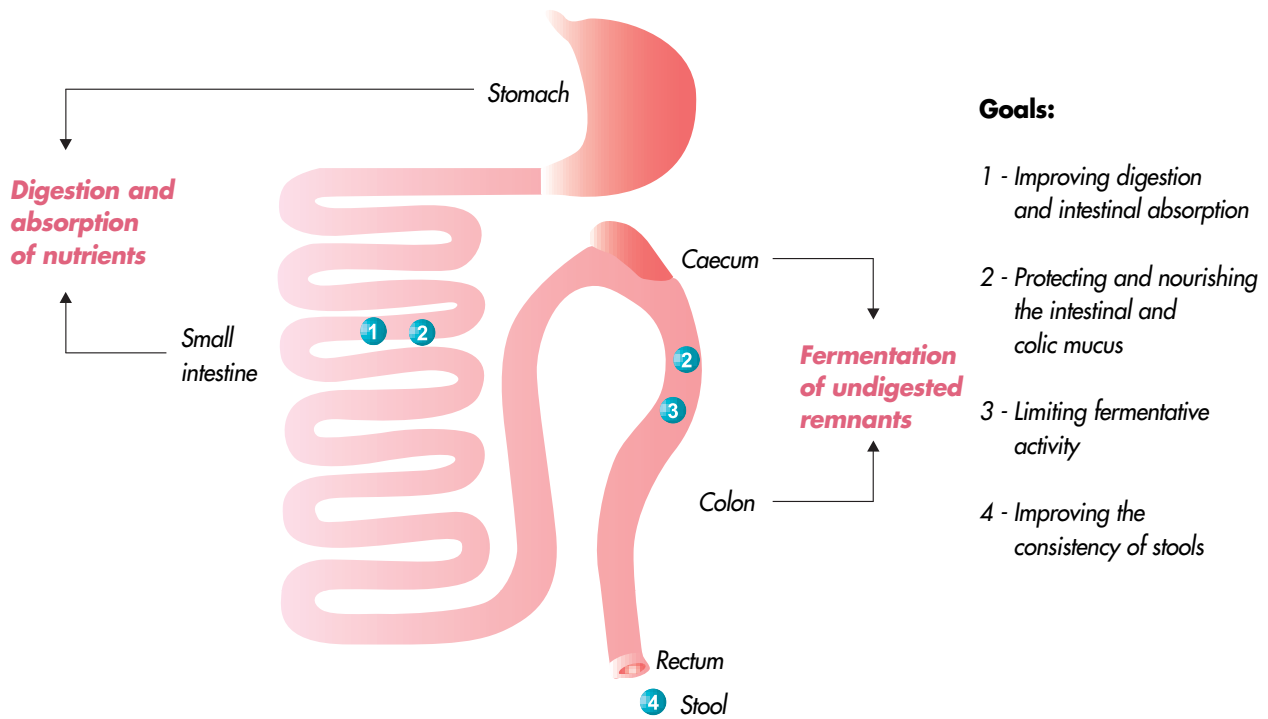
A higher intestinal permeability (Hall and Batt, 1990; Weber and al, 2002), a weaker digestive capacity (Zentek and Meyer, 1995) and a greater fermentative activity among large dogs (Weber et al, 2003a and 2003b) are many factors that may explain their weaker digestive tolerance.

In addition to the undeniable "size" effect, the results also appear to show a "breed" effect.

In comparison with other breeds of similar size, the German Shepherd is among the breeds that display more significant digestive sensitivity – wetter stools and weaker fecal score (see opposite).

So it would appear important to ensure maximum digestive security among German Shepherds through nutrition.

### Promoting maximum digestive security



# PROMOTING MAXIMUM DIGESTIVE SECURITY

## Objective 1: Improving digestion and absorption through hyper-digestible ingredients

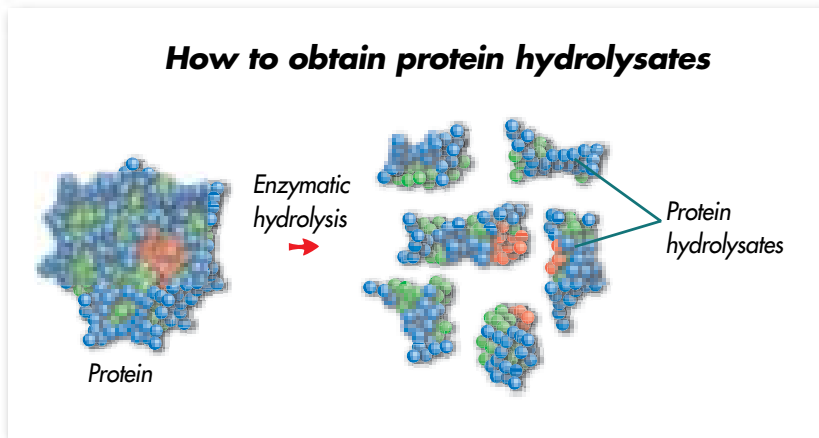
The German Shepherd's digestive sensibility makes the incorporation of hyper-digestible ingredients in the formulation of the food absolutely vital to optimal digestion and absorption.

### Utilizing highly digestible proteins

German Shepherd 24 contains very highly digestible proteins (>95%), generating less metabolic waste, as almost all of the proteins are digested. That means that the 24% hyper-digestible protein content helps cover the German Shepherd's nutritional needs optimally.

#### ● Soy and poultry protein isolate hydrolysate

- very high organic value
- very high digestibility (96%)
- limits the flow of indigestible protein to the colon, reducing undesirable putrefaction and helping to maintain flora equilibrium



*Protein isolate hydrolysates are achieved by enzymatic hydrolysis of the isolate. This operation is aimed at reducing the size of proteins (hydrolysates), thus improving their digestion. The digestibility of soy and poultry isolate hydrolysates is over 96%.*

## Utilizing highly absorbable energy

The high-energy concentration of German Shepherd 24 means servings can be moderated, significantly reducing the load on stomach and intestine.



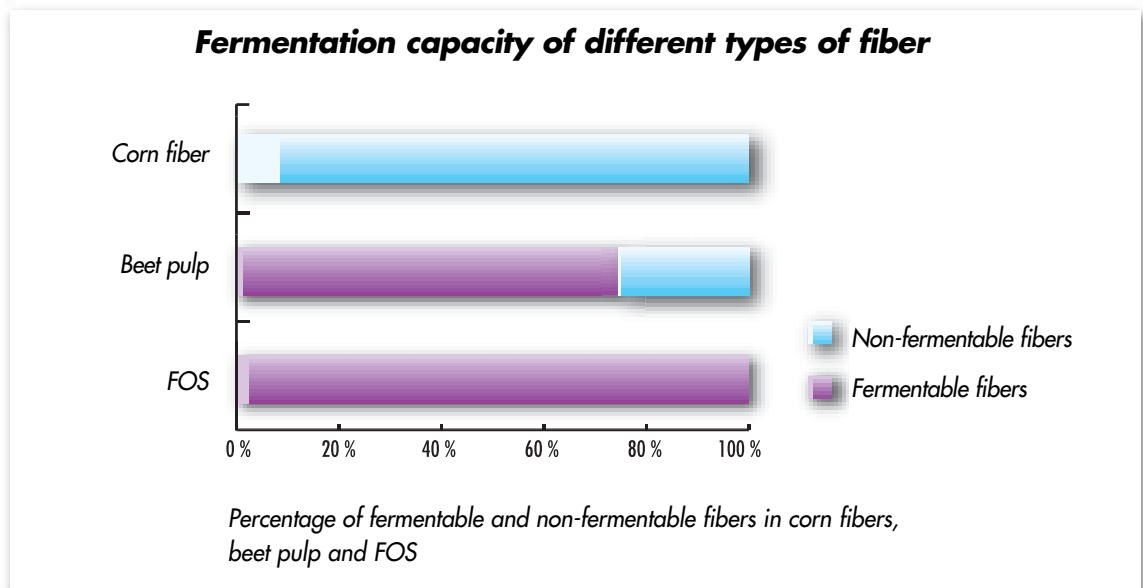
### ● Rice as a major source of starch

- highly digestible starch
- improves the digestibility of proteins, of fat and dry matter and limits the quantity of feces (Belay, 1997).

## Objective 2: Limiting fermentative activity

Strong fermentative activity can trigger an in-rush of water into the colon and a marked proliferation of microbes; two factors that lead to the excretion of watery feces. So it is essential to limit fermentative activity among German Shepherds.

- Hyper-digestible food reduces the quantity of non-digested remnants that enter the large intestine.
- A single source of fermentable fibers: beet pulp, a fiber that is degraded by bacteria in the colon (75%), limits colic fermentation.

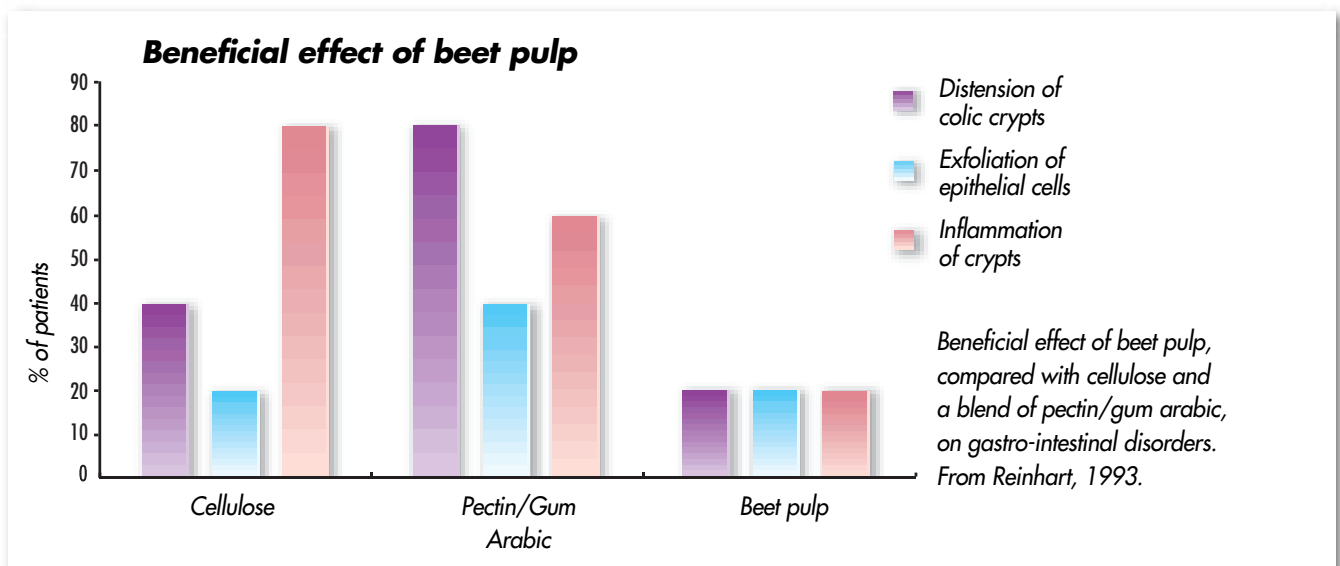


Source : Royal Canin, 2003

## Objective 3: Protecting and nourishing the digestive mucus

### ● Incorporation of beet pulp

Beet pulp helps maintain healthy gastro-intestinal mucus (Reinhart, 1993).



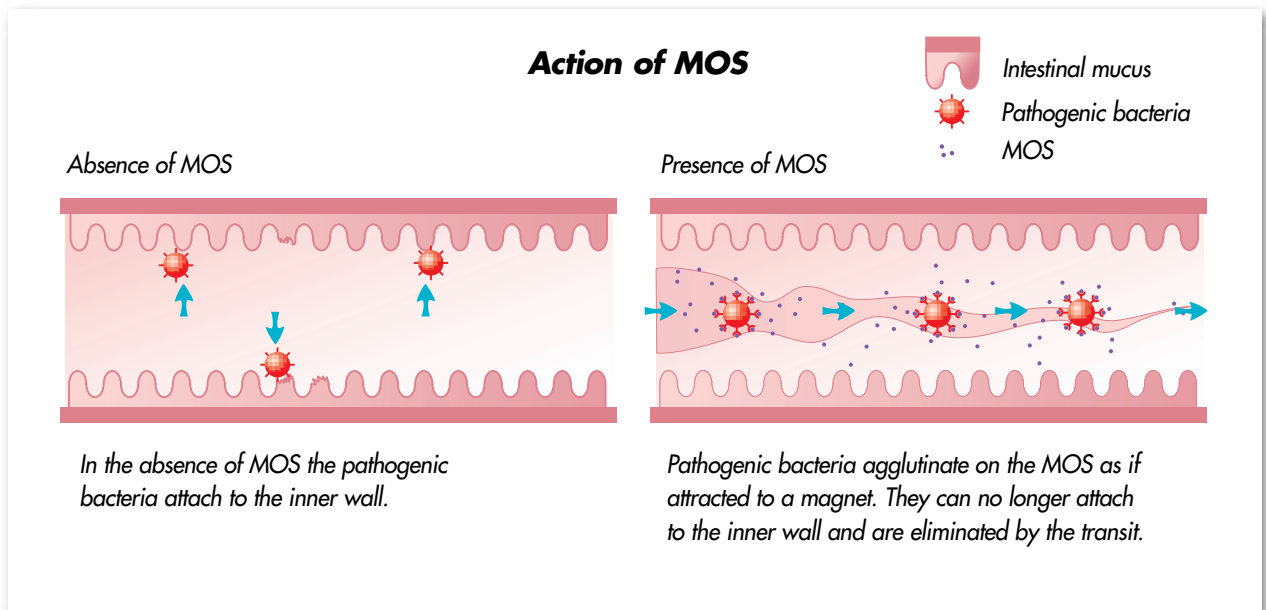
It is also a substrate of choice for colic micro-flora, which degrades it into short-chain fatty acids (SCFA) (acetate, propionate and butyrate in the main).

- These SCFA, especially butyrate, are an important energy source for the colic cell (Roediger, 1980). They also have a beneficial effect on the digestive mucus (Sakata et al, 1987).
- SCFA reduce the colic pH (acidification of the contents of the intestine) to stimulate the growth of beneficial bacterial flora and inhibit the growth of pathogen strains (Kumemura et al, 1992).

● **Incorporation of MOS (Mannan-oligosaccharides)**

MOS belong to the category of non-fermentable fibers that, in their natural state, form the inner wall of yeast cells. They are composed of two sugars: glucose and mannose.

MOS help limit the development of potentially pathogenic bacteria by preventing them from attaching themselves to the intestinal mucus (Harmon, 1999). So pathogenic bacteria cannot physically reach or adhere to the intestinal cells and are evacuated in the stools.



- **Extra source of omega 3 fatty acids (EPA and DHA)**

The fatty acids EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) prevent excessive inflammatory reactions by the intestinal mucus (Reinhart and Davenport, 1995).

## **Objective 4: Improving stool consistency**

The improvement of the consistency of stools is realized primarily by enhancing the water retaining capacity of the caecum and colon.

It is important to incorporate indigestible compounds with a high water retaining capacity into the German Shepherd's food.

- **Incorporation of insoluble mineral salts**

Due to their porosity and their large exchange surface area, they enable the reduction of excess water present in the digestive tract and deal with certain toxins responsible for increased secretion of water.

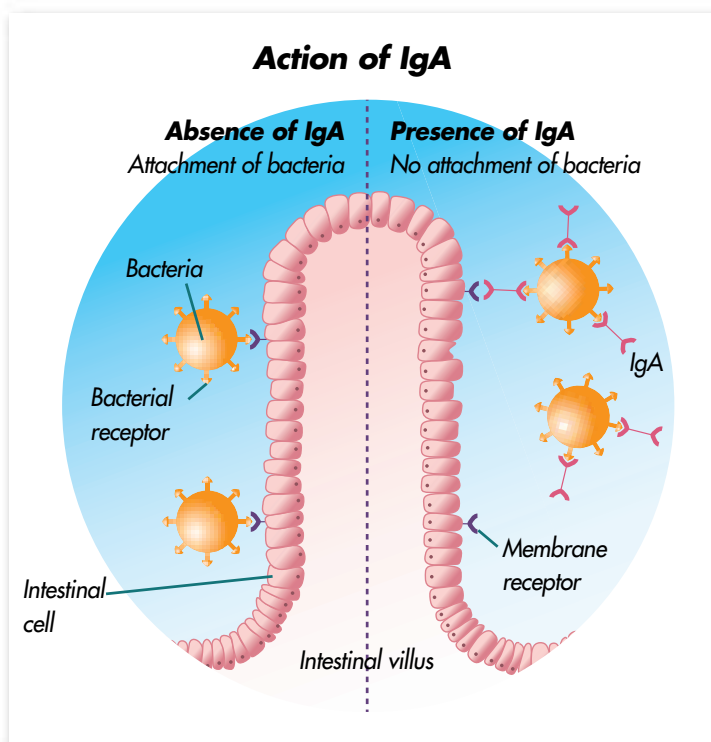
- **Incorporation of purified cellulose**

Its high hygroscopic capacity enables it to retain up to 6 times its own weight in water. Additionally, this fiber, which is not degraded by the colic microflora, is absorbed intact in the stools to help improve the consistency of the feces (Wichert et al, 2002).

## 2 An immune system put to the test every day

The firm musculature of the German Shepherd, its well developed torso, its solid limbs – without omitting its character – make the German Shepherd a utility dog par excellence, as a guide dog, rescue dog, police dog or defense dog, to name but a few. These varied chores put its immune system under severe pressure every day.

The German Shepherd is among the breeds showing a weak plasmatic concentration of immunoglobulin A (IgA) (Whitebread et al, 1984, Griot-Wenk et al, 1999), which increases the risk of infection.



IgA are antibodies specialized in the defense of mucus and the skin against infectious agents and are essential ingredients of such secretions as saliva, tears and intestinal juices.

Taking account of the distinct immune characteristics of the German Shepherd, it is essential to utilize nutritional factors that help strengthen its natural defenses.

*The essential role of IgA is to prevent pathogen agents from attaching themselves to cells, and specifically covering cells like digestive mucus (opposite) and the epidermis (outer layer of the skin).*

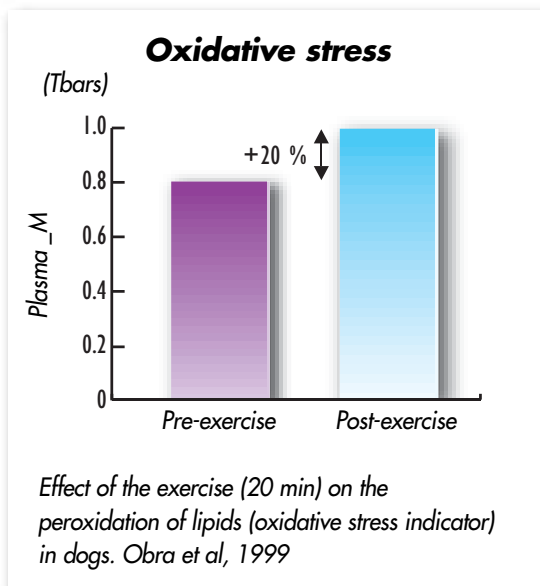
# REINFORCING THE NATURAL DEFENSES

## Incorporation of MOS (Mannan-oligosaccharides)

MOS stimulate the local defenses by increasing the antibody count, especially IgA, and the production of the white corpuscles (neutrophils) responsible for general defense tasks (O'Carra, 1997).

### ● Oxidative stress and antioxidants

Additionally, when it works for protracted periods, the German Shepherd like other dogs builds up an antioxidant deficit, which makes it more vulnerable to damage caused by free radicals (oxidative stress) (Obra et al, 1999).



That makes it essential to combat oxidative stress, in addition to stimulating the dog's immune system.

# COMBATING OXIDATIVE STRESS

## Antioxidant synergistic complex (vitamins E, C, taurine and lutein)

- **An extra source of Vitamin E (600 mg/kg),**

which plays a major role in the protection of cellular membranes and strengthens immune defenses.

- **A source of Vitamin C (300 mg/kg),**

which advances the regeneration of vitamin E and helps combat oxidative stress.

- **An extra source of Taurine (2200 mg/kg),**

a major constituent of immune cells, particularly cells producing antibodies (lymphocytes). Taurine also plays a significant role in the prevention of cardiac diseases (especially cardiomyopathy).

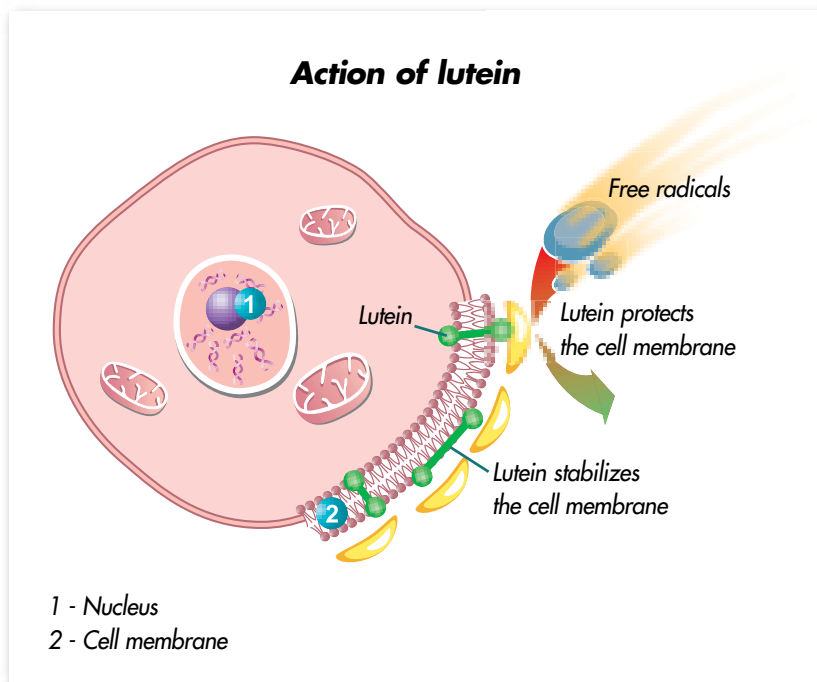
- **A source of Lutein (5 mg/kg)**



*Lutein is a vegetable extract derived from the petals of the African marigold (Tagetes Erecta)*

Lutein fulfills two essential functions:

- It protects against free radicals. Lutein protects the lipids of the cell membrane, thus combating lipid peroxidation.
- It stabilizes cell membranes into which it incorporates and modulates the immune response by driving up the production of antibodies (Reinhart, 2000).

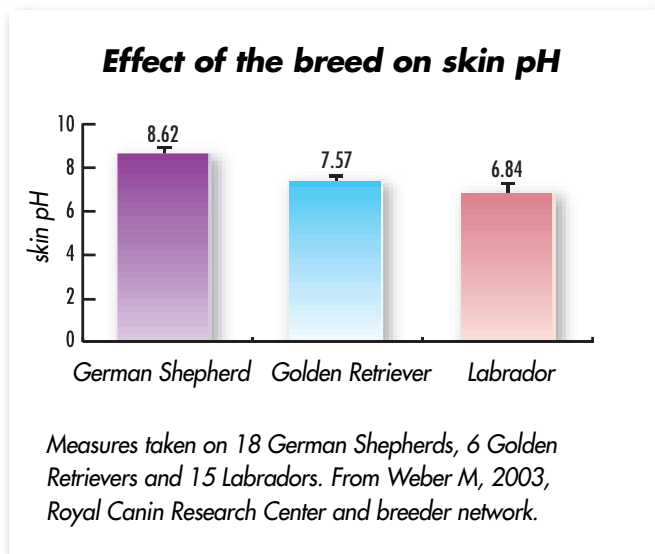


# 3 A sensitive skin to protect

The dog's skin pH is one of the highest among mammals (an average of 7.4).

Species of mammal	Average skin pH
Man	4.8
Guinea-pig	5.5
Pig	6.3
Horse	6.3
<b>Cat</b>	<b>6.4</b>
Rat	6.5
<b>Dog</b>	<b>7.4</b>
Goat	8.1

Average skin pH values reported for various species of mammal. From Matousek and Campbell (2002).

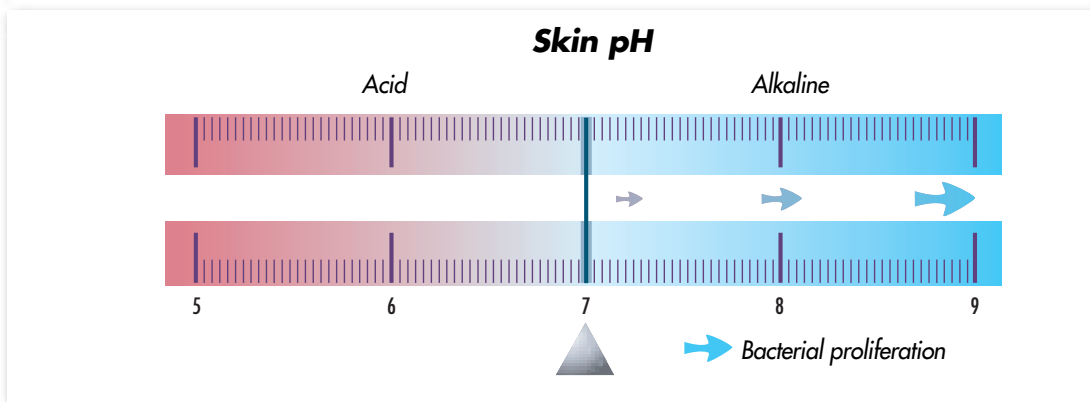


Among the canine race the skin pH appears to vary according to breed.

A protocol was perfected by the Royal Canin Research Center to measure the alkaline pH of the German Shepherd and compare it with other breeds.

These results show that the German Shepherd possesses a much more alkaline skin than the Golden Retriever or the Labrador.

Many authors agree that an alkaline skin is more conducive to bacterial proliferation than an acidic skin (Chikakane and Takahashi, 1995; Matousek and Campbell, 2002).



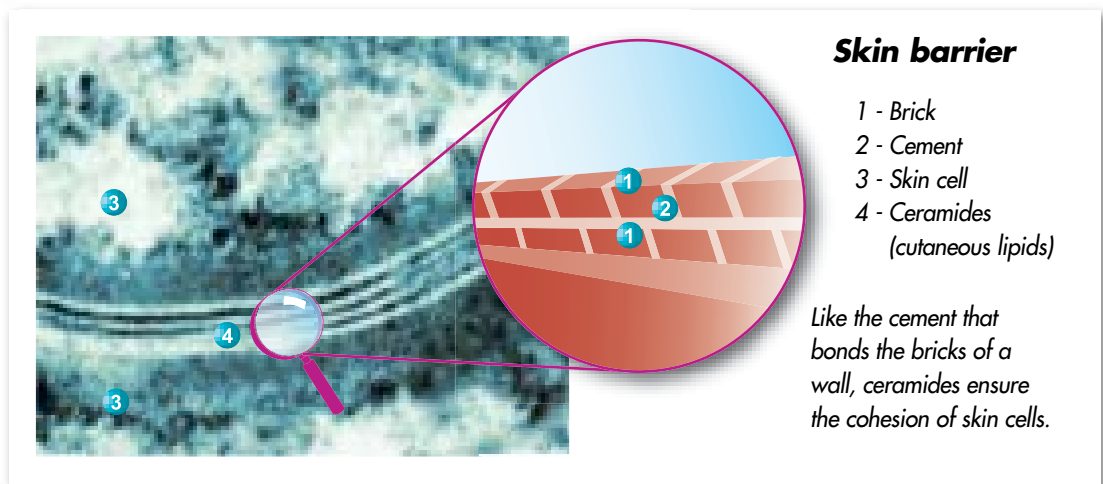
Its relative deficiency in IgA (Immunoglobulin A) and the high alkalinity of its skin can explain the German Shepherd's sensitivity to bacterial skin diseases, such as pyoderma (Denerolle et al, 1998).

So it is essential to reinforce the integrity of the skin barrier, while nourishing the hair and preserving its natural beauty, through nutrition.



# REINFORCING THE INTEGRITY OF THE SKIN BARRIER

The epidermis forms a barrier that limits water loss by the body and prevents its penetration by allergens. This barrier role is made possible by ceramides, which are lipids that form “cement” that bonds the epidermis cells.



## ● Vitamins/amino acid synergistic association

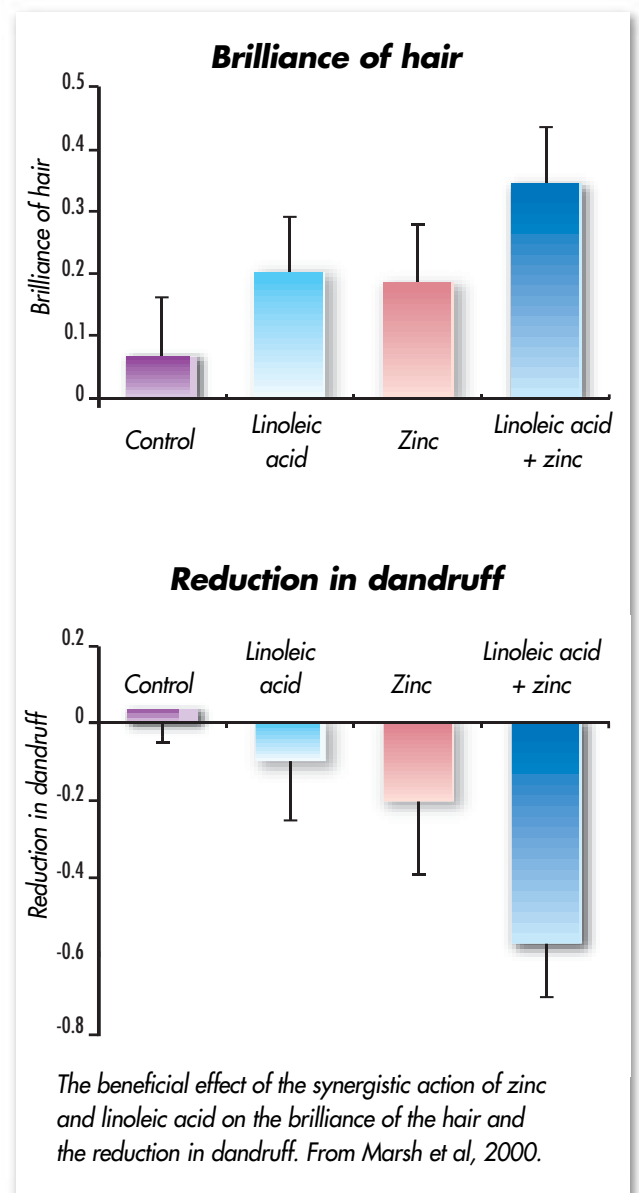
The synergistic action of a supply of various vitamins (**choline, nicotinamide, inositol, pyridoxine** and **panthotenic acid**) and amino acids (**proline** and **histidine**) augments the synthesis of ceramides, which helps limit water loss and prevent the penetration by bacteria or any allergens (pollen, dust mites) (Tim Fray, 2002, Waltham Center for Pet Nutrition).

# NOURISHING THE HAIR AND SKIN

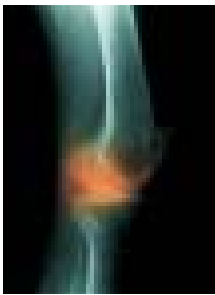
- **Source of  $\gamma$ -Linolenic acid**, an omega 6 fatty acid provided by borage oil that improves the health of the hair and the quality of the skin.
- **Extra source of Zinc** (250 mg/kg), a crucial element in the synthesis of collagen and of keratin, which are essential for epidermal regeneration and cicatrisation. In the event of a deficiency, hair becomes dull and greyish.
- **Source of Linoleic acid**. The synergistic action of this acid and zinc assures a brilliant coat of hair and less dandruff (Marsh, 2000) (see opposite).

But also:

- **An extra source of vitamin A (vitamin for the epithelium)** (22000 UI/kg)  
Vitamin A helps combat seborrhoea and plays a key role in the regeneration of the skin (growth and proliferation of epidermal cells) (Miller, 1986; Scott, 1986).
- **An extra source of Biotin (vitamin H)** (3 mg/kg)  
The extra source of Biotin, often called vitamin H (from the German word 'Haut' for skin), helps combat dehydration of the skin, hair loss and the formation of dandruff (squama). (Marsh and Watson, 1999).
- **Incorporation of selenium**  
An essential mineral for maintaining and growing tissue that helps protect cell membranes in interaction with vitamin E.



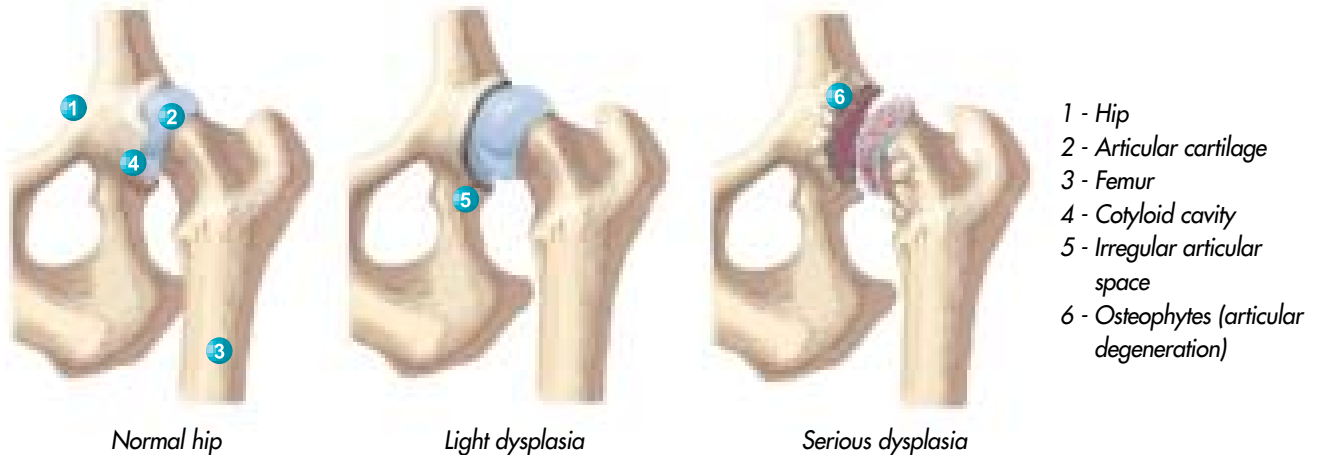
# 4 A bone structure under great daily stress



The German Shepherd's exceptional morphology enables it to perform as well in its work or walking with its master, as in the most diverse and most demanding of sporting disciplines: ring, Mondioring, protection, campagne, and not forgetting search & rescue of course. That means that the joints of this versatile dog are put under great stress.

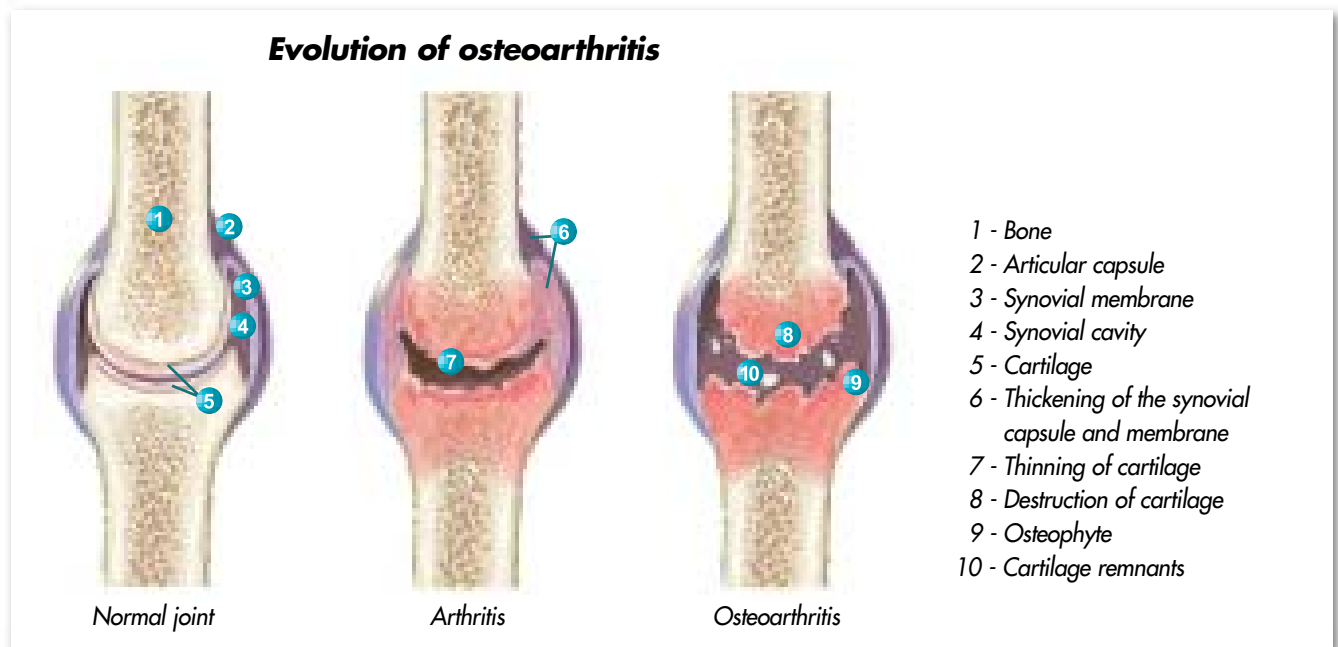
Hip, elbow and knee dysplasia, cauda equina and articular osteochondroses are unfortunately not rare in this sporting dog (Lafond et al, 2002).

## Evolution of hip dysplasia



Dysplasia is characterized by the abnormal development of the coxofemoral joint, which leads to poor imbrication of the head of the femur in the hip's cotyloid cavity as well as the appearance of osteoarthritis.

In time, its cartilages will be damaged and this wear and tear may gradually give way to osteoarthritis when the dog grows older.



That means it is essential to help prevent joint complaints and associated inflammatory mechanisms through nutrition.

# **PROTECTS ARTICULAR CAPITAL**

## **Objective 1: Protecting joints and preventing or slowing down osteoarthritis**

- **An extra source of chondroitin sulfate and glucosamine hydrochloride** (1000 mg/kg)

The combined action of these two nutrients helps stimulate the regeneration of articular cartilage and slow down cartilage degeneration (Lipiello et al, 1998).

- **Chondroitin sulfate** inhibits the action of enzymes that cause the destruction of cartilage. It also possesses a high water retaining capacity, enabling proper hydration of the cartilage.
- **Glucosamine hydrochloride** (precursor of glycosaminoglycans, the principal constituents of articular cartilage) stimulates the regeneration of cartilage (especially promoting the synthesis of collagen).

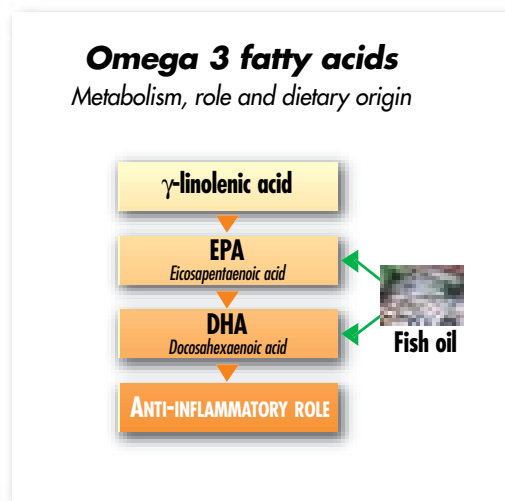
- **Incorporation of manganese**

**Manganese**, a mineral trace element, contributes to the synthesis of procollagen, a precursor of collagen, which makes up the cartilage fibers.

## Objective 2: Combating inflammatory mechanisms

- **An extra source of omega 3 fatty acids (EPA and DHA) (0.4%)**

The fatty acids EPA and DHA, essentially found in fish oils, possess anti-inflammatory properties. They activate the production of anti-inflammatory mediators and inhibit the synthesis of some inflammation mediators (Freeman, 1999).



# 5 A made-to-measure kibble

## Objective 1: Guaranteeing optimal appetite



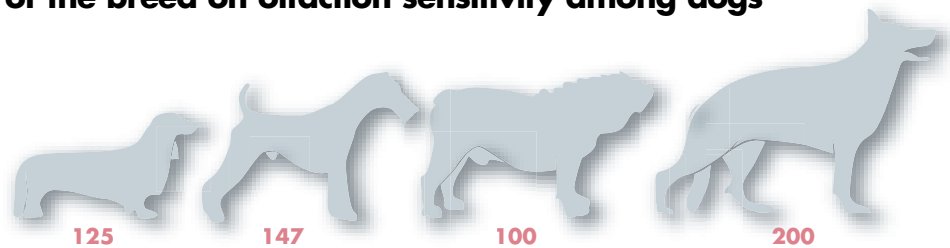
Whether it is a search & rescue dog, an explosive or drug sniffer dog, an avalanche dog or a dog that works to find people in collapsed buildings, the German Shepherd has little competition when it comes to olfaction sensitivity. Born with an exceptional olfactory acuity, this supreme tracker is able to detect up to 500,000 different odors, compared with the mere 4000 that humans can distinguish.

This faculty may be clarified by the difference in the nasal mucus surface area. It is 200 cm<sup>2</sup> in the German Shepherd with 200 million olfactory cells, while it stretches only 125 cm<sup>2</sup> in the Fox Terrier and 67 cm<sup>2</sup> in the Cocker Spaniel (Vadurel, 1997).

Its exceptional nose makes guaranteed optimal appetite of the food essential to satisfy the dog's very high demands as well as possible.

### Influence of the breed on olfaction sensitivity among dogs

Number of receptor cells (in millions) among Dachshunds, Fox Terriers, Bulldogs and German Shepherds. From Lecomte, 1979.








## ● Appetence without equal

German Shepherd 24 is formulated with premium quality ingredients and exclusive aromas, based on a secret recipe. In many trials conducted at the Royal Canin kennel, German Shepherd 24 has been tested by a wide panel of expert breeders.

More than 1100 trials have been conducted based on a sliding scale of approval and criteria perfected in association with the breeders. German Shepherd 24 attained the top mark (5/5).

### Appetence scores

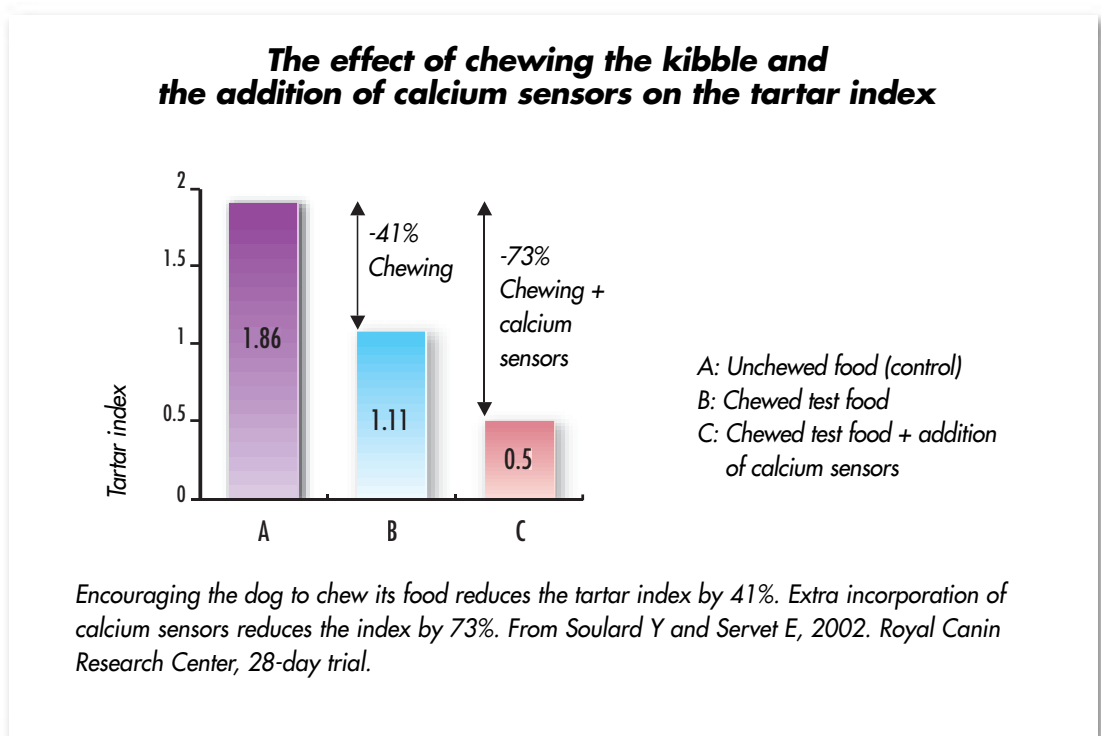
- 1  **very poor:** the dog refuses the food
- 2  **poor:** the dog circles the bowl and eats
- 3  **average:** the dog eats, but absent-mindedly
- 4  **good:** the dog eats normally
- 5  **very good:** the dog eats with gusto without turning away from its bowl

## ● Royal Canin Innovation: Nitrogen-Flushed packaging

The 5 lb bags of German Shepherd 24 are conditioned under a controlled atmosphere: a technology used widely to pack human food, which replaces oxygen with an inert gas that thoroughly combats the natural oxidation of food, thus preserving all of its organoleptic qualities and all its aromas.

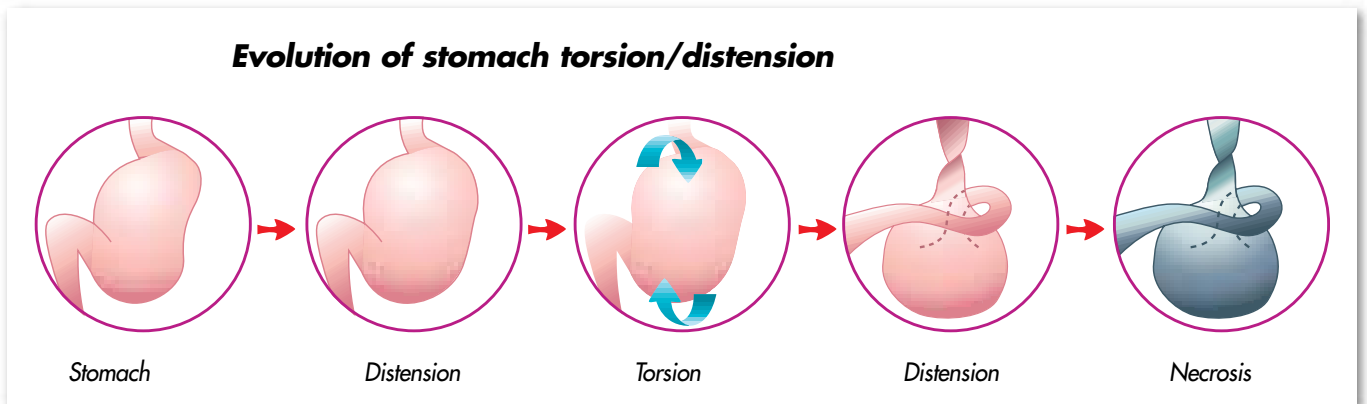
## Objective 2: Improving oral hygiene

The dog's teeth are brushed mechanically as it chews German Shepherd 24, which helps limit the accumulation of tartar. This effect is reinforced by the presence of chelating agents of calcium, sensors which render calcium unavailable for the mineralization of dental plaque and so the formation of tartar (Soulard and Servet, Royal Canin Research Center, 2002).



## **Objective 3: Helping to prevent torsion/distension of the stomach**

After a meal the stomach can achieve a volume of 1 gallon in a 33 lb. dog and up to about 2 gallons in a large dog. This predisposition to distension, associated to a relative laxity of the stomach's means of attachment to the abdomen, means that the dog is predisposed to the torsion/distension syndrome. This complaint is fatal in 30% of cases.



● **There are several factors that heighten the risk of stomach torsion/distension:**

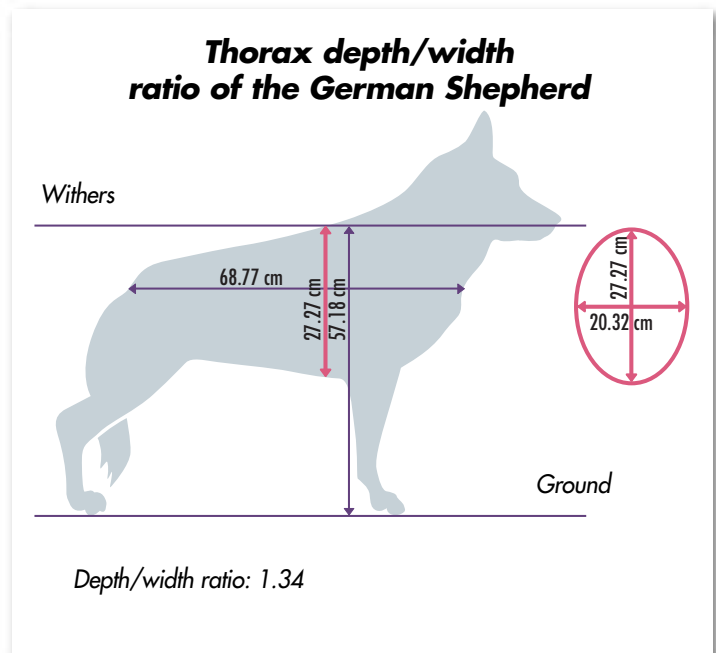
- **Size:** heightened risk in large- and giant-breed dogs (Glickman, 1994)
- **Age:** heightened risk in animals over two years old (Glickman, 1994)
- **Sex:** heightened risk in males (Glickman, 1997; Bright, 2003)
- **Quantity of food ingested:** heightened risk in the event of ingestion of a large quantity of food (Glickman, 1997)
- **Speed of ingestion:** heightened risk in the event of fast ingestion (Glickman, 1997)
- **Stress:** heightened risk in the event of stress (Glickman, 1997)

Another significant risk factor that also needs to be considered is **the breed**.

Breeds with a higher ribcage depth/width ratio, like the Great Dane or, to a lesser degree, the German Shepherd, appear to be more at risk of developing this complaint than other dogs.

Owing to its conformation the German Shepherd displays a much greater ribcage depth/width ratio than the Labrador or the Golden Retriever, which puts it at greater risk of developing stomach distension.

Measurements from 11 German Shepherds and 7 Labradors.  
From Mercier L, 2002, Royal Canin Research Center.

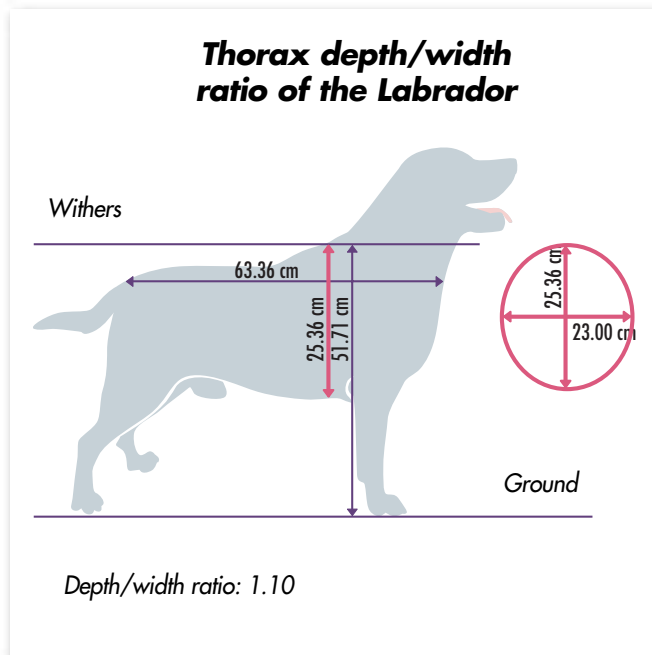


So it is essential to feed the German Shepherd very digestible food that can be ingested fast and efficiently.

The elaboration of the German Shepherd 24 kibble is the result of a great many trials at kennels.

Ten prototypes were tested. The animals' physical and physiological reactions, the time they took to eat and the effects on digestion were recorded in true-to-life conditions.

The German Shepherd 24 kibble in the shape of a cross came through the various stages of development with success. Due to its shape and dimensions it encourages the animal to chew.



# A NUTRITIONAL PROGRAM FOR EVERY

2-15  
months

## GROWTH PHASE

# MAXI puppy

Health nutrition for large-breed puppies; a perfect source of everything they need while they are growing.



# STAGE OF THE GERMAN SHEPHERD'S LIFE

from  
**15**  
months

## ADULT AND MATURE PHASE

# GERMAN SHEPHERD 24

Health nutrition exclusively formulated for the German Shepherd, taking into account its digestive sensitivity, reinforcement of natural defenses, protection of the skin and articular capital.



# ***The history of the German Shepherd...***

More than a hundred years of loyalty and passion in millions of living rooms on the five continents. A few words in summary of the passionate history of the world's most popular utility dog: the German Shepherd.

At the end of the nineteenth century, sheepdogs, in the literal sense of the word, were used to shepherd flocks in various regions of Germany. They often had different colored hair, a different appearance and coat texture, but they did have some distinctive traits in common: robustness, rusticity and intelligence, which were favored in the selection of the future German Shepherd. As in the majority of European countries that needed one or several autochthon sheepdog breeds, some German amateurs were very interested in the situation of sheepdog breeds in their countries. This was the basis on which they selected the stock of the future German Shepherd. The empirical selection of the era was essentially based on the breeding stock's working aptitude; the other traits were considered to be of secondary importance.

## **The spark called Hector**

The notion of genealogical selection did start to become accepted practice among breeders however. The first studbook saw the day in 1878, on the initiative of the Phylax Association. The aim of this association was to improve the morphological characteristics of the various shepherd dogs used in Germany. Unfortunately, this initiative broke down a few years later, as the selection criteria favored aesthetics rather than aptitude.

The torch was taken up by a military man, cavalry captain Max Emile Frederic Von Stephanitz, who launched a passionate mission, the selection of the German Shepherd dog. This man was a reputable breeder who is now considered to be the father of the breed, to which he dedicated 35 years of his life. He surrounded himself with such pioneers as Arthur Meyer, Otto Weber and Arnold Männer.

On a visit to a dog show in April 1899, he fell in love with a sheepdog that would inaugurate the German Shepherd studbook. The dog was called Hector Von Linksrheim and according to Stephanitz it displayed all the qualities he was looking for.

A little while after the show he bought the dog, renaming it Horand Von Grafrath (this affix was the name of Stephanitz's kennel) and on April 22, 1899 he formed Verein für Deutsche Schäferhunde, the German Shepherd breeder's association better known by its initials, SV. The club quickly became the most powerful breeders association not only in Germany, but also the world.



1899:  
*Hector Von Linksrheim  
renamed Horand  
Von Grafrath.*

## Heading for utility

The definition of a German Shepherd dog in this era was clear. The German Shepherd is every sheepdog in Germany that, thanks to a constant exercise of its sheepdog qualities, achieves perfection in its body and its psyche, as part of its utilitarian function.

100 years later, in Germany alone, more than two million German Shepherds are duly recorded in the SV's studbook.



While the function and the premier vocation of the German Shepherd were guarding and shepherding the flocks, the reduction in the sheep population provoked the leading German breeders to find new openings for their sheepdogs. The potential was already present in the breed's principal stock, because from 1901 participation in police competitions permitted the development of these dogs' utilitarian potential. They rapidly established themselves in the various state services, including the army, the police and the fire service and built a reputation as the utilitarian breed.

Nowadays, the German Shepherd is the most prevalent breed in numerous countries, thanks in part to the selection realized by the pioneers of German breeding, who understood from the start that the future of the shepherd breed hung on the diversification of its utility. Nor should it be forgotten that a morphological and psychological evolution allowed these German Shepherds, which live on all five continents, to confer their "joie de vivre" on millions of homes each and every day.

## *From the tips of its toes ...*

**First accepted in 1899, the official German Shepherd standard has just turned a hundred, with a few modifications down the years.**

**General aspect:** The German Shepherd is a medium sized dog, with an ideal height to the withers of 62.5 cm for males and 57.5 cm for bitches. It is slightly longer than it is high, energetic and muscular, with a lean bone structure and a solid frame. True to the standard, it conveys a sense of strength, intelligence and litheness. Its proportions are in perfect harmony and its movements and comportment naturally call to mind the adage: healthy body, a healthy mind. It combines physical and mental qualities that make it a tough working dog that is always ready for action.

On the whole, it radiates a harmonious sense of nobility and self-confidence that commands respect.

**Head:** Well dimensioned in proportion to the body, without being too coarse, too slight or too long; not too wide between the ears, well chiselled as a whole.

**Ears:** Average size, wide at the base, high on the head, raised symmetrically without merging, pointed, with the pavilion turned towards the front.

**Eyes:** Average size, almond shaped, slightly slanted but never bulging; color matching the coat, as dark as possible; intelligent expression, full of life and self-confidence.

**Body:** Must be longer than the height to the withers, corresponding to around 100-117% of the latter. The chest is deep (around 45-48% of the height to the withers) but not too wide; the lower part of the body is as well defined as possible. The ribs are well conformed, long, neither barrel-chested nor too flat, connecting to a sternum located at the level of the elbows. The thorax stretches so far to the rear that the small of the back is short in proportion. The underbelly is moderately elevated.

The back is straight and strongly developed. The distance between the withers on the croup is not great.



## ... to the tip of its nose

The withers must be long and fairly high, markedly higher than the back it connects to without a break in a gentle line descending towards the rear. The small of the back is wide, strong and muscular. The croup is long and slightly sloping (around 23°). Winged hips and sacrum constitute its bony base. A very angled or straight croup is undesirable.

### **Psyche, character and disposition:**

Firm nerves, attention, candor, obedience, vigilance, loyalty, incorruptibility, courage, combativeness and an even temperament are the purebred German Shepherd dominant attributes. That makes it an immensely good working dog in the general sense of the term, and a particularly good guard, defense and protection dog.

**Coat:** Four colors: the first is black with regular intense light markings, yellow to light grey, black limited to a single one; the second is grey or light fawn-colored charcoal (shaded) with clearer corresponding marking (light); the third is self-colored black; the fourth is self-colored grey or grey with or without light markings or more or less intense fawn-color. Small spots on the chest or a very clear color on the inside of the paws are tolerated. Dogs without mask or with a reduced mask, with yellow or penetrating

clear eyes, clear markings on the chest and the inside of the paws are considered to have weak pigmentation. With the exception of the black ones, the undercoat is always light grey. The final color cannot be defined until after the first moulting.

**Tail:** With dense hair, it descends at least to the key joint, not overshooting the metatarsus. When the dog is calm it hangs to describe a gentle curve; if it is excited or in motion, it curves more, but without extending beyond the horizontal. Tails cut short artificially are not accepted.

**Hair:** the covering hair is as thick and dense as possible, composed of straight, rigid hairs tightly layered on the body. The hair is short on the head, including the inside of the ear pavilions, on the outside of the paws and the digits; it is longer and rougher on the neck. On the back of the paws, it extends to the wrist or the back of the knee on the insides and back. The length of the hair varies by subject. Hair that is too short, like the hair of a mole is a fault.

**Group:** I (FCI), Shepherd dogs (KC, CKC, AKC)

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# Scientific glossary

- Omega 3 fatty acid:** Fatty acid possessing an anti-inflammatory capacity widely used in dermatology. It assures the maintenance of healthy skin and a brilliant coat.
- Omega 6 fatty acid:** Unsaturated fatty acid that impacts the quality of the coat and the health of the skin. The best known are linoleic acid and  $\gamma$ -linolenic acid.
- Antioxidant:** Substance protecting the body's cells from harmful impact of free radicals.
- Appetence:** Capacity of a food to be consumed spontaneously and with relish.
- Osteoarthritis:** Degenerative disease of the joints.
- Chondroitin and Glucosamine:** Substances that are naturally present in articulate cartilage that act to prevent osteoarthritis.
- Digestibility:** Capacity of a food to be digested and assimilated into the digestive tract.
- EPA/DHA:** Unsaturated fatty acids of the omega 3 family that reduce the inflammatory response. Used to treat chronic inflammatory diseases, they are found in fish oil.
- Beneficial flora:** Flora present in the intestine that plays a role in the digestion of food and in the maintenance of intestinal mucus.
- Protein isolate hydrolysate:** Small protein fragments of very high organic value and very high digestibility (96%).
- Immunity (or immune system):** A body's defense structure against foreign substances.
- Immunoglobuline A (IgA):** Antibodies specialized in the defense of mucus and of the skin against infectious agents.
- Lutein:** Natural antioxidant that acts in synergy with other nutrients like vitamins C and E to combat oxidative injuries.
- MOS, mannan-oligosaccharides:** Food fibers that have a beneficial effect on intestinal flora and a stimulating effect on intestinal immunity.
- Nutrient:** Food substance that can be assimilated by the body.
- pH (power of hydrogen):** Measure of the acidity ( $0 < \text{pH} < 7$ ) or alkalinity ( $7 < \text{pH} < 14$ ) of a medium (the skin, say). A medium is said to be neutral when its pH is equal to 7.
- Pyoderma:** Inflammation of the skin caused by bacteria.
- Free radicals:** Molecules responsible for oxidization.
- Selenium:** Trace element that acts in synergy with vitamin E on cellular exchanges and combats oxidative stress.
- Torsion/Distension syndrome:** A veterinary emergency characterized by an accumulation of liquid, food and gas in the stomach. This accumulation displaces the stomach, which turns then twists.
- Synergy:** Action of various nutrients whose association has an effect greater than the sum of their individual efforts.
- Taurine:** Sulphur amino acid, a major constituent of muscle and immune cells. It also possesses an antioxidant capability.
- Vitamin A:** Vitamin that promotes growth and healthy skin and stimulates the immune system.
- Vitamin C:** Vitamin that acts in synergy with vitamin E to limit cell oxidation phenomena.
- Vitamin E:** Antioxidant vitamin used by the body to trap free radicals and limit cell oxidation phenomena.
- Zinc:** Trace element contributing to the regeneration of the skin.

# Royal Canin's history of innovation

**A commitment of 30 years to better understand and respect the needs of small, medium, large and giant breed dogs.**

## **1980**

Launch of AGR, the first food for large breed puppies and the first range dedicated to breeders.

## **1990**

Launch of the first nutritional dog food RCCI sold in the speciality trade – PR 27 – special small breeds.

## **1997**

Launch of RCCI SIZE, the first nutritional program for dogs according to age, activity and size differences.

## **1999**

Launch of the first weaning dog food STARTER, for breeders.

## **1999**

Launch of VETSIZE, the first nutritional program for small, medium and large breed dogs, dedicated to the veterinary channel.

## **2000**

Launch of SIZE NUTRITION, three nutritional programs adapted to the specific needs and characteristics of small, medium and large breed dogs.

## **2001**

Launch of GIANT, the first nutritional program for giant breed dogs (over 100 lbs.).

## **2002**

Launch of the first immunity program for medium size dogs (MEDIUM IMMUNITY PROGRAM), which helps strengthen the dog's natural defenses at each stage of its life.

## **2003**

A passion for the Yorkshire Terrier and nutritional precision, through the introduction of Yorkshire 28™.

## **2004**

Since 1980 Royal Canin has earned a reputation as world expert in Knowledge of Nutrition for large breed dogs. Based on the same logic of listening to and acting on comments made by the grass roots, especially breeders, Royal Canin innovates by perfecting its health nutrition for dogs with remarkable characteristics:

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