

Intelligent Nutrition for the Purebred Dog™



Meet the Needs of Your Breed
The Golden Retriever



INTRODUCTION

Table of Contents

The history of Golden Retrievers	4
1 - Key points for Golden Retrievers	6
A highly sensitive skin	6
A clear tendency to put on weight	8
Dilated cardiomyopathy, an important risk to recognize	11
The Golden Retriever's life expectancy	13
2 - Tailor-made nutrition for Golden Retrievers	15
Limiting the risk of skin irritations	15
Preventing weight gain	17
Helping maintain good heart tonicity	20
Antioxidants to protect the cells	22
A nutritional program for every stage of the Golden Retriever's life	24
Golden Retriever from the tips of their toes to the tip of their noses	26
References	28
Glossary	30
A history of innovation at Royal Canin	31

Nutritional science working for the health and beauty of Golden Retrievers



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The Golden Retriever is often incorrectly considered to be just a longhaired version of the Labrador, but these are two completely separate breeds with entirely different geographical origins. The Golden Retriever comes from Scotland, which is over two thousand miles away from Newfoundland, the home of the Labrador.

Physiologically, the Golden Retriever's fat mass is less well developed than the Labrador's. However, helping the Golden Retriever stay in shape is very important, so as not to overburden its sensitive joints. Both breeds are happy enough in the water, but it's important to note that the Golden Retriever's coat is more permeable than the Labrador's. The Golden's hair feels soft and silky, unlike the Labrador's dense, short coat, which feels rough to the touch. The long feathered coat of the Golden Retriever demands a lot more care and his skin is much more sensitive than the Labrador's. An apparently insignificant wound can quickly degenerate into a spectacular and invasive lesion owing to the Golden's fragile skin and coat.

In formulating a special food for Golden Retrievers, Royal Canin has given due consideration to the breed's metabolic particularities and the specific risks he has to cope with in the course of his life.

While the Golden shares the Labrador's propensity for putting on extra pounds, he is rarely affected by diabetes. As a consequence, the energy sources for **Golden Retriever 25™*** have been specially selected with the breed's metabolism in mind. Susceptibility to dilated cardiomyopathy and cancer – which it is well known for – also deserves a tailored nutritional response. **Golden Retriever 25™** is very rich in taurine and L-carnitine to support the heart, while a complex of antioxidants includes lycopene from tomatoes, which stimulates the cells to react to attacks by free radicals. Lastly, a food rich in polyunsaturated fatty acids can help improve the body's response to skin irritations and alleviate inflammation.



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Royal Canin first launched the Breed program for pedigree dogs in 2002, but we have given ourselves five full years to formulate a tailor made food for Golden Retrievers. We prefer to wait until we have as much knowledge as possible about a breed before we go to market. **Golden Retriever 25™** draws on all the know-how available on the breed, ensuring that we are able to offer people like you, who love the Golden Retriever, an optimal nutritional solution tailored to the requirements of our favorite breed.

In closing, a big thank you to all the breeders and enthusiasts, without whom Golden Retriever 25™ would not have come to fruition.

Pascal Jouannet
President
Royal Canin Group

The history of Golden Retrievers

The Golden Retriever, a remarkable breed with a history to match

The legend of Russian dogs

Legend has it that in 1858 the Scottish aristocrat Lord Dudley Marjoribanks (also known as Lord Tweedmouth) was impressed by a training routine performed by six dogs at traveling Russian circus that pitched its tents in Brighton on the south coast of England. The story goes that the dogs were very large and had a dense, wavy coat whose color was somewhere between crème and bisque. Lord Tweedmouth was an enthusiastic huntsman and zoologist who had a highland estate at Guisachan in Scotland, where he hunted with his dogs. He bought the Russian dogs to cross them with his own.

So are all Golden Retrievers descendants of these crossings? In support of this hypothesis, Colonel Le Poer Trench, an admirer of the breed from the very beginning, showed his dogs until 1914 under the names Yellow and Russian Retrievers and Trackers.



1952: trickery unveiled

Lord Tweedmouth's records, published by his grandson, revealed that he had actually bought a yellow puppy from a litter of wavy-coated black retrievers from a Brighton shoemaker in 1865. Lord Chichester's gamekeeper had given the puppy, which was named Nous, to the shoemaker. Nous was taken to Guisachan, where it joined a pack of gundogs.

Lord Tweedmouth's breeding records

The Tweed Water Spaniel was a now extinct Scottish breed. They were large spaniels with chestnut-brown coats that were prized as good swimmers. The coupling produced four yellow puppies, which were later crossed with various water dogs, other retrievers and no doubt Irish Setters, too. This quarter-century of dedication to selecting the breed has assured Lord Tweedmouth's place as one of the fathers of the breed, because all modern Golden Retrievers are descendants of Nous and Belle.

After Lord Tweedmouth's death in 1894, the trail of the breed's selection is much harder to follow. His son emigrated to Canada and he took his dog with him.

Official recognition of the Golden Retriever in Britain in 1911

Golden Retrievers were first registered with the Kennel Club in Britain in 1903 as Flat-Coated Retrievers. In shows they were grouped with other retrievers in the "other colors" class. The breed's distinctive golden coat and retrieving qualities caught the attention of a wider public at the world-famous Cruft's dog show in 1909 and the breed was officially recognized by the Kennel Club in 1911.



The Golden Retriever name was officially adopted in 1920

The population grows and travels

The Golden Retriever's popularity grew steadily in Britain and elsewhere between the wars. Many dogs were exported to Canada, the United States, South America, India, Kenya, France, Belgium and the Netherlands. The breed was officially recognized by the *American Kennel Club* in the 1920s. Comte Jean de Bonvouloir, a retriever fanatic, introduced the breed to France in 1925.

Breeders, however, didn't really adopt the Golden Retriever until after World War II. By the 1980s it was one of the leading breeds and the number of births exploded. It is still used as a gundog, but today's Golden Retriever is one of the western world's favorite companion dogs, as well as a highly prized assistance and rescue dog.

1 KEY POINTS FOR GOLDEN RETRIEVERS

The points given here are based on numerous scientific studies, especially those of the Golden Retriever Club of America, which published a survey on the breed's health in the United States. Completed in 1999, the survey collected data from 1,444 Golden Retrievers. The results were collated by the School of Veterinary Medicine at Purdue University, IN (Glickman et al).

The Golden Retriever's coat is relatively water-tight, although it does **retain slightly more water after immersion than the Labrador**. The Golden retains 12.5% of its metabolic weight, compared with the Labrador's 8.8%. (*Royal Canin data 2003*).



© C. Renner

Licking and scratching may cause the coat to change color (here on the elbow)

A highly sensitive skin

Skin disorders are the most common problem affecting Golden Retrievers (*Glickman et al, 1999*). They are generally benign, although some of them can affect the dog's well being if they are not responded to quickly.

The skin problems that may concern owners can be caused by a wide array of diseases. The most common are (in descending order of importance):

- Acute skin infections
- Skin cysts
- Brittle, dry skin
- Excessive sebum secretion (seborrhea)
- Hair color abnormalities
- Mucosa pigment-related problems (e.g. nose)
- Lesions caused by licking



© C. Renner

The skin of a Golden Retriever is exceptionally sensitive

Hotspots and Golden Retrievers

More than 50% of all dermatological information with respect to Golden Retrievers is related to hotspots. These “hotspots” are characterized by an acute inflammation, often initiated by licking or scratching, which develops on the surface of the skin, providing a breeding ground for local bacteria. If the dog continues to scratch or lick itself the lesion will be aggravated very quickly.

A Swedish study shows that the Golden Retriever is the fifth most common breed at risk of developing hotspots (*Holm et al, 2004*). One Golden in three suffers from a hotspot at least once in his lifetime (*Glickman et al, 1999*). Male dogs aged at least four years are more affected, and it is not rare for lesions to reappear on the same part of the body from one year to the next.

This type of infection is due to the exceptional sensitivity of the Golden Retriever’s skin. A minor lesion on the skin can be transformed into an infected lesion overnight. The breed is well known for its tendency to compulsively lick the slightest irritation.

Factors favoring skin irritations

A hotspot develops more easily in warm conditions, like those generated by the Golden Retriever’s dense hair and wiry undercoat, which impedes ventilation. This type of coat also tends to generate a humidity that bacterial infections thrive in.

There is an association between the presence of fleabite allergies and the development of hotspots: 67% of Golden Retrievers allergic to fleabites develop this type of lesion.



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Complete and regular care of the coat (brushing and bathing), together with a parasite control treatment, is needed to limit the risk of skin irritation.

Frequency of hotspots by weight of Golden Retriever bitches (n = 193; 1 kg = ±2.2 lbs)

(From Glickman et al, 1999)

Weight category (kg)	Incidence of hotspots (% individuals examined in weight category)	
22-27.5	70	(20.1)
28-31.5	65	(23.7)
32-34.5	36	(31.0)
35 and above	22	(37.3)

The risk of hotspots increases when the dog is overweight. Remember that the average healthy weight of a female Golden Retriever is 55-59.5 lbs (±25-27 kg).

A clear tendency to put on weight

Contrary to a widely believed myth, Golden Retrievers are just as likely to put on weight as Labradors. Although they have a little more lean mass (72.3% versus 65.8% in the Labrador, internal Royal Canin data), owners need to take care that the dogs do not put on excess weight.

Prevalence of weight excess in the Golden Retriever

A U.S. survey in 2006 shows that the prevalence of obesity in the Golden Retriever is at least 30% (Lund *et al*, 2006). The study was conducted among more than 21,000 dogs of all breeds visiting a veterinarian. This risk of obesity is 60% higher than the rest of the canine population. Prevalence falls to 11% among adult Golden Retrievers that participate in shows (Glickman *et al*, 1999), without doubt because their owners take great care when it comes to how their dog looks.



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Regular physical exercise is an effective means of preventing excessive weight gain in Golden Retrievers.

Favorable factors

Dogs are at highest risk between the ages of 6 and 10 years. Neutered subjects are most at risk, which is very important to remember, as the Golden Retriever Club of America's figures state that 84% of females and 57% of males are neutered.

While excessive weight gain most often follows overconsumption, it needs to be remembered that the Golden Retriever is one of the breeds that commonly present with hypothyroidism (around 8% of individuals versus less than 3% of Labradors), which is known to be favorable to weight gain.

If there is a suspicion, contact your veterinarian to ensure you get the right diagnosis and the right treatment is prescribed.

Excessive weight overburdens the joints

The skin, coat and cardiorespiratory system suffer many of the consequences of excessive weight gain, but the skeletal system is subjected to the most direct impacts.

Prevalence of dysplasia among Golden Retrievers

Golden Retrievers are robust animals but the elbow and hip joints may sometimes show signs of dysplasia*. Elbow dysplasia is sometimes detected when hyperextension of the elbow is painful, while hip dysplasia is characterized by an abnormal “rolling” gait as viewed from the rear, the refusal to trot or jump, or pain when flexing the limbs.

It is important to screen dogs for dysplasia as early as possible, because 40-50% of dogs suffering from hip dysplasia show no clinical signs. Feeding an age and size appropriate diet from an early age, along with appropriate physical exercise, helps maintain a healthy weight and healthy joints. At a more general level, genetic selection is the starting point in the fight against this hereditary disease.

Around 11.5% of Golden Retriever elbow radiographs analyzed by the US Orthopedic Foundation for Animals (OFA) in 2006 showed signs of dysplasia. This is similar to the Labrador. A Golden Retriever is much more likely to suffer from hip dysplasia compared to a Labrador (20% versus 12%). These numbers may even be underestimated as OFA's data is mined only from radiographs photos released by veterinarians on the request of owners (*Paster et al, 2005*).



Radiograph of coxofemoral dysplasia screening of a three-month-old puppy.

*see glossary pg. 30



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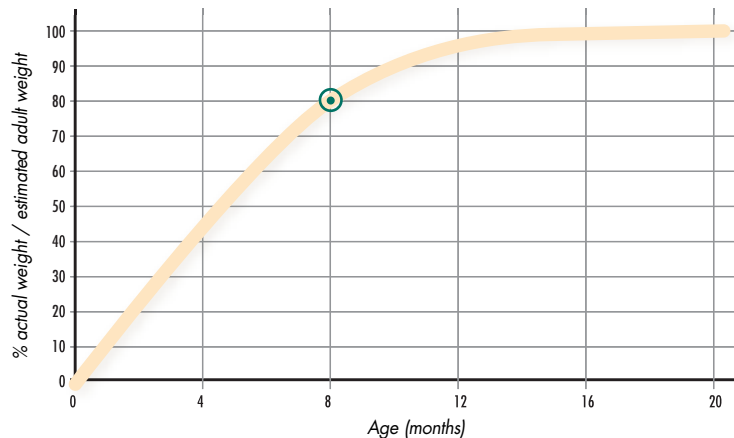
Many things happening during growth

There are signs of hip dysplasia in 31% of adult Golden Retrievers that were overweight during the growth phase, compared with just 17% whose weight was normal when they were puppies (Glickman et al, 1999).

What goes for hip dysplasia goes for all problems of the skeletal system: 57% of overweight puppies develop osteoarticular troubles later in life, versus 33% of puppies whose weight is normal (Glickman et al, 1999).

Theoretical growth curve expressed as a percentage of adult weight

(Source: Royal Canin)



A large breed dog is 80% of its adult weight by the age of around eight months. Controlling the puppy's rate of growth is key to the health and life expectancy of the adult dog.

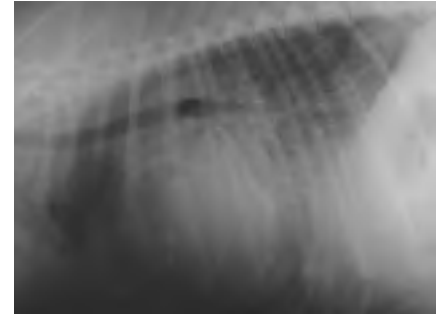
Dilated cardiomyopathy, an important risk to recognize

Around 15% of Golden Retrievers are likely to contract heart disease in the course of their life, which equals about one dog in every seven (*Glickman et al, 1999*). Potential heart problems are subaortic stenosis, sclerosis of the mitral or tricuspid valves, bacterial endocarditis and dilated cardiomyopathy (DCM). DCM is a complaint leading to the thinning of the heart muscle wall and dilatation of the cavities (atria and ventricles). While several different pathological factors can promote the development of DCM, the precise origin typically remains obscure.

Incidence of dilated cardiomyopathy in Golden Retrievers

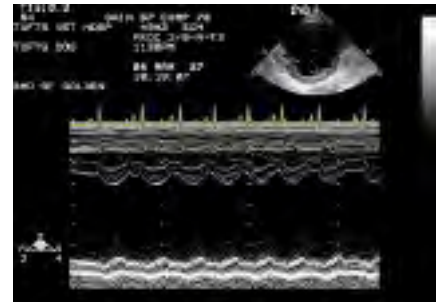
DCM affects around 2.1% of Golden Retrievers, or one dog in 50 (*Glickman et al, 1999*). The disease is diagnosed around the age of 9.3 years on average, when the first clinical signs of heart failure appear. 80% of dogs are diagnosed between 8 and 13 years of age (*Glickman et al, 1999*). Heart disease is responsible for 5-8% of registered Golden Retriever deaths (*Egenvall et al, 2006*).

The recently developed Doppler ultrasound technique shows a lot more promise than competing techniques when it comes to detecting DCM before any lesions appear. It has been successfully tested on Golden Retrievers (*Chetboul et al, 2004*). Early diagnosis is beneficial to prevent affected dogs from being used for reproduction before signs of the disease become visible. Genetic factors are certainly implicated in the Golden Retriever's predisposition to DCM.



© John Rush/Tufts University

Dilated cardiomyopathy leads to an increase in the size of the heart that can be clearly seen on a radiograph. This Golden Retriever's taurine level was abnormally low. Seventeen months later, taurine supplementation had reduced the size of the heart and eradicated signs of heart failure.



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An ultrasound can help diagnose dilated cardiomyopathy earlier by providing data on the size of the heart cavities and the thickness of the myocardial wall.



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Inadequate taurine production is suspected in some Golden Retrievers.

Potential link between dilated cardiomyopathy and taurine deficiency

The link between taurine* deficiency and feline DCM described at the end of the 1980s (*Pion et al, 1987*) provoked research into taurine's role in the canine variant of DCM. Taurine is an amino acid normally synthesized by the dog, but the taurine concentration in the blood is often low in the event of DCM. Taurine production may thus be insufficient in some breeds, such as the Golden Retriever. Taurine's essential role in heart contractility was recently proven. Taurine regulates the heartbeat and protects the heart muscle's cells (*Satoh and Sperakis, 1998*).

A simple blood sample will determine whether a dog is suffering from taurine deficiency, as the amino acid is present in blood cells. Whole blood should be used, not plasma, as the plasma taurine concentration does not satisfactorily reflect muscle and heart reserves. A blood taurine concentration below 200 nmol/mL is qualified as low, while a concentration below 130 nmol/mL is considered very low.

This deficiency cannot inevitably be traced back to insufficient intake: a retrospective study shows that average dietary consumption of taurine is not significantly different between dogs with and without a taurine deficiency (*Freeman et al, 2001*). It may develop as a consequence of increased requirements or specific metabolic abnormalities. However, cardiomyopathy caused by taurine deficiency may be reversible in Golden Retrievers (*Bélanger et al, 2005*).

*see glossary pg. 28

The Golden Retriever's life expectancy

A British study estimates the Golden Retriever's life expectancy at around 12 years (*Michell, 1999*). The Golden Retriever Club of America comes to similar conclusions: 10.7 years for males and 11.3 years for females. Larger females tend to die 1.1 years earlier than small females. That gap is 2.2 years among males (*Glickman et al, 1999*).

Causes of mortality

According to Golden Retriever owners, the leading threat to the health of their dog is a tumor, followed by hip dysplasia and heart disease (*Glickman et al, 1999*). While half of all registered Golden Retriever deaths are caused by a tumor, the next biggest killer is kidney disease (*Craig, 2001*).



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The Golden Retriever's life expectancy is around 12 years.

The risk of tumors is much higher among Golden Retrievers than other large dogs like Labradors or German Shepherds, although these two breeds' life expectancy is not significantly higher. There are different types of cancer but half of them affect blood cells (hemangiosarcoma), lymphatic system (lymphosarcoma), skin (carcinoma) or connective tissues (sarcoma). Studies have been undertaken on Golden Retrievers to identify predisposing factors that could explain this particular sensitivity.

Progressive alteration of vision

As the dog ages, his eye becomes an iridescent blue as the crystalline lens becomes gradually opaque. Cataracts – there are different types – affect around 7% of the Golden Retriever population and hereditary origins are identified in 60% of cases (*Curtis and Barnett, 1989*). While the disease generally affects the dog's vision only in advanced age, there are cases in which it develops much earlier and will be detectable from the age of one year.

Golden Retrievers sometimes suffer from other complaints affecting various parts of the eye: cornea, retina, uveal tract, crystalline lens and even the pupils. One thing is certain: Golden Retrievers have sensitive eyes that deserve special care. It is important to screen for any eye disorders before using the dog for reproduction. Some eye complaints are genetic, so it is desirable to eliminate these individuals from reproduction (*Crispin et al, 1995*).



© C. Renner

Golden Retrievers have sensitive eyes.

2 TAILOR-MADE NUTRITION FOR GOLDEN RETRIEVERS

Limiting the risk of skin irritations

Nutrition has a major role to play in a dog whose coat is widely admired but whose skin is well known for its sensitivity. It obviously helps maintain the coat's natural qualities, it can help improve the skin's defenses against exterior attack and it helps stop inflammatory reactions.

Objective #1: Ensuring an adequate intake of essential fatty acids

Limiting the fat content of a food must not result in the dog being deprived of essential fatty acids, i.e. those the body cannot produce itself. These essential fatty acids work in two ways. They rebalance the composition of the lipid film to limit skin dehydration (*Fray et al, 2004*) and they slow the synthesis of inflammatory lipid mediators.

The luster of the coat is related to the presence of sebum, which helps prevent tangling. Sebum quantity and composition are influenced by diet (*Dunstan et al, 2000*), especially the presence of polyunsaturated fatty acids. The balance of polyunsaturated fatty acids is achieved by the combination of animal fat, fish oils and vegetable oils (essential and soy).

The inclusion in the food of essential oil produces interesting results in the event of allergic reactions and excessive sebum production by the skin (*Quoc and Pascaud, 1996*). This is the only oil to contain more than 20% gamma linolenic acid (GLA), a fatty acid that orients the metabolism of fatty acids to the synthesis of hormones with well-documented anti-inflammatory effects. Essential oil is even more effective when used in association with fish oil (*Sture and Lloyd, 1995*).



Essential Oils help produce a shiny coat.

The anti-inflammatory properties of long-chain omega 3 fatty acids provided in fish oil (**EPA and DHA**)* are widely used in human and veterinary dermatology. EPA and DHA inhibit the synthesis of arachidonic acid and its derivatives, which are responsible for inflammatory reactions.

Bearing in mind the sensitivity to oxidation of sources of polyunsaturated fatty acids, their resistance to oxidation must be closely monitored and quantities of **vitamin E** should be increased in the food.

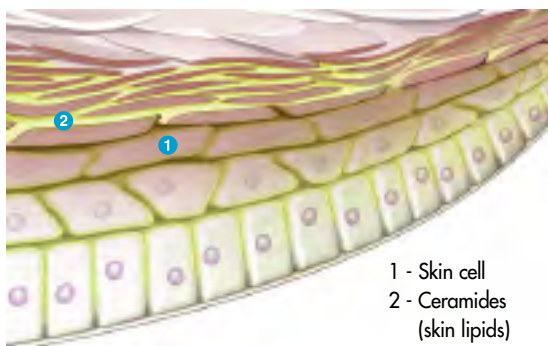
Objective #2: Strengthen the effectiveness of the skin barrier

Guaranteeing optimal vitamin intake to meet the large requirements of the skin and coat.

Biotin is indispensable to the integrity of the skin. A deficiency can result in more or severe hair loss.

Vitamin A helps combat seborrhea and dandruff that often appear after intense scratching. It works in synergy with zinc and sulfur containing amino acids. **Golden Retriever 25™** provides high levels of vitamin A, much more than most maintenance foods for adult dogs.

Structure of an intercellular junction



Like mortar holding together bricks, ceramides ensure the cohesion of the skin cells. Nutrition has an impact on their production.

Improving skin defenses

Twenty-seven substances likely to have a beneficial effect on the skin barrier function were closely studied at the Waltham Research Centre. Selection criteria were based on the need to limit water loss by the epidermis and the synthesis of skin lipids.

Four group B vitamins (**niacin, pantothenic acid, choline and inositol**) and one amino acid (**histidine**) were selected (Watson et al, 2006). The beneficial effect of this complex appears after around two months, due to the time needed for the skin cells to differentiate.

**see glossary pg. 30*

Preventing weight gain

A food with moderate fat and energy contents

Food provides three sources of energy: fat (lipids), carbohydrate (e.g. cereal starch) and protein. Excessive weight gain is favored by the overconsumption of high-fat diets because, at equal weight, fat provides 2.25 times more energy than carbohydrate or protein: 2% less fat equals 100 kcal less per kg of food.

If the fat content is lowered, sources of carbohydrates or proteins must replace them. Slightly increasing the share of carbohydrates is beneficial to Goldens, because contrary to Labradors, they do not often suffer from diabetes (Hess et al, 2000). The share of carbohydrate-based calories in **Golden Retriever 25™** is no more than 50%, so the dog adjusts his insulin secretion level to the composition of the diet. Protein intake is optimal to meet requirements and is highly digestible to limit the risk of soft and odorous feces.



Low kibble density to ensure sufficient volume of the serving

While restricting fat content is vital to reducing the calories consumed, it is equally important to measure the daily ration and adapt it as the dog's weight develops. The recommended rations for **Golden Retriever 25™** take account of the dog's activity and the breed's natural predisposition to chubbiness.

It is important to ensure the dog is satiated even while regulating his food intake. This is the thinking behind **Golden Retriever 25™**'s low-density kibbles. It means that, at equal weight, the volume of a ration is much higher than that of a standard food for large dogs.

Recommended ration for a 66 lb Golden Retriever (one hour's of activity per day)



Vegetable fiber to promote satiety

Golden Retriever 25™ is rich in vegetable fiber to limit energy concentration and facilitate good intestinal transit. The sources used include psyllium* seed. The fiber in psyllium – mucilage – helps trap water, forming a gel in the stomach. The envelope of psyllium seeds contains 25-30% mucilage. Psyllium seeds have also been used for their appetite suppressing qualities.

Incorporation of L-carnitine to mobilize fat

Golden Retriever 25™ has a high L-carnitine* content to support heart function (see next section). L-carnitine is also useful in the fight against stoutness. It stimulates transport and utilization of fatty acids, helping limit the quantity of triglycerides and cholesterol in the liver and blood. Several trials among various species, including the dog, show the beneficial effect of L-carnitine supplementation *to limit the storage of fatty acids* (Carroll et al, 2001).

Protecting articular cartilage from wear

Besides the measures taken to maintain the dog's healthy weight, **Golden Retriever 25™** contains a high quantity of chondroitin sulfate* and glucosamine*, natural substances that protect articular cartilage and curb the development of arthritis (Johnston et al, 2001).

- **Chondroitin sulfate** is a component of cartilage and synovial fluid that helps lubricate the joint. It has very good water absorption qualities, facilitating good hydration of cartilage, which in turn helps cartilage perform its role as a shock absorber.
- **Glucosamine** stimulates the regeneration of cartilage, above all by promoting the production of collagen.



© Diffomédia/Elise Langellier & Valérie de Leval

To stimulate a feeling of satiety, **Golden Retriever 25™** incorporates whole cereals, oats, and rice that are digested slowly.

* see glossary p. 30

Helping maintain good heart tonicity

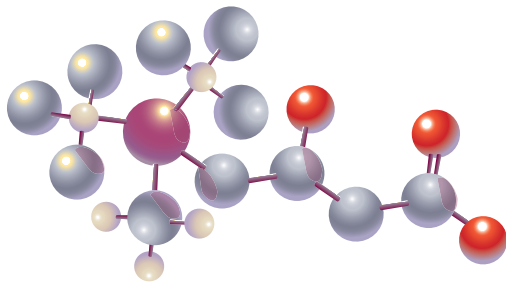
Preventing any taurine deficiency

Taurine is an amino acid essential to the proper functioning of the heart. Several publications have shown the benefit of a taurine supplement when a dog does not synthesize enough or fails to use it properly (Alroy et al, 2000; Sanderson et al, 2001, Fascetti et al, 2003).

Good results have been reported among Golden Retrievers in particular. Five DCM patients from the same family all presented with a heart murmur. Three or six months after taurine supplementation was initiated, DCM ultrasound parameters improved significantly and it was possible to take four dogs off all treatment except taurine supplementation (Bélanger et al, 2005). In addition to the positive effects on heart contractility, taurine also works as an antioxidant.

Golden Retriever 25™ contains a high level of supplemental taurine. It is more convenient to use a taurine-rich complete food than to have to give supplements that can be very expensive and that are rarely given regularly.

Carnitine molecule



In dogs, L-carnitine is synthesized in the liver and kidneys from two amino acids, lysine and methionine, but production can sometimes be inadequate.

L-carnitine to help the heart find the energy it needs

L-carnitine is a substance synthesized by the body whose main role is to facilitate the transport of fatty acids into the mitochondria* to enable the production of energy in the cells. It is present in a high concentration in the heart muscle.

An L-carnitine deficiency is sometimes observed in dogs with DCM. It is known that the concentration in the heart muscle (myocardium) of L-carnitine falls in dogs after the appearance of clinical signs of heart failure (Pierpont et al, 1993).

Supplementation of L-carnitine can produce positive effects between one and three weeks. Several months of treatment are necessary to produce an improvement discernable by ultrasound.

*see glossary pg. 30

A study among humans shows a three-year improvement in survival in DCM patients that receive L-carnitine on a daily basis (Rizos, 2000). With a high level of L-carnitine, **Golden Retriever 25™** provides optimal intake of L-carnitine to improve heart function.

Combating oxidative stress

An imbalance between the production of free radicals* and antioxidants has been implicated in the development of DCM. As the disease advances, the dogs produce more free radicals and have a lower level of vitamin E, one of the body's main antioxidants (Freeman et al, 1999). Oxidative stress* thus plays a role in DCM.

Golden Retriever 25™ is rich in vitamin E and contains a complex of antioxidants that includes green tea **polyphenols***, which have high flavonoid contents. There is in fact an inverse relationship between the quantity of flavonoids in the food and the prevalence of heart disease (Urquiaga and Leighton, 2000).

Preventing EPA and DHA deficiency

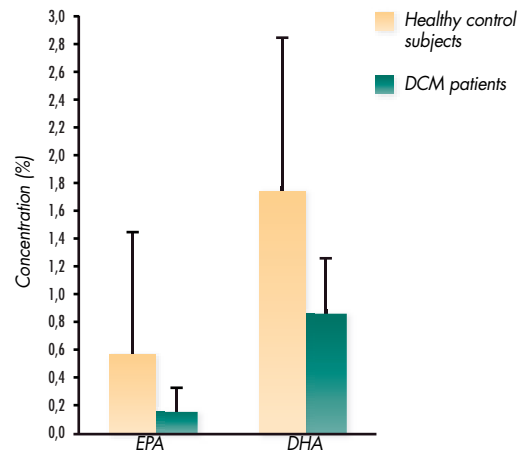
Cardiac dogs have altered plasma fatty acid profiles, which suggests that some heart complaints increase the use of omega 3 fatty acids (Freeman et al, 1998; Rush et al, 2000). Accordingly, supplementation is recommended for Golden Retrievers.

Golden Retriever 25™ is highly supplemented with EPA and DHA from anchovy oil.

*see glossary pg. 30

Comparison of plasma EPA and DHA concentrations in canine DCM patients (n=28) and healthy dogs (n=5)

(Based on Freeman et al, 1998)



DCM patients suffering from heart failure have significantly lower plasma concentrations of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) compared with healthy dogs.

*P < 0.05 (average ± standard deviation)

Antioxidants to protect the cells



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The senses are in danger of deteriorating with age as the sensory cells are damaged by free radicals that bombard them like tiny meteorites. The older the dog becomes, the greater the need to strengthen his antioxidant defenses, which tend to diminish with age (Stowe et al, 2006).

Anti-cancer properties of antioxidants

Cancers are among the degenerative diseases that can be curbed by slowing down oxidation mechanisms. The blood antioxidant concentration is highly dependent on the daily food intake. To capture the free radicals and try to protect the cells against oxidative stress, the dog must receive a daily intake of antioxidants in his diet.

Golden Retriever 25™ contains a complex of antioxidants that act in synergy. In addition to vitamins E and C, and taurine, it contains vegetable extracts from a tomato (source of lycopene), marigold (source of lutein), and green tea (rich in polyphenols). These antioxidants combine to protect the cells' genetic material (DNA).

Soluble in fat, lycopene can act inside the cell membranes, where free radicals do most damage



Lycopene from tomatoes: this is a pigment of the carotenoid family, which is abundant in various fruits and vegetables characterized by a reddish to orange color. Their anti-tumor properties are based on the stimulation of the individual's immune defense system. Carotenoids can also help repair damage to DNA caused by free radicals (Tobergsen and Collins, 2000).

Green tea polyphenols: polyphenols constitute a family of major antioxidants that work inside the cells. The benefits of polyphenols are being identified all the time. They protect cell nuclei from the effects of ultraviolet rays and ionizing radiation. They also protect cell membranes and cell DNA (Clifford et al, 1996). They can stimulate the self-destruction (apoptosis) of cancer cells by reducing the cells' energy supply (Hsu, 2003). The anti-inflammatory role of polyphenols from vegetable sources is also beneficial in the event of a tumor (Krakauer, 2002).

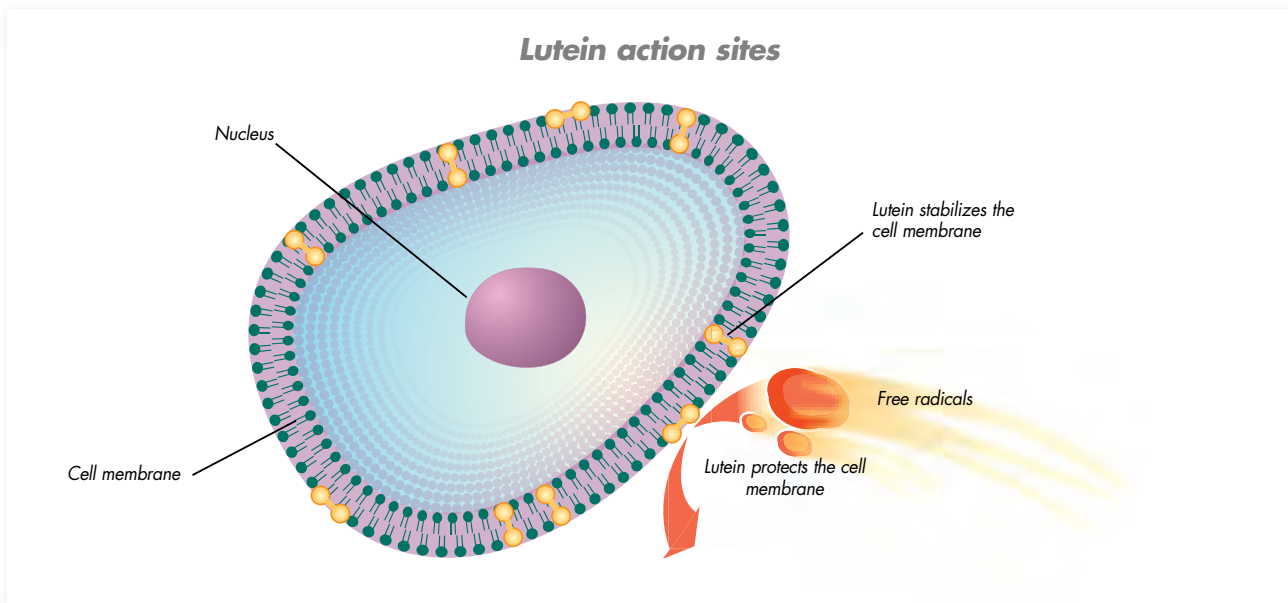


© R. Hours

Antioxidants protect eye cells

Lutein* and zeaxanthin* are antioxidant pigments of the carotenoid family that act in synergy. They are present in the crystalline lens and the retina, which they protect from oxidation caused by light (Valero et al, 2002; Taylor et al, 2002). By absorbing ultraviolet rays they work as a protective filter for retina cells. In humans, the risk of cataracts is inversely proportional to the serum content and the quantity of lutein ingested (Moeller et al, 2000). Their incorporation in **Golden Retriever 25™**, in the form of marigold extract, ensures that the dog benefits from their protective power from a very early age.

Polyphenolic compounds constitute 30% of dry matter in green tea.



*see glossary pg. 30

A NUTRITIONAL PROGRAM FOR EVERY

0 - 15
months months

GROWTH PHASE

MAXI Babydog 30™

For Puppies from weaning to 5 months old

MAXI Large Breed Puppy 32™

For Puppies from 5 to 15 months old



© J.-M. Labar



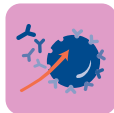
PHASE 1

BIRTH

For the whole weaning period* and the first part of growth to month 5: maximum energy requirement
**product may be administered rehydrated*



Small kibble adapted to the first dentition of large-breed dogs.



Priority is given to the energy concentration. The puppy is protected against an excess of calcium.



Quantity and quality of fibers adapted to the digestive sensitivity of large-breed puppies.



PHASE 2

MONTH 5

The food program for large-breed puppies addresses the two growth stages. The transition between Maxi Baby Dog and Maxi Puppy generally comes in month 5. It may be delayed until month 6 for puppies with a high digestive sensitivity like the Boxer.



Presence of glucosamine and chondroitin to help protect the joints.



Moderate energy concentration. Calcium content adapted to the growth of large-breed puppies.



Quantity and quality of fibers adapted to the digestive sensitivity of large-breed puppies.

END OF GROWTH (MONTH 15)

STAGE OF THE GOLDEN RETRIEVER'S LIFE

from
15
months

ADULT AND MATURE PHASES

GOLDEN RETRIEVER 25™

For Golden Retrievers over 15 months old



HEALTHY SKIN & COAT

Goldens are recognized for their long, flax-colored coats, but dense hair can lead to skin irritation. Golden Retriever 25™ contains Omega 6 & 3 fatty acids to help improve skin and coat health.



HEART HEALTH

Golden Retrievers are genetically prone to specific heart issues. Golden Retriever 25™ is formulated with L-carnitine, which can help muscles work efficiently.



COGNITIVE FUNCTION

Goldens are recognized for their intelligent and inquisitive nature. Golden Retriever 25™ is formulated with antioxidants, which can help neutralize free radicals.

Golden Retrievers from the tips of their toes ...

The Golden Retriever is classified in **The American Kennel Club (AKC)** Sporting Group

GOLDEN RETRIEVER

General Appearance

A symmetrical, powerful, active dog, sound and well put together, not clumsy nor long in the leg, displaying a kindly expression and possessing a personality that is eager, alert and self-confident. Primarily a hunting dog, he should be shown in hard working condition. Overall appearance, balance, gait and purpose to be given more emphasis than any of his component parts. Faults – Any departure from the described ideal shall be considered faulty to the degree to which it interferes with the breed's purpose or is contrary to breed character.

Size, Proportion, Substance

Males 23-24 inches in height at withers; females 21½-22½ inches. Dogs up to one inch above or below standard size should be proportionately penalized. Deviation in height of more than one inch from the standard shall disqualify. Length from breastbone to point of buttocks slightly greater than height at withers in ratio of 12:11. Weight for dogs 65-75 pounds; bitches 55-65 pounds.

Head

Broad in skull, slightly arched laterally and longitudinally without prominence of frontal bones (forehead) or occipital bones. Stop well defined but not abrupt. Foreface deep and wide, nearly as long as skull. Muzzle straight in profile, blending smooth and strongly into skull; when viewed in profile or from above, slightly deeper and wider at stop than at tip. No heaviness in flews. Removal of whiskers is permitted but not preferred. Eyes friendly and intelligent in expression, medium large with dark, close-fitting rims, set well apart and reasonably deep in

sockets. Color preferably dark brown; medium brown acceptable. Slant eyes and narrow, triangular eyes detract from correct expression and are to be faulted. No white or haw visible when looking straight ahead. Dogs showing evidence of functional abnormality of eyelids or eyelashes (such as, but not limited to, trichiasis, entropion, ectropion, or distichiasis) are to be excused from the ring. Ears rather short with front edge attached well behind and just above the eye and falling close to cheek. When pulled forward, tip of ear should just cover the eye. Low, hound-like ear set to be faulted. Nose black or brownish black, though fading to a lighter shade in cold weather not serious. Pink

nose or one seriously lacking in pigmentation to be faulted. Teeth scissors bite, in which the outer side of the lower incisors touches the inner side of the upper incisors. Undershot or overshot bite is a disqualification. Misalignment of teeth (irregular placement of incisors) or a level bite (incisors meet each other edge to edge) is undesirable, but not to be confused with undershot or overshot. Full dentition. Obvious gaps are serious faults.

Neck, Topline, Body

Neck medium long, merging gradually into well laid back shoulders, giving sturdy, muscular appearance. No throatiness. Backline strong



© J.W. Labat

... to the tip of their nose

GOLDEN RETRIEVER

and level from withers to slightly sloping croup, whether standing or moving. Sloping backline, roach or sway back, flat or steep croup to be faulted. Body well balanced, short coupled, deep through the chest. Chest between forelegs at least as wide as a man's closed hand including thumb, with well developed forechest. Brisket extends to elbow. Ribs long and well sprung but not barrel shaped, extending well towards hindquarters. Loin short, muscular, wide and deep, with very little tuck-up. Slab-sidedness, narrow chest, lack of depth in brisket, excessive tuck-up to be faulted. Tail well set on, thick and muscular at the base, following the natural line of the croup. Tail bones extend to, but not below, the point of hock. Carried with merry action, level or with some moderate upward curve; never curled over back nor between legs.

Forequarters

Muscular, well coordinated with hindquarters and capable of free movement. Shoulder blades long and well laid back with upper tips fairly close together at withers. Upper arms appear about the same length as the blades, setting the elbows back beneath the upper tip of the blades, close to the ribs without looseness. Legs, viewed from the front, straight with good bone, but not to the point of coarseness. Pasterns short and strong, sloping slightly with no suggestion of weakness. Dewclaws on forelegs may be removed, but are normally left on. Feet medium size, round, compact, and well knuckled, with thick pads. Excess hair may be trimmed to show natural size and contour. Splayed or hare feet to be faulted.

Hindquarters

Broad and strongly muscled. Profile of croup slopes slightly; the pelvic bone slopes at a slightly greater angle (approximately 30 degrees from horizontal). In a natural stance, the femur joins the pelvis at approximately a 90-degree angle; stifles well bent; hocks well let down with short, strong rear pasterns. Feet as in front. Legs straight when viewed from rear. Cow-hocks, spread hocks, and sickle hocks to be faulted.

Coat

Dense and water-repellent with good undercoat. Outer coat firm and resilient, neither coarse nor silky, lying close to body; may be straight or wavy. Untrimmed natural ruff; moderate feathering on back of forelegs and on underbody; heavier feathering on front of neck, back of thighs and underside of tail. Coat on head, paws, and front of legs is short and even. Excessive length, open coats, and limp, soft coats are very undesirable. Feet may be trimmed and stray hairs neatened, but the natural appearance of coat or outline should not be altered by cutting or clipping.

Color

Rich, lustrous golden of various shades. Feathering may be lighter than rest of coat. With the exception of graying or whitening of face or body due to age, any white marking, other than a few white hairs on the chest, should be penalized according to its extent. Allowable light shadings are not to be confused with white markings. Predominant body color which is either extremely pale or extremely dark

is undesirable. Some latitude should be given to the light puppy whose coloring shows promise of deepening with maturity. Any noticeable area of black or other off-color hair is a serious fault.

Gait

When trotting, gait is free, smooth, powerful and well coordinated, showing good reach. Viewed from any position, legs turn neither in nor out, nor do feet cross or interfere with each other. As speed increases, feet tend to converge toward center line of balance. It is recommended that dogs be shown on a loose lead to reflect true gait.

Temperament

Friendly, reliable, and trustworthy. Quarrelsomeness or hostility towards other dogs or people in normal situations, or an unwarranted show of timidity or nervousness, is not in keeping with Golden Retriever character. Such actions should be penalized according to their significance.

Disqualifications

Deviation in height of more than one inch from standard either way.
Undershot or overshot bite.

Approved October 13, 1981
Reformatted August 18, 1990

References

Skin

1. Dunstan RW, Herdt TH, Olivier B, et al. Age and breed-related differences in canine skin surface lipids and pH. In: *Advances in Veterinary Dermatology* 2000; Thoday KL, Foil CS & Bond R eds, Blackwell publishing; 4: 37-42.
2. Fray TR, Watson AL, Croft JM, et al. A combination of aloe vera, curcumin, vitamin C, and taurine increases canine fibroblast migration and decreases tritiated water diffusion across canine keratinocytes in vitro. *J Nutr* 2004; 134 (8 Suppl): 2117S-2119S.
3. Holm BR, Rest JR, Seewald W. A prospective study of the clinical findings, treatment and histopathology of 44 cases of pyotraumatic dermatitis. *Vet Derm* 2004; 15: 369-376.
4. Quoc KP, Pascaud M. Effects of dietary gamma-linolenic acid on the tissue phospholipid fatty acid composition and the synthesis of eicosanoids in rats. *Ann Nutr Metab* 1996; 40: 99-108.
5. Sture GH et Lloyd DH. Canine atopic disease: therapeutic use of an evening primrose oil and fish oil combination. *Vet Rec* 1995; 137: 169-170.
6. Watson AL, Fray TR, Bailey J, et al. Dietary constituents are able to play a beneficial role in canine epidermal barrier function. *Exp Dermatol* 2006; 15 (1): 74-81.
7. Glickman L, Glickman N, Thorpe R. Golden Retriever Club of America National Health Survey. Prepared by Purdue University School of Veterinary Medicine in consultation with the Golden Retriever Foundation: 1999.

Aging and antioxidants

8. Craig LE. Cause of death in dogs according to breed: a necropsy survey of five breeds. *J Am Anim Hosp Assoc* 2001; 37: 438-443.
9. Clifford AJ, Ebeler SE, Ebeler JD, et al. Delayed tumor onset in transgenic mice fed an amino-acid-based diet supplemented with red-wine solids. *Amer J Clin Nutr* 1996; 64: 748-756.
10. Crispin S, Bedford P, Long R, et al. Hereditary eye disease and the BVA/KC//ISDS Eye Scheme. In *Practice* 1995; 17: 254-264.
11. Curtiss R, et Barnett KC. A survey of cataracts in Golden and Labrador Retrievers. *J Small Anim Pract* 1989; 30: 277-286.
12. Hsu S, Lewis J, Singh B, et al. Green tea polyphenol targets the mitochondria in tumor cells inducing caspase 3-dependent apoptosis. *Anticancer Res* 2003; 23: 1533-1539.
13. Krakauer T. The polyphenol chlorogenic acid inhibits staphylococcal exotoxin-induced inflammatory cytokines and chemokines. *Immunopharmacol Immunotoxicol* 2002; 24: 113-119.
14. Michell AR. Longevity of British breeds of dogs and its relationship with sex, size, cardiovascular variable and disease. *Vet Rec* 1999; 145: 625-629.
15. Moeller SM, Jacques PF, Blumberg JB. The potential role of dietary xanthophylls in cataract and age-related macular degeneration. *J Am Coll Nutr* 2000, 19: 522S-527S.
16. Stowe HS, Lawler DF, Kealy RD. Antioxidant status of pair-fed Labrador Retrievers is affected by diet restriction and aging. *J Nutr* 2006; 136: 1844-1848.
17. Taylor A, Jacques PF, Chylack LT Jr, et al. Long-term intake of vitamins and carotenoids and odds of early age-related cortical and posterior subcapsular lens opacities. *Am J Clin Nutr* 2002, 75: 540-549.
18. Tobergsten AC, Collins AR. Recovery of human lymphocytes from oxidative DNA damage; the apparent enhancement of DNA repair by carotenoids is probably simply an antioxidant effect. *Eur J Nutr* 2000; 39: 80-85.
19. Valero MP, Fletcher AE, De Stavola BL, et al. Vitamin C is associated with reduced risk of cataract in a Mediterranean population. *J Nutr* 2002; 132: 1299-1306.
20. Urquiaga I et Leighton F. Plant polyphenol antioxidants and oxidative stress. *Biol Res* 2000; 33: 55-64.

Heart

21. Alroy J. Rush J. Freeman L. et al. Inherited infantile dilated cardiomyopathy in dogs: Genetic, clinical, biochemical, and morphologic findings. *J Med Genetics* 2000; 95: 57-66.
22. Bélanger MC. Ouellet M. Queney G. et al. Taurine-deficient dilated cardiomyopathy in a family of Golden Retrievers. *J Am Anim Hosp Assoc* 2005; 41: 284-291.
23. Chetboul V. Carlos C. Blot S. et al. Tissue doppler assessment of diastolic and systolic alterations of radial and longitudinal left ventricular motions in Golden Retrievers during the preclinical phase of cardiomyopathy associated with muscular dystrophy. *Am J Vet Res* 2004; 65: 1335-1341.
24. Egenvall A. Bonnett N. Häggström. Heart disease as a cause of death in insured Swedish dogs younger than 10 years of age. *J Vet Intern Med* 2006; 20: 894-903.
25. Fascetti AJ. Reed JR. Rogers QR. et al. Taurine deficiency in dogs with dilated cardiomyopathy: 12 cases (1997-2001). *J Am Vet Med Assoc* 2003; 223: 1137-1141.
26. Freeman LM. Brown DJ. Rush JE. Assessment of degree of oxidative stress and antioxidant concentrations in dogs with idiopathic dilated cardiomyopathy. *J Am Vet Med Assoc* 1999; 215: 644-646.
27. Freeman LM. Rush JE. Brown DJ. et al. Relationship between circulating and dietary taurine concentrations in dogs with dilated cardiomyopathy. *Vet Therapeutics* 2001; 2: 370-378.
28. Freeman LM. Rush JE. Kehayias JJ. et al. Nutritional alterations and the effect of fish oil supplementation in dogs with heart failure. *J Vet Intern Med* 1998; 12: 440-448.
29. Pierpont MEM. Foker JE. Pierpont GL. Myocardial carnitine metabolism in congestive heart failure induced by incessant tachycardia. *Basic Res Cardiol* 1993; 88: 362-370.
30. Pion PD. Kittleson MD. Rogers QR. et al. Myocardial failure in cats associated with low plasma taurine: A reversible cardiomyopathy. *Science* 1987; 237: 764-768.
31. Rizos I - Three-year survival of patients with heart failure caused by dilated cardiomyopathy and L-carnitine administration. *Am Heart J* 2000; 139: S120-S123.
32. Rush JE. Freeman LM. Brown DJ. et al. Clinical, echocardiographic, and neurohumoral effects of a sodium-restricted diet in dogs with heart failure. *J Vet Intern Med* 2000; 14: 513-520.
33. Sanderson SL. Gross KL. Ogburn PN. et al. Effects of dietary fat and L-carnitine on plasma and whole blood taurine concentrations and cardiac function in healthy dogs fed protein-restricted diets. *Am J Vet Res* 2001; 62: 1616-1623.
34. Satoh H. Sperelakis N - Review of some actions of taurine on ion channels of cardiac muscle cells and others. *Gen Pharmacol* 1998; 30(4): 451-463.
35. Urquiaga I et Leighton F - Plant polyphenol antioxidants and oxidative stress. *Biol Res* 2000; 33: 55-64.

Weight

36. Carroll MC. Coté E. Carnitine: a review. *Comp Cont Educ Pract Vet* 23: 45-52.
37. Hess RS. Kass PH. Ward CR. Breed distribution of dogs with diabetes mellitus admitted to a tertiary care facility. *J Am Vet Med Assoc* 2000; 216: 1414-1417.
38. Johnston KA. Hulse DA. Hart RC. Effects of orally administered mixture of chondroitin sulfate, glucosamine hydrochloride and manganese ascorbate on synovial fluid chondroitin sulfate 3B3 and 7D4 epitope in a canine cruciate ligament transection model of osteoarthritis. *Osteoarthritis Cartilage* 2001; (1): 14-21.
39. Lund EM. Armstrong PJ. Kirk CA. et al. Prevalence and risk factors for obesity in adult dogs from private US veterinary practices. *Intern J Appl Res Vet Med* 2006; 4: 177-186.
40. Orthopedic Foundation for Animals (OFA): www.offa.org/stats.html
41. Paster ER. LaFond E. Biery DN. et al. Estimates of prevalence of hip dysplasia in Golden Retrievers and Rottweilers and the influence of bias on published prevalence figures. *J Am Vet Med Assoc* 2005; 226: 387-392.

Glossary

- Carbohydrates:** large family of ingredients comprising simple sugars (e.g. glucose), cereal starch (energy reserve for plants) and complex sugars in vegetable fiber.
- Chondroitin:** natural cartilage extract that slows down the production of enzymes responsible for wearing down cartilage.
- Dysplasia:** disease characterized by the abnormal joint development resulting in accelerated wear of articular cartilage followed by the appearance of arthritis.
- EPA and DHA:** omega 3 long-chain fatty acids with an inflammatory activity; abundant in fish oil.
- Free radicals:** by-products of oxygen metabolism responsible for oxidizing unsaturated fatty acids that make up the cell membranes.
- Glucosamine:** base element in the cartilage structure that encourages the regeneration of cartilage by stimulating the synthesis of its constituents.
- L-carnitine:** carrier that helps get the fatty acids to the mitochondria, where energy is generated for the cells.
- Lipids:** animal or vegetable fat that provides essential fatty acids and concentrated energy.
- Lutein:** antioxidant of the carotenoid family (yellow-red pigments).
- Mitochondria:** cell component responsible for the production of energy based on oxidation of fatty acids.
- Polyphenols:** vegetable substances with antioxidant powers used to combat problems caused by cellular aging.
- Protein:** amino acids included in the composition of all body tissue. Contrary to carbohydrates and lipids, protein contains sulfur.
- Psyllium:** annual plant native to the sandy basin of the Mediterranean that is traditionally used in phytotherapy to treat digestive complaints.
- Oxidative stress:** imbalance produced in the body when the antioxidant reserves are inadequate.
- Taurine:** amino acid derivative that remains in free form; essential to the heart function and a constituent of the retina; it also possesses antioxidant powers.
- Vegetable fiber:** non-digestible plant components that mostly belong to the carbohydrates, including cellulose, hemicellulose, mucilage and pectin.
- Zeaxanthin:** antioxidant of the carotenoid family (yellow-red pigments); protects the retina.

A history of innovation at Royal Canin

A history of commitment to developing knowledge and respect for the needs of small, medium and large breeds.

1967: Launch of ROYAL CANIN by a veterinarian

1980: Launch of the first growth food for large breed puppies (AGR)

1988: Launch of the veterinary ranges

1990: Launch of the first diets to respond to the diversity of dog size (RCCI)

1997: Launch of the Size Nutrition program based on the dog's age, activity, and size

1999: Launch of:

- Starter, a unique kibble based weaning diet for dogs
- A sporting dog diet (Energy 4800™)
- A veterinary diet for the nutritional management of osteoarthritis in dogs (Mobility Support JS 21)

2000: Launch of a diet for giant breed dogs (Giant Adult 28™)

2001: Launch of a range of 13 veterinary diets (V Diet) including 2 hypoallergenic diets in Europe

2003: Launch of:

- Foods just for small breed dogs (MINI Canine Health Nutrition™) and Yorkshire Terriers (Yorkshire Terrier 28™)
- Foods just for large breed dogs (MAXI Canine Health Nutrition™) and breed specific foods (Labrador Retriever 30™ and German Shepherd 24™)
- Eight formulas dedicated for Professional Canine Breeders (Canine PRO)

2004: Launch of:

- Foods for medium breed dogs (MEDIUM Canine Health Nutrition™) including Bulldogs (Bulldog 24™)
- Small breed specific foods (Chihuahua 28™ and Poodle 30™)
- Food for very young large breed puppies (MAXI Babydog 30™)
- The first full line of therapeutic diets to help manage allergic skin disease including canine atopy (Limited Ingredient Diets, Hypoallergenic and Skin Support formulas)

2005: Launch of:

- Small breed specific foods (Dachshund 28™ and Shih Tzu 24™)
- Food for Boxers (Boxer 26™)
- A specialized formula, HT42d, for the reproductive bitch
- The first veterinary diet for the nutritional management of osteoarthritis specifically for large breed dogs (Mobility Support JS 21 Large Breed)

2006: Launch of small breed foods (MINI Beauty 26™, MINI Indoor Adult 21™ and MINI Dental Hygiene 24™)

2007: Launch of:

- MINI Toy Indoor Adult 25™
- MINI Indoor Puppy 27™
- Miniature Schnauzer 25™
- Golden Retriever 25™

2008: Launch of:

- Cocker Spaniel 25™

2009: Launch of:

- Pug 25™

2010: Launch of:

- Chihuahua Puppy 30™
- German Shepherd Puppy 30™
- Labrador Retriever Puppy 33™
- Yorkshire Terrier Puppy 29™

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