





Hill's Pet Nutrition Wellness Nugget Book

Includes all up to date nuggets
January 2016



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What's New











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Hill's Commitment to Animal Welfare



We believe quality care for pets includes optimal nutrition, veterinary healthcare, daily exercise and an enriching environment with lots of love. All pets at Hill's Pet Nutrition live in such an environment. We only use compassionate, non-invasive methods necessary to develop nutritional technology so dogs and cats around the world live long, healthy lives. Our breakthroughs in pet nutrition are unmatched in the pet food industry and we've built our business and reputation on always practicing the highest ethical standards.

Every day we prove that quality scientific technology and compassionate animal care go hand-in-hand for the improvement of pets' healthy lives. This is why Hill's only supports and exercises the responsible, caring and humane treatment of dogs and cats. All studies conducted or supported by Hill's - whether at the Hill's Pet Nutrition Center or externally in consumers' homes, veterinary schools or elsewhere - must comply with the following stringent Hill's policies to ensure exceptional animal care:

- Hill's does not participate in studies that jeopardize the health of dogs and cats. All Hill's-supported studies are designed to maintain and improve the animals' health. No study will be performed on dogs or cats that requires euthanasia.
- When studying how a nutrient is absorbed, distributed, stored, used and released by a dog's or cat's body,
 we only use research methods that are the veterinary equivalent of human nutritional or medical studies.
 Hill's does not support or conduct studies that cause pain or hurt the dogs or cats. This is based on the belief
 that what is painful to humans is also painful to dogs and cats.
- We only conduct studies if we have compelling evidence that we can improve the health and welfare of companion animals. These studies often result in breakthrough nutritional findings, improving the lives of millions of dogs and cats.
- We continually strive to find ways to reduce dependence on animal research. A substantial number of dogs
 and cats participating in our feeding studies are involved in in-home tests. Our veterinarians and nutritionists
 are skilled at developing methods that simulate animal systems. For example, we have developed and
 published a mathematical formula, based on the nutrient profile of the food that accurately predicts the pH
 of feline or canine urine without animal testing.
- To assure pet owners that our therapeutic foods are safe and effective, we support studies using pets with naturally occurring diseases or conditions. We do not participate in studies in which surgical or non-surgical methods are used to create or simulate disease conditions.
- The Hill's Pet Nutrition Center and any external facility Hill's supports must meet or exceed all industry regulatory standards for animal care. For all studies conducted at external facilities, we appoint and fund pet advocates, responsible for ensuring each pet's compassionate care, which has the key components of providing exercise and a socially-enriched environment.
- We publish the results of our studies to advance the knowledge of nutritional health care and to help prevent the unnecessary repetition of studies involving dogs and cats.
- Hill's only uses data from animal studies that are in the public domain, either previously published or were conducted under this Global Animal Welfare Policy.

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AAHA Nutritional Assessment What you should ask your pet food company Hill's Pet Nutrition Responses

Do you have a veterinary nutritionist or some equivalent on staff in your company? Yes, we have board certified Veterinary Nutritionists, PhDs and veterinarians, many with advanced degrees.

Are they available for consultation or questions?

Our Veterinary Consultation Service is comprised of certified veterinarians and vet technicians with over 250 years of experience in the practice setting. In addition, they have access to our nutritionists to provide additional support to answer questions.

Who formulates your foods, and what are their credentials?

We have veterinarians, food scientists, technicians and PhD nutritionists at Hill's that develop Science Diet®, Prescription Diet®, Ideal Balance™ and Healthy Advantage™ brand pet foods to meet the needs of pets at any stage in their life.

Which of your food(s) are tested using AAFCO feeding trials, and which by nutrient analysis? Most all of our foods have undergone a feeding trial meeting or exceeding AAFCO standards.

What specific quality control measures do you use to assure the consistency and quality of your product line?

Our plants are inspected on average once per month by USDA, State Departments of Agriculture, FDA, AIB International or Hill's Global Quality. All finished products are held until they pass a rigorous testing process that includes tests for nutrient levels, foreign materials and salmonella (dry only). We employ HACCP (Hazard Analysis Critical Control Point) programs. Samples are taken every 30 minutes to assure nutrients and quality of food. We perform over 1000 checks for salmonella a month.

Where are your foods produced and manufactured?

We have 6 Hill's owned facilities that make 96.8% of our foods, 4 in the US and 2 in Europe. 3.2% of our foods are made in certified facilities that must meet the same stringent quality control measures as our plants to produce our foods. We manufacture 100% of our dry pet foods in our own manufacturing facilities under the supervision of Hill's employees. Due to our stringent quality and safety programs, we are confident in the safety of our products. Since 2007, Hill's has invested millions of dollars in our facilities, manufacturing practices and formulas to reduce the risk of food safety issues. In fact, Hill's performs over 1,000 tests for salmonella at our manufacturing plants every month, and we do not release products from our facilities until our food safety testing is complete.

Can this plant be visited?

Tours are provided to veterinarians and their staff, pet store employees and specially invited quests.

Will you provide a complete product nutrient analysis of your best-selling dog and cat food, including digestibility values? Nutrient values are available on our web site, Hillspet.com.

What is the caloric value per can or cup of your foods?

Most of our products have a caloric statement on the bag or can. The calories are displayed as a per cup or per can basis. If not, caloric values are available on our web site, Hillspet.com.

What kinds of research on your products has been conducted, and are the results published in peer reviewed journals?

The Hill's Global Pet Nutrition Center is one of the nation's leading centers for pet nutrition and veterinary research. Backed by the most extensive Evidence-Based Clinical Nutrition, Hill's delivers the highest quality pet food products that meet a diverse spectrum of unique needs. Hill's Pet Nutrition is committed to maintaining the highest nutritional standards and aims to continuously validate and improve the clinical

Hill's Pet Nutrition is committed to maintaining the highest nutritional standards and aims to continuously validate and improve the clinical efficiency of its products through Hill's Evidenced-Based Clinical Nutrition.

Hill's scientists author research papers and textbook chapters each year and teach at leading schools of veterinary medicine all over the world. We put our knowledge and expertise into every Hill's® pet food.

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WSAVA Global Nutrition Committee: Recommendations on Selecting Pet Foods Questions to ask your pet food company Hill's Pet Nutrition Responses

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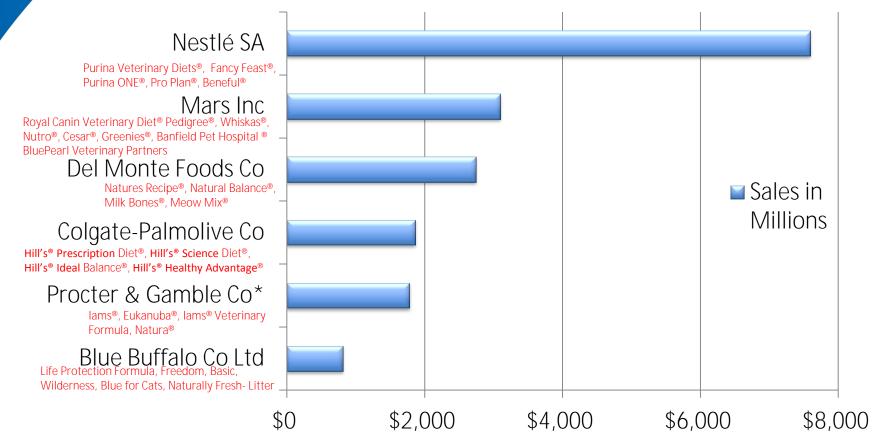
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http://www.wsava.org





Top pet food companies in the U.S.A



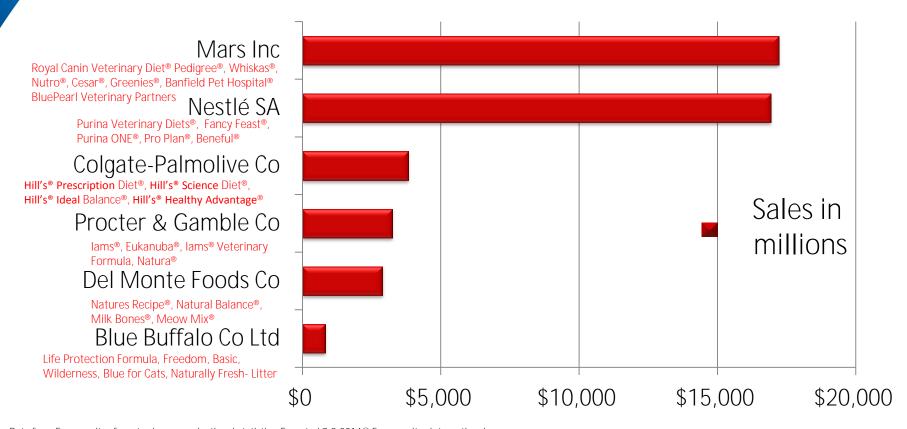
Data from Euromonitor from trade sources/national statistics, Exported 7-9-2014© Euromonitor International

*Purchased by Mars Inc. July 31, 2014

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Top pet food companies in the World



Data from Euromonitor from trade sources/national statistics, Exported 7-9-2014© Euromonitor International
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General Information





Feline Science Diet®





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NN0044 DHA – Brain food for puppies & kittens SD	
NN0151 How Many Omega 3 Capsules to be Equivalent SD	
NN12-51 Recipe for a Better Life	
NN12-52 100% Perfect Balance	
NN13-12 SD Precise Balance	





DHA—Brain Food for Puppies and Kittens

DHA—To Sharpen the Mind and Vision

 DHA, an omega-3 fatty acid, is a major building block of the brain. It's a critical for development of vision and the central nervous system



- DHA accumulates in the brain and retina; an increased level is important during pregnancy and in the first year of life when brain and eye development are most rapid
- Sources of DHA—certain types of fish, fish oil
 Hill's® Science Diet® Puppy and Kitten dry pet foods contain enhanced levels of natural DHA!



DHA is Important at various stages of development

- Puppies and kittens first get DHA from their mothers before they are even born. That's why it's important to feed Hill's® Science Diet® Puppy and Kitten dry pet foods during pregnancy.
- After birth, puppies and kittens continue to get DHA from mom—through mother's milk. During this time, be sure she is getting plenty of Hill's® Science Diet® Puppy or Kitten food!



By 6 weeks of age, puppies have only developed 70% of their adult brain mass...that means DHA still has a lot of work to do! Kittens' brains are also still developing. Continue to feed Science Diet® Puppy and Kitten pet foods after weaning.

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How many Omega 3 capsules per day?

Daily Intake of Omega-3 Fatty Acids for 40 pound dog consuming 986 kcals/day. Hill's [®] Science Diet [®] dry pet foods		Equivalent number of supplement capsules required per day to equal the Omega 3's in Science Diet® pet food.	
Brand	Product	Omega-3 mgs/day	Welactin® Canine Softgels 300 mgs Omega 3 FA per capsule
Science Diet®	Adult Advanced Fitness Original	1517	5
Science Diet®	Adult Advanced Fitness Lamb Meal & Rice Recipe	1652	6
Science Diet®	Adult Healthy Mobility™	3459	12
Science Diet®	Adult Large Breed	1517	5
Science Diet®	Adult Light	1568	5
Science Diet®	Adult Sensitive Skin	3539	12
Science Diet®	Adult Small and Toy Breed	2473	8
Science Diet®	Canine Adult Grain Free	2383	8
Science Diet®	Canine Senior 11+ Small & Toy Breed Age Defying	3208	11
Science Diet®	Mature Adult Active Longevity™ Original	1403	5
Science Diet®	Puppy Healthy Development Original*	3386	11
Science Diet®	Puppy Large Breed*	4160	14

^{*40} pound puppy consuming 1232 kcals per day

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Science Diet® "It's the Recipe for a Better Life"



Ingredients you asked for Introducing delicious reformulated foods with more of the ingredients pet owners want



Same great nutrition
Precisely balanced nutrition through
continuous innovation to
meet the specific needs of pets



Same high quality
Rigorous procedures are the foundation
of safety for your pet's well-being



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Science Diet® has the perfect balance of nutrients for a healthy pet

Science Diet				
Deficiency	Nutrient	Excess		
Poor growth	Protein- Lean muscle & growth	Kidney stress		
Dull coat	Fat- Healthy skin & coat	Weight gain		
Fatigue	Vitamins- strong immune system	Organ stress		
Weakness	Minerals- Strong bones & teeth	Bladder stones		
Loose stools	Fiber- Healthy digestion	Gas	SC VETE	

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Science Diet® has the precise balance of nutrients for a healthy pet

Science Diet®				
Too little	Nutrient	Too much		
Poor growth	Protein Lean muscle & growth	Kidney stress		
Dull coat	Fat Healthy skin & coat	Weight gain		
Hair loss	Sodium Heart Health	Heart at risk		
Weakness	Calcium Strong bones	Kidney damage		
Poor growth	Phosphorous Strong bones	Bone loss		
Fatigue	Vitamins strong immune system	Organ stress		
Weakness	Magnesium Strong bones & teeth	Bladder stones		
Loose stools	Fiber Healthy digestion	Gas		

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Table of Content Canine Science Diet ®

NN0163 Stool Quality	
NN12-48 Canned Food	
NN13-4 Canine SD vs. Purina	





Are loose stools making you and your best friend sad?



*Science Diet® Canine Adult Savory Stew delivers better stool quality to keep you and your dog happy.



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*Stool Study Test Report Hills Pet Nutrition, Science and Technology, Feb /2011



Canned food does not promote dental disease more than dry food*





"In a large epidemiologic survey, dogs consuming dry food alone did not demonstrate improved oral health when compared with dogs eating moist food."**

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^{*}Does not include dry dental foods

^{**} Evidence-Based Veterinary Dentistry: A Systematic Review of Homecare for Prevention of Periodontal Disease in Dogs and Cats Roudebush P, Logan E, Hale FA, J.VET.DENT. Vol. 22 No. 1 March 2005



Science Diet® Adult Advanced Fitness Original Dog Food is a great choice for your dog

		Science Diet® Adult Advanced Fitness Original ¹	Purina® Beneful® Healthy Weight²	Purina® Beneful® Original ²	Purina ONE® SmartBlend® Chicken & Rice Formula ²	Purina® Pro Plan® Savor Adult Shredded Blend Chicken & Rice Formula ²
Nutrients (% Dry Matter)	*Key Nutritional factors- adult dog	SCHEEFERT APPAGED TOTAL 1 S TOTAL 2 S TOTAL 2 S TOTAL 3 S TO	Beneful	Beneful	Chicken & Rice Formula	PROPLAN SAVOR
Phosphorous %	0.4-0.8	0.7	1.3	1.2	1.1	1.0
Calcium %	0.5-1.0	0.78	1.4	1.31	1.43	1.42
Protein %	15-30	24.5	30.9	30.2	31.2	30.8
Sodium %	0.2-0.4	0.30	0.48	0.44	0.38	0.43
Vitamin E IU/kg	<u>></u> 400	785	209	179	405	683
Vitamin C mg/kg	<u>></u> 100	291	None detected	None detected	None detected	120
Omega 3 %		0.60	0.15	0.11	0.14	0.23
Omega 6 %		4.61	2.20	2.32	2.50	2.51

^{*}Source: Small Animal Clinical Nutrition 4th & 5th editions

¹ www.Hillspet.com ² analysis done by independent third party laboratory on three different date codes of each competitors products, average values from the three lot codes are reported.,
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Table of Content Feline Science Diet ®

NN13- 16 SD Feline Adult vs. Purina	
NN15- 60 A SD Urinary Hairball	





Science Diet® Adult Optimal Care® Original Cat Food is a great choice for your cat

		Science Diet® Adult Optimal Care® Original ¹	Purina Cat Chow® Indoor Formula ²	Purina ONE® SMARTBLEND® Chicken & Rice Formula ²	Purina Cat Chow® Complete Formula²	Purina Pro Plan® Adult Chicken & Rice Formula ²	Friskies® Indoor Delights®²
*Nutrients (% Dry Matter)	Key Nutritional factors- adult cat	STATE OF THE PARTY	STURING STURIN	SSSMA BUG	SPURIMA SALE COMPLETE	PROPLAN	fitskies Indoor Delights
Phosphorous %	0.5-0.8	0.63	1.20	1.24	1.30	1.30	1.40
Calcium %	0.6-1	0.9	1.31	1.45	1.34	1.55	1.48
Protein %	30-45	34.9	34.6	37.5	38.1	44.5	34.2
Fat %	10-30	21.8	12.3	16.5	17.4	19.0	15.6
Magnesium %	0.04-0.1	0.08	0.122	0.09	0.119	0.086	0.13
Sodium %	0.2-0.6	0.40	0.63	0.53	0.45	0.57	0.57
Vitamin E IU/kg	<u>></u> 500	676	388	389	363	767	146
Vitamin C mg/kg	100-200	127	None detected	None detected	None detected	100	None detected
Omega 3 %		0.48	0.12	0.23	0.28	0.32	0.15
Omega 6 %		4.44	2.26	2.49	2.22	2.81	2.56
Taurine %		0.26	0.13	0.18	0.17	0.20	0.15

^{*}Source: Small Animal Clinical Nutrition 4th & 5 th editions

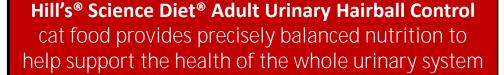
¹www.Hillspet.com ² analysis done by independent third party laboratory on three different date codes of each competitors products, average values from the three lot codes are reported.

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Science Diet® Adult Urinary Hairball Control is a good choice for healthy cats prone to urinary issues





A healthy bladder starts with the right balance of vital nutrients. Science Diet® Urinary Hairball Control is formulated to support the health of the urinary system, with an optimal level of magnesium, in healthy adult cats prone to lower urinary tract signs (LUTS) and help avoid hairball formation, naturally.

Available in dry and wet







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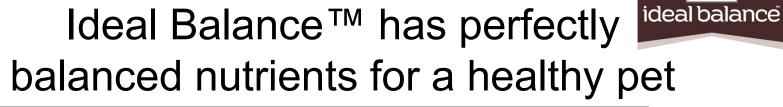
Table of Content Ideal Balance®

NN12-52 100% Perfectly Balanced	





ideal balance



Deficiency	Nutrient	Excess
Poor growth	Protein- Lean muscle & growth	Kidney stress
Dull coat	Fat- Healthy skin & coat	Weight gain
Fatigue	Vitamins- strong immune system	Organ stress
Weakness	Minerals- Strong bones & teeth	Bladder stones
Loose stools	Fiber- Healthy digestion	Gas



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Table of Content General Information



AAFCO- Pet Food Labels



Competition



Cost to Feed



Homemade Diets- RAW



Ingredients



Nutrition



Preservatives-Antioxidants



Safety & Quality



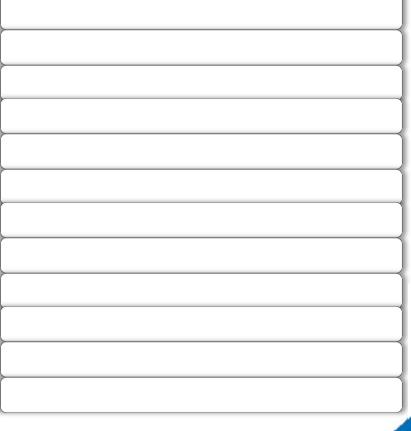


Transition



Table of Content AAFCO – Pet Food Labels

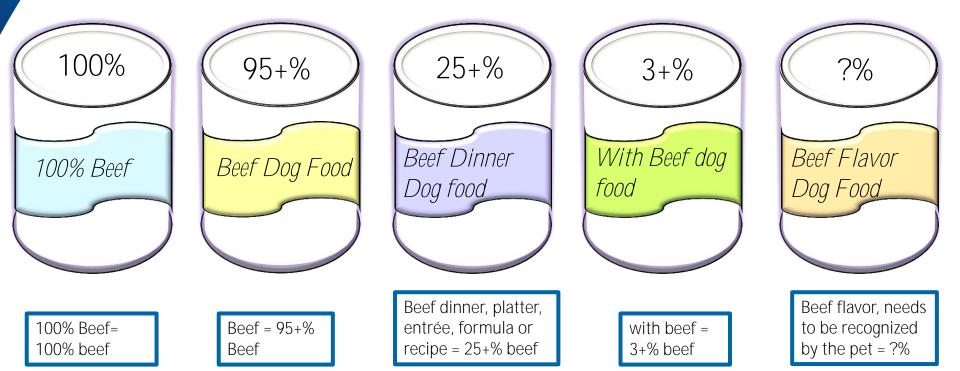
NN12-43 Naming Convention
NN0016 Pet Food Labels
NN0043 A- Common Term
NN0043 B- Common Term
NN0045 Pet Food labels Understanding Terms
NN0055 Pet Food Labels Understanding Terms
NN0068 Human Grade claims that disappear
NN00132 AAFCO feeding Trails
NN0092 What is a By-Product
NN0154 Can you find the Hidden By-Products
NN13-31 Family AAFCO Statement







The name of a food can tell you how much of an ingredient is in the food



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Pet Food Labels: What They Say— And What They Don't

The Pet Food Label: Key Information

- Ingredients, the delivery vehicles for nutrients, are listed in descending order by weight.
 - ✓ Ingredients such as chicken, beef, or lamb contain more than 50% water. The high water content makes them weigh more than dry ingredients (grains, meat/poultry meals, minerals, vitamins), so they are listed first.
 - Manufacturers should be willing to discuss nutrient levels and benefits, not just ingredients.
- Consumers want nutrient information about the pet foods they purchase. The guaranteed analysis gives minimum or maximum levels of nutrients such as protein, fat, and fiber in the product, as guidance to protect consumers. However, the guaranteed analysis does not give the actual nutrient content of the food.
- The nutritional adequacy statement verifies that the food provides complete and balanced nutrition for growing animals, pregnant and nursing mothers, or adults—or it might say the product is for all of them (-all life stages").
 - ✓ Beware of foods intended for —all life stages". They may contain excessive levels of some nutrients—making them inappropriate for adult and senior pets!
- A pet food label should contain the manufacturer's name and toll-free 800 number. Call the 800 number for product information not on the label—such as the actual nutrient content of the food and its caloric content.

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A Closer Look At The Label

Guaranteed Analysis: This food has at least 8% protein; the label doesn't give the actual amount.



Chicken Chunks
Dinner
for Dogs

net wt. 398g. (14oz)

Ingredient List: If the +50% water in chicken was not included in the overall weight, then chicken would fall significantly lower on the ingredient list.

No Dry Pet Food has more MEAT than GRAINS

INGREDIENTS: CHICKEN, LIVER, SOY FLOUR, POULTRY BY-PRODUCT MEAL, CRACKED BARLEY, GROUND CORN, IODIZED SALT, CALCIUM CARBONATE, VEGETABLE OIL, CHOLINE CHLORIDE. MINERALS. VITAMINS

GUARANTEED ANALYSIS; CRUDE PROTEIN MIN. 8.0%, CRUDE FAT MIN. 5.0%, CRUDE FIBER MAX. 1.5%, MOISTURE MAX. 75%, ASH MAX. 3.0%

COMPLETE AND BALANCED FOR ADULT MAINTENANCE BASED ON AAFCO FEEDING STUDIES

PETFUD CO., HOMETOWN, U.S.A.

Nutritional Adequacy Statement (AAFCO Statement)

The quality of a pet food is NOT determined by individual ingredients. It's the <u>nutritional value</u> of each ingredient, blended together, that delivers a product <u>specific</u> for a pet's <u>age or condition</u>. The guaranteed analysis is not a guarantee of nutritional quality—nor is the ingredient list or the presence/absence of certain ingredients.



Common Terms?

Pet food manufacturers commonly use terms to describe their foods, some of which are defined by guidelines or statutes and others which are purely marketing terminology without any definition under the law.

Term	Defined	Definition	
Organic	Yes	According to the USDA – the term —@anic' may only be applied to pet food labels that follow USDA rules. Look for this seal	
Natural	Yes	Under AAFCO guidelines– the term "natural" requires a pet food to consist of only natural ingredients without chemical alterations. ¹	
Holistic	NO	There is no definition of this term under laws devoted to pet foods. Any manufacturer can make claims of —blistic" in literature and brochures regardless of ingredients chosen.	
Human Grade	Yes	According to AAFO- claims that a pet food contains or is made from ingredients that are —humargrade", —humarquality", —peopleoods", —ingredints you (the purchaser) would eat", are false and misleading ²	

¹ 2014 Official Publication AAFCO pages 148- 149, 319 (Official Feed Terms). ² – see reverse page



- Does natural mean organic?
- No. Natural and organic are not interchangeable. Food labeled "organic" must be certified as meeting USDA organic standards.¹
- Under existing regulations four categories were created for the term "organic":
 - 100 Percent Organic may carry the USDA Organic Seal
 - Organic at least 95% of content is organic by weight (excluding water and salt) and may carry the USDA Organic Seal.
 - Made With Organic at least 70% of content is organic and the front product panel may display the phrase "Made with Organic" followed by up to three specific ingredients. (May not display the USDA Organic seal)
 - Less than 70 % of content is organic and may list only those ingredients that are organic on the ingredient panel with no mention of organic on the main panel. (May not display the USDA Organic seal)

The first two categories are entitled to use the USDA Seal on the packaging under specific rules as to size, color and type. The last 2 categories may not use the seal.

²Association of American Feed Control Officials (March 2004) Section IV – Pet Food Label Claims – Page 66 Section E.

Claims that a product contains or is made from ingredients that are —huran grade", —huran quality", —peopleoods", —ingredienstyou (the purchaser) would eat" —ofod(s) that you (the purchaser) would feed your family" or similar claims are false and misleading unless the entire product, itself, meets the USDA and FDA standards for food **edible** by humans. At this time, the use of —huran grade" or —huran quality" is not allowed, because these items are not defined.

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What Does AAFCO's "All Life Stages" Mean?

- If the AAFCO statement says —complet@nd balanced for all life stages"...
 - √ The pet food has to be suitable for puppies, kittens or pregnant/lactating adults – which means some of the nutrients may be at levels that are excessive for typical adult and older pets!
- Pets need food that's appropriate for their specific stage in life so they will receive adequate, but not excessive, amounts of important nutrients.
 - ✓ Puppies, kittens and lactating mothers need more protein, vitamins, and minerals than adults to ensure proper growth.
 - ✓ For typical adult dogs & cats, excess intake of certain nutrients may make some conditions worse. For example, excessive phosphorus intake worsens kidney disease, a condition that often goes undetected in its early stages.
 - ✓AAFCO does not publish nutrient guidelines for older dogs and cats. However, foods for these pets should address changes in vital organ function that occur as animals mature.

- The AAFCO statement on pet food packaging verifies the product is nutritionally balanced for a designated life stage:
 - ✓ Growth, pregnancy/lactation, adult, or <u>all life stages</u>
- Many pet food manufacturers offer products for a pet's specific stage in life (e.g., adults).
 - Check AAFCO statements to make sure the food you are feeding your puppy or kitten is appropriate for growth. And make sure the dog or cat food you choose for your adult pet is intended for adult maintenance, NOT all life stages.
- Recommend Hill's® Science Diet® brand pet foods with confidence. You can be sure that Science Diet dog and cat foods <u>offer precise</u> nutrition for particular life stages.



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Understanding Pet Food Labels AAFCO Requirements* for Naming Pet Foods





If pet food name says	Pet food must contain at least % of named ingredient
Chicken, beef, seafood, etc (Ingredient without modifiers)	95%
Dinner, entrée, platter, etc (chicken dinner, beef entrée, seafood & beef platter)	25%
With (with chicken, with beef, with seafood etc)	3%
Flavor (chicken flavor, beef flavor)	No specific %, but ingredient list must disclose source of flavor





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Disappearing Human Grade Claims?



Sherlock Holmes – Where are you?

Some manufacturers feel free to make all kinds of claims on literature, websites and brochure materials, but then those claims seem to disappear from the actual product labels. One very noticeable such claim is that of <u>human grade</u>" ingredients.

AAFCO* has stated that any label claim of Human Grade" is —.false and misleading..."

If you think a pet food is made of —human grade" ingredients, based on marketing materials, but can not find the claim of —human grade" anywhere on the can or bag — then is the product really made from —human grade" ingredients or have you just been the victim of a marketing ploy?

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AAFCO Feeding Trial vs. "formulated" food

Pet food manufacturers can choose to either —ofrmulate" a pet food, or use AAFCO's Feeding Trial data.

	AAFCO	
Required Procedures	Feeding Trial	"Formulated"
Minimum of 30 dogs (cats) to establish colony average	YES	NO
Minimum of 8 dogs (cats) at least one year of age for each trial.	YES	NO
Same formulation must be used throughout test period.	YES	NO
Test must run a minimum of 26 weeks. (6 months)	YES	NO
Formulation shall be the sole source of nutrients, except water.	YES	NO
Daily food consumption must be measured.	YES	NO
Individual body weights shall be measured and recorded weekly.	YES	NO
Hemoglobin, packed cell volume, other blood chemistry tests done.	YES	NO
Thorough veterinary physical exam done twice during test.	YES	NO

Pet foods that are "formulated" have no required testing to determine

if the ingredients used are bio-available or digestible in the dog or cat.

Look for this statement on pet foods to insure feeding trials.



AAFCO Statement: Animal feeding tests using AAFCO procedures substantiate that Science Diet® Adult Advanced Fitness Original provides complete and balanced nutrition for maintenance of adult dogs.



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What is a By-product?

According to the 2013 Official Publication of AAFCO*, Page 342 (Official Feed Terms), a by-product is defined as:

By-Product - Secondary products produced in addition to the principle product.

Examples:

Lamb meal, Fish meal, Salmon meal,
Vitamin E, Chicken liver, Whey,
Chicken by-product meal, Beet pulp,
Chicken fat, Rice bran, Tomato pomace.

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What is a By-product?

According to the 2014 Official Publication of AAFCO, Page 343 (Official Feed Terms), a by-product is defined as:

"By-Product - Secondary products produced in addition to the principle product."

Examples of ingredients that are by-products:

Lamb meal, Fish meal, Vitamin E, Chicken liver, Egg Product, Chicken by-product meal,

Whey, Brewers Dried Yeast Beet pulp, Chicken fat, Rice bran, Tomato pomace.

Here's a sample pet food ingredient label – can you find the hidden by-products?

Deboned Whitefish, Whole Ground Brown Rice, Whole Ground Barley, Menhaden Fish Meal, Oatmeal, Canola Oil (preserved with Mixed Tocopherols), Tomato Pomace (source of Lycopene), Whole Sweet Potatoes, Natural Fish Flavor, Whole Potatoes, Peas, Whole Carrots, Blueberries, Cranberries, Flaxseed (source of Omega 3 and 6 Fatty Acids), Barley Grass, Dried Parsley, Garlic, Alfalfa Meal, Dried Kelp, Yucca Schidigera Extract, L-Carnitine, L-Lysine, Glucosamine Hydrochloride, Turmeric, Sunflower Oil (source of Omega 6 Fatty Acids), Chicken Fat (preserved with Mixed Tocopherols), Dried Chicory Root, Oil of Rosemary, Beta Carotene, Vitamin A Supplement, Thiamine Mononitrate (Vitamin B1), Riboflavin (Vitamin B2), Niacin (Vitamin B3), d-Calcium Pantothenate (Vitamin B5), Pyridoxine Hydrochloride (Vitamin B6), Biotin (Vitamin B7), Folic Acid (Vitamin B9), Vitamin B12 Supplement, Calcium Ascorbate (source of Vitamin C), Vitamin D3 Supplement, Vitamin E Supplement, Iron Amino Acid Chelate, Zinc Amino Acid Chelate, Manganese Amino Acid Chelate, Copper Amino Acid Chelate, Choline Chloride, Sodium Selenite, Calcium Iodate, Salt, Caramel, Calcium Carbonate, Potassium Chloride, Dried Yeast...

The pet food label above is Blue Buffalo, Blue™ Life Protection Formula Fish & Sweet Potato Recipe for Adult Dogs. This product contains 6 different ingredients defined by AAFCO as BY-PRODUCTS

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Family, a seldom used AAFCO statement

AAFCO defines —"product families" as foods that are comparable to a food that has passed a feeding trial and are nutritionally and calorically similar.

What makes the product family similar

- The lead product must have passed a feeding trial
- ❖ Both products must be in the same moisture content category
- ❖ The lead product must be within +/- 7.5% metabolizable energy of the family product
- The family product must meet the dry matter nutrient levels of the tested product for crude protein, calcium, phosphorus, zinc, lysine, and thiamine for dog foods and additionally potassium and taurine for cat foods.
- ❖ Nutrients other than those listed above need to meet or exceed the nutrient levels and ratios of the tested product or the AAFCO nutrient profiles whichever is lower. Nutrients shall not exceed the maximums established by AAFCO.



Approved AAFCO family statement: "(Name of Product) provides complete and balanced nutrition for ______and is comparable in nutritional adequacy to a product which has been substantiated using AAFCO feeding tests." The blank space will be filled in with the appropriate life stage i.e. gestation/ lactation, growth, maintenance or "All Life Stages".*

*AAFCO 2013 Official Publication, page 162-163

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How does Hill's Pet Nutrition compare to Blue Buffalo?





Hill's Pet Nutrition	Blue Buffalo
Founded 1948	Founded 2002
Founded by a veterinarian	Founded by an entrepreneur
Founded The Morris Animal Foundation, a charity for small animals, supporting research to help animals since 1948	Founded Pet Cancer Awareness in 2003. Along with Petco supports cancer research done at the Morris Animal Foundation.
Employees 150+ veterinarians, nutritionists, PhD scientists and credentialed technicians	?
Spends \$52 million dollars a year in scientific research	?
The Hill's Shelter Nutrition Partnership has donated over \$240 million worth of Science Diet brand foods since 2002	?
Donates food and supplies during natural disasters, like floods, hurricanes, fires and tornados. Earthquake in Japan- tons of food and \$250,000 Gulf Coast oil spill- food Hurricane Katrina- 200,000 lbs. of food and supplies	?





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Hill's® Ideal Balance™ canned dog foods are a great choice for your dog

	Key nutritional factors canine adult*	Hill's® Ideal Balance™ Grain Free Braised Salmon Recipe ¹	Hill's® Ideal Balance™ Slim & Healthy Tender Chicken & Peas Recipe¹	Blue Buffalo™ Blue Buffalo Homestyle Recipe Fish & Sweet Potato Dinner with Garden Vegetables²	Blue Buffalo™ Blue Wilderness™ Wolf Creek Stew™ Chunky Chicken Stew in Gravy²
Nutrients= DMB		ideal balance *GRAIN FREE*	ideal balance slim & healthy the state of	Holistic BLUE Homestyle Recipe Fight & SWEET POTATO DINNER With Garden Vegetables Tended to Page 18 and	WOLF CREEK STEW Chunky Chicken Stew in gravy in gravy
Protein%	15 to 30	22.9	28.3	39.8	49.6
Fat%	10 to 20	19.8	12.7	22.9	26.3
Calcium%	0.5 to 1.0	0.89	0.90	3.09	2.45
Phosphorous%	0.4 to 0.8	0.60	0.70	1.90	1.70
Sodium%	0.2 to 0.4	0.35	0.37	0.50	0.92

Numbers in red indicate values that exceed KNF *Small Animal Clinical Nutrition, 4th & 5th edition

¹Information from Hillspet.com, accessed February 24, 2015, ² analysis done December 2014, by independent third party laboratory on three different date codes of each competitors products, average values from the three lot codes are reported.

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Hill's® Ideal Balance™ dry dog foods are a great choice for your dog

	Key nutritional factors canine adult*	Hill's® Ideal Balance™ Grain Free Natural Salmon & Potato Recipe¹	Ideal Balance™ Natural Chicken & Brown Rice Recipe¹	Ideal Balance™ Grain Free Natural Chicken & Potato Recipe¹	Blue Buffalo™ Blue Wilderness™ Natural Evolutionary Diet Salmon Recipe ²	Blue Buffalo™ Life Protection Formula Natural Chicken and Brown Rice Recipe ²	Blue Buffalo™ Blue Wilderness™ Natural Evolutionary Diet Chicken Recipe²
Nutrients= DMB		ideal balance GRAIN FREE GRA	ideal balance	ideal balance	TILDERNISS AND ADDRESS OF THE PARTY OF THE P	The Process Persons And Proce	TILBERTON CONTROL OF THE PARTY
Protein%	15 to 30	25	22	24.2	38.8	28.1	39.8
Fat%	10 to 20	20	17.4	20.1	18.4	18.2	18.4
Calcium%	0.5 to 1.0	0.85	0.91	0.95	2.38	1.23	2.18
Phosphorous%	0.4 to 0.8	0.7	0.80	0.80	1.50	1.0	1.3
Sodium%	0.2 to 0.4	0.35	0.27	0.35	0.45	0.35	0.44
Vitamin E IU/kg	<u>></u> 400	748	754	577	114	112	111
Vitamin C mg/KG	> 100	130	176	179	21	15	14
Omega 3 fatty acids%		1.04	1.04	0.65	1.25	0.58	1.10
Omega 6 fatty acids%		3.38	3.39	3.66	3.06	3.61	3.54

Numbers in red indicate values that are below or exceed KNF

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Hill's® Ideal Balance™ dry cat foods are a great choice for your cat

	Key nutritional factors feline adult*	Ideal Balance™ Grain Free Natural Salmon & Potato Recipe¹	Ideal Balance™ Natural Chicken & Brown Rice Recipe¹	Blue Buffalo™ Blue Wilderness™ Rocky Mountain Recipe™ Trout²	Blue Buffalo™ Blue Healthy Living Natural Chicken and Brown Rice Formula ²
Nutrients-DMB		ideal balance *GRAIN PRE E* Bud area has been been been been been been been bee	ideal balance	ROCKY MONNATA RECIPE- WILL TOUT ADOLL	The source of th
Protein%	30-45	33.0	31.9	41.6	38.4
Fat%	10-30	23.0	22.6	19.0	21.7
Calcium%	0.5-1.0	1.00	0.88	1.76	1.69
Phosphorous%	0.5-0.8	0.8	0.80	1.30	1.30
Sodium%	0.2-0.6	0.50	0.50	0.47	0.43
Vitamin E IU/kg	<u>></u> 500	660	729	74	83
Vitamin C mg/kg	100 to 200	127	104	35	64
Omega 3 Fatty acids%		1.45	1.06	1.12	0.89
Omega 6 Fatty Acid%		3.83	4.10	3.43	4.00

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Hill's® Ideal Balance™ canned cat foods are a great choice for your cat

	Key nutritional factors feline adult*	Ideal Balance™ Grain Free Braised Salmon Recipe¹	Ideal Balance™ Baked Tuna Recipe¹	Ideal Balance™ Slow-Cooked Chicken Recipe¹	Blue Buffalo™ Blue Wilderness™ Salmon Recipe²	Blue Buffalo™ Healthy Gourmet Paté Ocean Fish & Tuna Entreé ²	Blue Buffalo™ BluHealthy Gourmet™ Meaty Morsels Chicken Entrée in Savory Sauce²
Nutrients-DMB		Total PREP. Sealing	ideal balance	ideal balance	SALMON	Healthy Gourmet PATE Ocean Fish A Tuna Entree	Healthy Gournet MATY Chicken Entre
Protein%	30-45	33.1	46.8	43.6	41.9	51.2	48.2
Fat%	10-30	28.6	18.6	20.3	46.9	14.5	30.2
Calcium%	0.5-1.0	0.93	1.00	1.07	2.77	3.05	1.46
Phosphorous%	0.5-0.8	0.80	0.80	0.70	1.7	2.40	1.80
Sodium%	0.2-0.6	0.48	0.64	0.49	0.41	1.73	2.03

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Compare Canine Hill's[®] Ideal Balance™¹ to Canine Blue Buffalo™²

Key Nutrients- DMB*	Calories	Protein	Fat	Sodium	Calcium	Phosphorus	Vitamin C	Vitamin E
Optimal Nutrient Range*	3.5-4.5 kcal ME/g	15-30%	10-20%	0.2-0.4%	0.5-1%	0.4-0.8%	More than 100mg/kg	More than 400 IU/kg
ideal balance Ward Chan I have the large and the large an								
WILDERNESS								

V

Nutrients within optimal range

Nutrients NOT within optimal range

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Compare Feline Hill's[®] Ideal Balance^{™1} to Feline Blue Buffalo^{™2}

Key Nutrients- DMB*	Calories	Protein	Fat	Sodium	Calcium	Phosphorus	Vitamin C	Vitamin E
Optimal Nutrient Range*	4-5 kcal ME/g	30-45%	10- 30%	0.2-0.6%	0.5-1%	0.5-0.8%	100- 200mg/kg	More than 500 IU/kg
ideal balance								
BUE ROUE MAGNITURE MAGNITURE								

V

Nutrients within optimal range

Nutrients NOT within optimal range

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5x more

antioxidants for a strong immune system



20% less

Phosphorus to reduce kidney stress

	Key nutritional factors canine adult*	Science Diet® Adult Advanced Fitness Original ¹	Ideal Balance™ Natural Chicken & Brown Rice Recipe¹	Blue Buffalo™ Life Protection Formula Natural Chicken and Brown Rice Recipe²
Nutrients= DMB		TOTAL STATE OF THE PARTY OF THE	ideal balance	BLUB A Phase of Polymer Comments and Commen
Protein%	15 to 30	24.5	22.0	28.1
Fat%	10 to 20	15.0	17.4	18.2
Calcium%	0.5 to 1.0	1.00	0.91	1.23
Phosphorous%	0.4 to 0.8	0.70	0.80	1.00
Sodium%	0.2 to 0.4	0.30	0.27	0.35
Vitamin E IU/kg	<u>≥</u> 400	729	754	112
Vitamin C mg/kg	> 100	304	176	15
Omega 3 fatty acids%		0.64	1.04	0.58
Omega 6 fatty acids%		4.15	3.39	3.61

Numbers in red indicate values that are below or exceed KNF

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5x more antioxidants for a strong immune system



53% lessPhosphorus to reduce kidney stress

	Key nutritional factors canine adult*	Science Diet® Adult Grain Free Salmon & Potato Recipe¹	Hill's® Ideal Balance™ Grain Free Natural Salmon & Potato Recipe¹	Blue Buffalo™ Blue Wilderness™ Natural Evolutionary Diet Salmon Recipe²
Nutrients= DMB		With the second	ideal balance *GRAIN PREE* *** *** *** *** *** *** ***	MILITER VIEW IN THE PARTY IN TH
Protein%	15 to 30	25.0	25.0	38.8
Fat%	10 to 20	20.0	20.0	18.4
Calcium%	0.5 to 1.0	0.85	0.85	2.38
Phosphorous%	0.4 to 0.8	0.70	0.70	1.50
Sodium%	0.2 to 0.4	0.35	0.35	0.45
Vitamin E IU/kg	<u>></u> 400	748	748	114
Vitamin C mg/kg	> 100	130	130	21
Omega 3 fatty acids%		1.04	1.04	1.25
Omega 6 fatty acids%		3.38	3.38	3.06

Numbers in red indicate values that are below or exceed KNF

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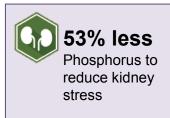
	Key nutritional factors feline adult*	Science Diet® Adult Tender Ocean Fish Dinner¹	Ideal Balance™ Baked Tuna Recipe¹	Blue Buffalo™ Healthy Gourmet Paté Ocean Fish & Tuna Entreé²
Nutrients-DMB		Out have been seen to be seen to	Advantage Control of the Control of	Healthy Gournet PATE Ocean Fish A Tunn Entree
Protein%	30-45	41.8	46.8	51.2
Fat%	10-30	20.1	18.6	14.5
Calcium%	0.5-1.0	0.72	1.00	3.05
Phosphorous%	0.5-0.8	0.60	0.80	2.40
Sodium%	0.2-0.6	0.32	0.64	1.73
Magnesium%	0.04-0.1	0.080	0.077	0.132

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	Key nutritional factors feline adult*	Science Diet® Adult Grain Free Salmon Entrée¹	Ideal Balance™ Grain Free Braised Salmon Recipe¹	Blue Buffalo™ Blue Wilderness™ Salmon Recipe²
Nutrients-DMB			RATH FREE CONTROL OF THE PARTY	SALMON (SECONDARY CONTRACTOR)
Protein%	30-45	33.1	33.1	41.9
Fat%	10-30	28.6	28.6	46.9
Calcium%	0.5-1.0	0.93	0.93	2.77
Phosphorous%	0.5-0.8	0.80	0.80	1.70
Sodium%	0.2-0.6	0.48	0.48	0.41
Magnesium%	0.04-0.10	0.093	0.093	0.102

Numbers in red indicate values that exceed KNF

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Key Nutrients- DMB*	Calories	Protein	Fat	Sodium	Calcium	Phosphorus	Magnesium
Optimal Nutrient Range*	4-5 kcal ME/g	30-45%	10-30%	0.2-0.6%	0.5-1.0%	0.5-0.8%	0.4–0.10%
Walter Committee							
Ideal balance		\	1				
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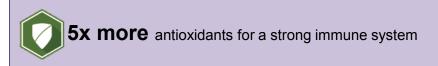


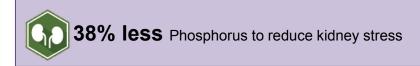


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Key Nutrients- DMB*	Calories	Protein	Fat	Sodium	Calcium	Phosphorus	Magnesium	Vitamin C	Vitamin E
Optimal Nutrient Range*	4-5 kcal ME/g	30-45%	10- 30%	0.2-0.6%	0.5-1.0%	0.5-0.8%	0.4–0.10%	100- 200mg/kg	More than 500 IU/kg
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ideal balance									
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Nutrients within optimal range

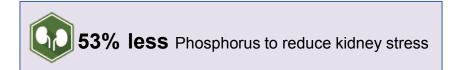


Nutrients NOT within optimal range

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Key Nutrients- DMB*	Calories	Protein	Fat	Sodium	Calcium	Phosphorus	Magnesium
Optimal Nutrient Range*	4-5 kcal ME/g	30-45%	10- 30%	0.2-0.6%	0.5-1.0%	0.5-0.8%	0.4–0.10%
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Nutrients within optimal range



*Small Animal Clinical Nutrition 4th & 5 th editions. ¹Information from Hillspet.com, accessed March 3, 2015 ² analysis done December 2014, by independent third party laboratory on three different date codes of each competitors products, average values from the three lot codes are reported. © 2015 Hill's Pet Nutrition, Inc. ®/™ Hill's, Science Diet and Ideal Balance are trademarks of Hill's Pet Nutrition Inc. Blue Buffalo is a trademark owned by the Blue Buffalo Company.



Key Nutrients- DMB*	Calories	Protein	Fat	Sodium	Calcium	Phosphorus	Magnesium	Vitamin C	Vitamin E
Optimal Nutrient Range*	4-5 kcal ME/g	30-45%	10- 30%	0.2-0.6%	0.5-1.0%	0.5-0.8%	0.4 – 0.10%	100- 200mg/kg	More than 500 IU/kg
Oran Free									
ideal balance									
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5x more antioxidants for a strong immune system



38% less Phosphorus to reduce kidney stress



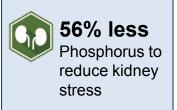
Nutrients within optimal range



Nutrients NOT within optimal range

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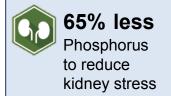


	Key nutritional factors canine adult*	Science Diet® Adult Gourmet Chicken Entrée¹	Hill's® Ideal Balance™ Slim & Healthy Tender Chicken & Peas Recipe¹	Blue Buffalo™ Homestyle Recipe Chicken Dinner With Garden Vegetables & Brown Rice²
Nutrients= DMB		SCIENCE DIET Gournet Chicken Entrée Panning Heritagni	ideal balance slim & healthy as a possible and a	CHICKEN BLUE Holistic BLUE CHICKEN DINNER With Garden Vegetables & Brown Rice Brown Rice The Market Property of the Chicken of the Ch
Protein%	15 to 30	22.9	28.3	40.2
Fat%	10 to 20	19.8	12.7	38.9
Calcium%	0.5 to 1.0	0.89	0.90	2.45
Phosphorous%	0.4 to 0.8	0.60	0.70	1.60
Sodium%	0.2 to 0.4	0.35	0.37	0.47

Numbers in red indicate values that exceed KNF *Small Animal Clinical Nutrition, 4th & 5th edition

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	Key nutritional factors canine adult*	Science Diet® Adult Grain Free Salmon Entrée¹	Hill's® Ideal Balance™ Grain Free Braised Salmon Recipe¹	Blue Buffalo™ Blue Wilderness™ Wolf Creek Stew™ Chunky Chicken Stew in Gravy²
Nutrients= DMB		SCENCE DIE SCENCE DIE SOM Flance Som Game Film Game Gam	ideal balance 'GRAIN FREE'	WOLF CREEK STEV Churky Chicken Stev uggsy ngs
Protein%	15 to 30	22.9	22.9	49.6
Fat%	10 to 20	19.8	19.8	26.3
Calcium%	0.5 to 1.0	0.89	0.89	2.45
Phosphorous%	0.4 to 0.8	0.60	0.60	1.70
Sodium%	0.2 to 0.4	0.35	0.35	0.92

Numbers in red indicate values that exceed KNF *Small Animal Clinical Nutrition, 4th & 5th edition

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5x more antioxidants for a strong immune system



38% less
Phosphorus to reduce kidney stress

	Key nutritional factors feline adult*	Science Diet® Adult Optimal Care® Original¹	Ideal Balance™ Natural Chicken & Brown Rice Recipe¹	Blue Buffalo™ Blue Healthy Living Natural Chicken and Brown Rice Formula²
Nutrients-DMB		OPTIMAL UNITED TO THE PARTY OF	ideal balance	Healthy Living on United States
Protein%	30-45	34.7	31.9	38.4
Fat%	10-30	21.9	22.6	21.7
Calcium%	0.5-1.0	0.90	0.88	1.69
Phosphorous%	0.5-0.8	0.70	0.80	1.30
Magnesium%	0.04-0.10	0.085	0.096	0.136
Sodium%	0.2-0.6	0.46	0.50	0.43
Vitamin E IU/kg	<u>≥</u> 500	729	729	83
Vitamin C mg/kg	100 to 200	109	104	64
Omega 3 Fatty acids%		0.53	1.06	0.89
Omega 6 Fatty Acid%		4.36	4.10	4.00

Numbers in red indicate values that are below or exceed KNF

*Small Animal Clinical Nutrition, 4th & 5th edition

¹Information from Hillspet.com, accessed March 3, 2015 ² analysis done December 2014, by independent third party laboratory on three different date codes of each competitors products, average values from the three lot codes are reported. © 2015 Hill's Pet Nutrition, Inc., ®/™ Hill's, Science Diet and Ideal Balance are trademarks owned by Hill's Pet Nutrition, Inc. Blue Buffalo and Wilderness are the trademarks owned by the Blue Buffalo Company.





5x more antioxidants for a strong immune system



38% less Phosphorus to reduce kidney stress

	Key nutritional factors feline adult*	Science Diet® Adult Grain Free ¹	Ideal Balance™ Grain Free Natural Salmon & Potato Recipe ¹	Blue Buffalo™ Blue Wilderness™ Rocky Mountain Recipe™ Trout ²
Nutrients-DMB		a successor of long	ideal balance •GRAIN FREE • GRAIN FREE	BOCK MONYAN RECUES with Your and Hadrone has
Protein%	30-45	33.0	33.0	41.6
Fat%	10-30	23.2	23.0	19.0
Calcium%	0.5-1.0	0.98	1.00	1.76
Phosphorous%	0.5-0.8	0.80	0.80	1.30
Magnesium%	0.04-0.10	0.094	0.091	0.118
Sodium%	0.2-0.6	0.55	0.50	0.47
Vitamin E IU/kg	<u>></u> 500	700	660	74
Vitamin C mg/kg	100 to 200	126	127	35
Omega 3 Fatty acids%		1.04	1.45	1.12
Omega 6 Fatty Acid%		4.57	3.83	3.43

Numbers in red indicate values that are below or exceed KNF

*Small Animal Clinical Nutrition, 4th & 5th edition

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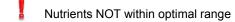




Key Nutrients- DMB*	Calories	Protein	Fat	Sodium	Calcium	Phosphorus
Optimal Nutrient Range*	3.5-4.5 kcal ME/g	15-30%	10- 20%	0.2-0.4%	0.5-1.0%	0.4-0.8%
SUNG DE grand Gournet Chicks Entrée						
ideal balance stim & healthy						
DILICEN Total BELLE TOTAL TOTAL						



Nutrients within optimal range



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Key Nutrients- DMB*	Calories	Protein	Fat	Sodium	Calcium	Phosphorus	Vitamin C	Vitamin E
Optimal Nutrient Range*	3.5-4.5 kcal ME/g	15-30%	10-20%	0.2-0.4%	0.5-1.0%	0.4-0.8%	More than 100mg/kg	More than 400 IU/kg
17 2000								
ideal balance								
And South Manual List Program Branch								



5x more antioxidants for a strong immune system



20% less Phosphorus to reduce kidney stress



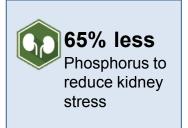
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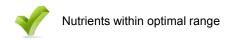
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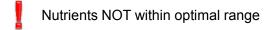
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Key Nutrients- DMB*	Calories	Protein	Fat	Sodium	Calcium	Phosphorus
Optimal Nutrient Range*	3.5-4.5 kcal ME/g	15-30%	10-20%	0.2-0.4%	0.5-1.0%	0.4-0.8%
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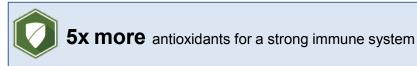


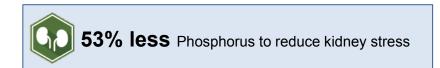


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Key Nutrients- DMB*	Calories	Protein	Fat	Sodium	Calcium	Phosphorus	Vitamin C	Vitamin E
Optimal Nutrient Range*	3.5-4.5 kcal ME/g	15-30%	10-20%	0.2-0.4%	0.5-1.0%	0.4-0.8%	More than 100mg/kg	More than 400 IU/kg
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Nutrients within optimal range

Nutrients NOT within optimal range

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Key Nutrients- DMB*	Calories	Protein	Fat	Sodium	Calcium	Phosphorus	Vitamin C	Vitamin E
Optimal Nutrient Range*	3.5-4.5 kcal ME/g	15-30%	10-20%	0.2-0.4%	0.5-1%	0.4-0.8%	More than 100mg/kg	More than 400 IU/kg
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Nutrients within optimal range

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Key Nutrients- DMB*	Calories	Protein	Fat	Sodium	Calcium	Phosphorus	Magnesium	Vitamin C	Vitamin E
Optimal Nutrient Range*	4-5 kcal ME/g	30-45%	10- 30%	0.2-0.6%	0.5-1.0%	0.5-0.8%	0.4–0.10%	100- 200mg/kg	More than 500 IU/kg
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		Science Diet [®] Adult Grain Free Salmon & Potato Recipe ¹	Science Diet [®] Adult Advanced Fitness Original ¹	Ideal Balance™ Grain Free Natural Salmon & Potato Recipe¹	Ideal Balance™ Natural Chicken & Brown Rice Recipe¹	Blue Buffalo™ Blue Wilderness™ Natural Evolutionary Diet Salmon Recipe²	Blue Buffalo™ Life Protection Formula Natural Chicken and Brown Rice Recipe²
Nutrients= DMB	Key nutritional factors canine adult*	SANT SANT SANT SANT SANT SANT SANT SANT	CONTROL OF THE PARTY OF THE PAR	ideal balance	ideal balance	TILDEANES - CALAMAN AND AND AND AND AND AND AND AND AND A	Alaba Alaba Burga Burga Alaba Burga Alaba Burga Alaba Burga Alaba Burga Alaba
Protein%	15 to 30	25.0	24.5	25	22	38.8	28.1
Fat%	10 to 20	20.0	15.0	20	17.4	18.4	18.2
Calcium%	0.5 to 1.0	0.85	1.00	0.85	0.91	2.38	1.23
Phosphorous%	0.4 to 0.8	0.70	0.70	0.7	0.80	1.50	1.0
Sodium%	0.2 to 0.4	0.35	0.30	0.35	0.27	0.45	0.35
Vitamin E IU/kg	<u>></u> 400	748	729	748	754	114	112
Vitamin C mg/KG	> 100	130	304	130	176	21	15
Omega 3 fatty acids%		1.04	0.64	1.04	1.04	1.25	0.58
Omega 6 fatty acids%		3.38	4.15	3.38	3.39	3.06	3.61

Numbers in red indicate values that are below or exceed KNF

^{*}Small Animal Clinical Nutrition, 4th & 5th edition

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		Science Diet® Adult Grain Free¹	Science Diet® Adult Optimal Care® Original ¹	Ideal Balance™ Grain Free Natural Salmon & Potato Recipe¹	Ideal Balance™ Natural Chicken & Brown Rice Recipe¹	Blue Buffalo™ Blue Wilderness™ Rocky Mountain Recipe™ Trout²	Blue Buffalo™ Blue Healthy Living Natural Chicken and Brown Rice Formula²
Nutrients-DMB	Key nutritional factors feline adult*	de la constant de la	PPINAL DISCOURS OF THE PRINCIPLE OF THE	ideal balance • GRAIN FREE • ORAIN FREE •	ideal balance	ROCKY MOUNTAIN RECIPE- - with Trout - with Trout - and Hadrone In	Banks When he had the bank of the bank of the bank of the banks of the
Protein%	30-45	33.0	34.7	33.0	31.9	41.6	38.4
Fat%	10-30	23.2	21.9	23.0	22.6	19.0	21.7
Calcium%	0.5-1.0	0.98	0.90	1.00	0.88	1.76	1.69
Phosphorous%	0.5-0.8	0.80	0.70	0.8	0.80	1.30	1.30
Sodium%	0.2-0.6	0.55	0.46	0.50	0.50	0.47	0.43
Vitamin E IU/kg	<u>≥</u> 500	700	729	660	729	74	83
Vitamin C mg/kg	100 to 200	126	109	127	104	35	64
Omega 3 Fatty acids%		1.04	0.53	1.45	1.06	1.12	0.89
Omega 6 Fatty Acid%		4.57	4.36	3.83	4.10	3.43	4.00

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Table of Content Homemade Diets- RAW

NN0024 BARF Fact Fiction	
NN0065 Home-Made Pet Foods	





BARF Feeding - Fact & Fiction

Facts

- 1. There is no scientific data to support beliefs commonly held by supporters.
- 2. Published BARF recipes contain excessive levels of Key Nutritional Factors, for example: protein, calcium and phosphorus for an adult dog or cat. ¹
- 3. Food poisoning is an obvious safety concern for animals eating raw foods and owners feeding raw foods. ²
- 4. Pets eating BARF diets or other raw food diets are at increased risk for intestinal obstruction, fractured teeth and gastrointestinal perforation. ³

Fiction

- 1. Domestic dogs require identical foods as wild wolves. False ignores 130,000 years of genetic adaptation that separates domestic dogs from wild wolves. ⁴
- 2. Eating raw bones is good for domestic dogs. False Ignores fact that wild canines ingest large amounts of prey fur which coat bones and prevents puncture damage. ⁵
- 3. Grains and carbohydrates are not digestible by domestic dogs. False dogs are quite capable of gaining large amounts of energy from grains. Nearly 99% of the starch fraction and 60-84% of the protein fraction of commonly used grains is digestible in dogs. ⁶

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¹ Billinghurst I. *Give Your Dog a Bone*. Alexandria, Australia: Bridge Printery, 1993. Schulzte KR. *The Ultimate Diet*. Descanso, California: Affenbar Ink, 1998. Volhard W, Brown K. The natural diet. *The Holistic Guide for a Healthy Dog*. New York: Howell Book House, 1995; 167-190

Freeman LM, Michel KE. Evaluation of raw food diets for dogs. J Am Vet Med Assoc 2001; 218: 705-709, 1553-1554 and 1716. Miller EP, Cullor JS. Food safety. Small Animal Clinical Nutrition, 4th edition, pages 184-198.

^{3.} Joffe DJ, Schlesinger DP, Preliminary assessment of the risk of salmonella infection in dogs fed raw chicken diets. Canadian Veterinary Journal, June 2002 43(6):441-2

^{4.} Wayne R. K., "Molecular evolution of the family dog," Trends in Genetics, June 1993 (vol. 9, #6) pp. 218-224.

^{5.} www.thepetcenter.com/imtop/wolfexrep.html

^{6.} J Anim Sci 1999 Aug;77(8):2180-6 Murray SM, Fahey GC Jr, Merchen NR, Sunvold GD, Reinhart GA. Evaluation of selected high-starch flours as ingredients in canine diets.



Home-made pet foods – a dangerous choice?

Common Dangers In Home-Made Pet Foods

- Unbalanced meals can contain excesses of one nutrient and deficiencies of another¹.
- Pet owners and pets may be exposed to raw or improperly cooked meats which can harbor dangerous bacteria.²
- Pet owners may assume dogs and cats require the same nutrition as humans and provide improper levels of multiple nutrients³.
- In one study⁴, 90% of home-made pet foods were found nutritionally <u>un</u>balanced and <u>in</u>complete for pets.

Copyright Hill's Pet Nutrition 2011 ®/™ Trademarks owned by Hill's Pet Nutrition Inc. ¹ Small Animal Clinical Nutrition V Edition page 213, ² Stiver SL, Frazier KS, Mauel MJ, Styer EL, Septicemic Salmonellosis in Two Cats Fed a Raw-Meat Diet ,J Am Anim Hosp Assoc 2003;39:538-542. LeJeune JT, & Hancock DD, Public health concerns associated with feeding raw meat diets to dogs JAVMA, Vol 219, No. 9, November 1, 2001 ³ Small Animal Clinical Nutrition V Edition page 214. ⁴ Small Animal Clinical Nutrition V Edition page 213



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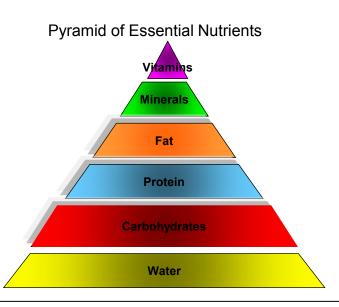
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NN14-13 Fiber	
NN0022 DHA	
NN15-61 Flaxseed	





What's More Important – Ingredients Or Nutrients?



The following pet food ingredients supply many of the essential nutrients in the pyramid above:

- •Corn, Rice, Barley, Sorghum carbohydrates for energy; essential fatty acids for healthy skin and coat
- •Animal Fat, Fish Oil, Vegetable Oil fats and essential fatty acids for energy, healthy skin and coat, and taste
- •Meat, Chicken, Poultry By-product Meal, Meat By-products, Soybean Meal, Egg protein for muscle tone and development, and for healthy skin

Key Facts

- Ingredients should be selected for the nutrients they supply, and for their quality and taste
- Nutrients are vital because the body absorbs nutrients, not ingredients
- Ingredients are delivery vehicles for nutrients, and the presence or absence of a single ingredient doesn't determine a pet food's quality.
- A pet food is the sum of its parts. A balance of quality ingredients delivers protein, fat, fiber, carbohydrates, vitamins, and minerals to meet a pet's nutritional needs.
- As ingredient quality increases, so does a pet's ability to absorb and use the nutrients needed for optimum health.
- QUALITY PET FOOD requires a precise blend of ingredients to create a specific nutrient profile based on a pet's lifestage, lifestyle or disease condition.
- Don't assume a food is right for your pet simply by reading the ingredient list, because THE BODY NEEDS NUTRIENTS, NOT INGREDIENTS!

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What is The REAL Power of Protein?

Category	Messages in <i>The Power of Protein</i> ¹ from Nestlé Purina	Evidence-Based Clinical Nutrition from Hill's
Weight Management	Increasing dietary protein maintains lean body mass during weight loss	Clinical studies show that cats fed Prescription Diet® r/d® or m/d®, and dogs fed r/d dry formula, maintain lean body mass during weight loss ^{2,3}
Adverse Reactions to Food	Protein hydrolysates are more effective than novel proteins in managing canine food allergies	Hill's has canine and feline protein hydrolysate formulas (z/d®) For some patients, novel protein foods are appropriate (d/d®)
Diabetes Mellitus—cats	Cats should be fed high-protein, low-carbohydrate food	Prescription Diet m/d is high-protein and low-carbohydrate High-protein isn't for all cats—w/d® appropriate for some
Renal Failure —dogs	Protein does not cause kidney damage in healthy dogs, but protein restriction may help dogs with chronic renal failure	A clinical study of dogs with chronic renal failure showed that consuming Canine k/d® helped delay progression of kidney disease and increase survival time ⁴
Senior Dog Nutrition	Older dogs need more protein to maintain protein reserves	Research shows that older dogs consuming foods with 18% (DMB) protein maintain normal protein status and nitrogen balance. ^{5,6} Science Diet® Senior 7+ dog food has 19.2% (DMB) protein
Protein and Immune Function	Immune function is influenced by nutrition and dietary protein	But one level of dietary protein is not appropriate for all disease conditions and life stages—and high protein foods are not necessary to maintain immune function in all animals

¹The Power of Protein. Purina Veterinary Diets® February, 2005; VET 6546. ²Schoenherr WD. Effects of a low-calorie, high-fiber food vs a low carbohydrate, high-protein food on weight loss in obese cats. Unpublished data. Hill's Science & Technology, Topeka KS, 2003. ³ Gross KL, Wedekind KJ, Kirk CA, et al. Effect of dietary carnitine and chromium on weight loss and composition of obese dougs (abstract). J An Sci. 1998; 76(Suppl. 1):175.

**Jacob K, Policia DJ, Osborne CA, et al. Effects of aging and dietary protein intake on uninephrectomized geriatric dogs. Am J Vet Med Assoc 2002; 220:1163-1170. ⁵Finco DR, Brown SA, Crowell WA, et al. Effects of aging and dietary protein intake on uninephrectomized geriatric dogs. Am J Vet

Res 1994; 55:1282-1290. Williams CC, Cummins KA, Hayek MG, et al. Effects of protein on whole-body protein turnover and endocrine function in young-adult and aging dogs. J Anim Sci 2001; 79:3128-3136.

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Nutrients come from Ingredients!

Nutrient		Amino Acids	Proteins	Carbohydrates	Fats	Natural Glucosamine	Natural Chondroitin	Natural Fatty Acids	Natural Antioxidants	Fiber	EPA & DHA — (Fatty Acids)	Omega -3 Fatty acids
Chicken By-Product Meal		√	√		√	√	√					
Corn Gluten Meal		√	√	√	√					√		
Dried Beet Pulp										√		
Dried Chicken Cartilage						√	√					
Dried Egg Product	√	√	√	√	√			√	√			√
Fish Oil					√			√			√	√
Flaxseed	√			√	√							✓
Whole Grain Corn	√	√	√	√	√			√	√	√		√
Whole Grain Sorghum	√	√	√	√	√							✓
Whole Grain Wheat	√	√	√	√	√							
Soybean Oil	√				√							

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Nutrients come from Ingredients!

Vitamins	Vitamins are compounds that are essential for normal metabolic activities in all living things.			
Amino Acids	Organic compounds that serve as building blocks for protein.			
Proteins	The building blocks of all cellular materials.			
Carbohydrate	Energy Source -Composed of starches and sugars. A quick and simple energy source for all living things.			
Fat	A source of energy.			
Glucosamine is beneficial for joints. Glucosamine is a substance that protects and supports joint fluid, cartilage and surrounding tissues. Sources can be shrimp & lobster shells (exoskeletons), chicken cartilage, chicken as poultry by products.				
Chondroitin	A substance that protects and supports joint fluid, cartilage and the surrounding tissues. Sources can be bovine trache (cartilage) chicken cartilage, chicken and poultry by products.			
Fatty Acids	are lipids, (organic compounds with limited solubility in water), that can be directly utilized as a source of energy by modern body cells. Required in the body for cell membrane function and integrity and healthy skin.			
Natural Substances that prevent or delay deterioration by the action of oxygen (Vitamin E, C, Rosemary, selenic beta-carotene), that are capable of counteracting the damaging effects of oxidation in animal tissue.				
A small portion of ingested foodstuffs that cannot be broken down by intestinal enzymes and juices of monogas animals and, therefore, passes through the small intestine undigested. It is composed of cellulose, hemicell gums, pectin and other indigestible carbohydrates. An important source of energy for intestinal bacteria which important for digestion.				
Docosahexaenoic acid (DHA) and Eicosapentaenoic acid (EPA) are polyunsaturated omega-3 fatty acids provided in the provided p				
Omega - 3 Fatty acids	Omega - 3 fatty acids are important and fundamental molecules in the activity of cells and especially cell membranes. Omega - 3 fatty acids are essential for development and growth and are a key and critical component in allowing dogs and cats to have shiny healthy coats and skin.			

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In pets, unlike humans, fats are neither "good" nor "bad" but they are <u>necessary</u> nutrients regardless of source!

All fats and oils contain nearly an identical amount of calories.

Per 100 grams of fat or oil	Units of Measure	Pork fat	Chicken Fat	Beef Fat	Duck Fat	Menhaden Fish oil	Safflower oil	Corn oil	Soy oil
Energy	Kcals (calories)	902	900	902	900	902	884	884	884
Selenium	Micro gms	0.2	0.2	0.2	0.2	0	0	0	0
Monounsaturated fats	grams	45.1	44.7	41.8	49.3	26.7	83.6	29.2	23
Polyunsaturated fats	grams	11.2	20.9	4	12.9	34.2	3.8	58.7	58

Source: USDA National Nutrient Database for Standard Reference, Release 15

"Although the concept of good and bad fats is appropriate for human health, dogs and cats are able to consume both types of fats in their diets without undue risk of coronary artery disease, heart attacks, or strokes to which humans succumb." "...dogs and cats are typically resistant to the development of hypercholesterolemia and atherosclerosis, even when they consume amounts of dietary fat that would typically turn human blood into sludge". J.E.

Bauer, DVM, PhD, DACVN, Journal of the American Veterinary Medical Association, Vol 229, No. 5 September 1, 2006.

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What is "brewers rice"?

Brewers rice is nothing more than the broken kernels of rice that are not commonly sold to humans. Most consumers prefer to buy whole kernels of rice in the grocery store.

All grains in pet foods, must be ground into a flour to be well digested. Using previously broken grains of rice does not change the nutritional value of the rice.

As defined by AAFCO:

Section 75.4 Chipped rice, broken rice, or brewers rice is the small fragments of rice kernels that have been separated from the larger kernels of milled rice.

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PRO-biotics vs. PRE-biotics

Everywhere you turn these days somebody is talking about either PRE-biotics or PRO-biotics. From yogurt to supplements, confusing advertisements are in the media everywhere.

PRO-Biotics are the -good bugs" in your digestive system that help digest foods. They have names like: *lactobacillus* acidophilus, Lactobacillus bulgaricus, Strep Faecium, B. bifidum, L. casei, L. rhamnosus, etc.

A study done at the University of Guelph found that

A study done at the University of Guelph found that tested pet foods did **not** contain the PRO-biotic bacteria colonies in the food as listed on the label.¹

PRE-Biotics are various fibers that selectively stimulate the growth and activity of friendly, beneficial bacteria. They are ingredients like: Beet pulp, soy fiber, and fiber found in whole grains like corn, rice, and oats.

Nearly all pet foods contain some source of fiber.

Don't be fooled by companies playing upon consumer confusion between pro-biotics and pre-biotics – they are definitely NOT the same thing.

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Bacteriological evaluation of dog and cat diets that claim to contain probiotics. J. Scott Weese, Luis Arroyo. Can Vet J Volume 44, March 2003



Gluten Free?

All pet foods which contain any grain, or many vegetables, contain some form of gluten.

Only gliadin, found in wheat, rye, barley, and oat flours has been implicated in very rare cases of gluten sensitive enteropathies (disease) in dogs.

Gliadin is not found in either rice, soy or corn.¹

Wheat sensitive enteropathy (celiac disease) has been identified in some Irish Setters, but is extremely rare in other breeds.

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Vitamins: what are they for?

	Vitamins	
Vitamin	What are they for?	Where do they come from?
Vitamin A	 Promotes normal vision Promotes normal bone & muscle growth Maintains healthy skin cells 	Liver, fish oil, dairy products, egg
Vitamin D	 Promotes tooth & bone formation Helps absorb minerals such as calcium & phosphorous 	Fish & fish oil, egg yolks
Vitamin E	 Antioxidant to delay signs of aging 	Vegetable oil
Vitamin K	 Necessary for normal blood clotting 	Alfalfa meal, liver
Vitamin C	 Antioxidant to delay signs of aging Strengthens connective tissue, muscle, & skin Hastens wound healing & increases resistance to infection 	Fruits, vegetables, organ meat
Vitamin B	Promote red blood cell formationAssists in metabolism	Various meats, vegetables



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Minerals: what are they for?

		Minerals	
\mathbb{N}	Mineral	What are they for?	Where do they come from?
С	alcium	 Major mineral in bone & teeth Participates in blood clotting, muscle contraction, nerve conduction blood pressure maintenance, cell membrane function, & heartbeat regulation 	Bone meal, calcium carbonate
Р	hosphorous	Found in bone & teeth	Meat, fish , egg, bone meal
\sim	Magnesium	 Helps maintain proper blood calcium levels Aids in metabolism of carbohydrates & fats Aids function of nerves & muscles 	Flaxseed, soy products, manganous oxide
P	otassium	 Helps maintain heart & kidney function Helps regulate blood pressure Facilitate muscle contraction & nerve impulses 	Potatoes, red meat, chicken, select fish, potassium chloride
Si	odium/ Chloride	 Maintains water balance Regulates blood pressure Facilitate muscle contraction & nerve impulses 	Meat, salt, sodium tripolyphosphate
С	opper/ Zinc	Important in skin cells and enzyme systems	Copper- Organ meats, copper sulfate Zinc- Beef, pork, lamb, dark meat chicken, zinc oxide



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Vitamins and Minerals: what are they for?

	Vitamins				
Vitamin	What are they for?	Where do they come from?			
Vitamin A	 Promotes normal vision Promotes normal bone & muscle growth Maintains healthy skin cells 	Liver, fish oil, dairy products, egg			
Vitamin D	 Promotes tooth & bone formation Helps absorb minerals such as calcium & phosphorous 	Fish & fish oil, egg yolks			
Vitamin E	 Antioxidant to delay signs of aging 	Vegetable oil			
Vitamin K	 Necessary for normal blood clotting 	Alfalfa meal, liver			
Vitamin C	 Antioxidants to delay signs of aging Strengthens connective tissue, muscle, & skin Hastens wound healing & increases resistance to infection 	Fruits, vegetables, organ meat			
Vitamin B	Promotes red blood cell formationAssist in metabolism	Various meats, vegetables			

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	Minerals	
Mineral	Function	Source
Calcium	 Major mineral in bone & teeth Participates in blood clotting, muscle contraction, nerve conduction blood pressure maintenance, cell membrane function, & heartbeat regulation 	Bone meal, calcium carbonate
Phosphorous	Found in bone & teeth	Meat, fish , egg, bone meal
Magnesium	 Helps maintain proper blood calcium levels Aids in metabolism of carbohydrates & fats Aids function of nerves & muscles 	Flaxseed, Soy products, manganous oxide
Potassium	 Helps maintain heart & kidney function Helps regulate blood pressure Facilitates muscle contraction & nerve impulses 	Potatoes, red meat, chicken, select fish, potassium chloride,
Sodium/ Chloride	 Maintains water balance Regulates blood pressure Facilitates muscle contraction & nerve impulses 	Meat, salt, sodium tripolyphosphate
Copper/ Zinc	 Important in skin cells and enzyme systems 	Copper- Organ meats, copper sulfate Zinc- Beef, pork, lamb, dark meat chicken, zinc oxide



Corn is a staple human food





In these common human foods and ingredients, corn or corn products are NOT considered to be a "filler", an allergen or indigestible.

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Where do we source our ingredients?

Hill's sources raw materials from countries where reliable safety procedures exist, primarily the United States, Japan, Canada, New Zealand, Australia and several European countries.



Regardless of the country from which our ingredients are sourced, the ingredient supplier must meet Hill's strict guidelines for doing business. Each shipment must meet Hill's quality and safety qualifications before entering our plants. Due to limited manufacturing locations for certain materials such as taurine, China sources may be used with extensive, additional approval requirements.



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Why Wheat?

- Wheat has great digestibility (84% gross energy)*
- Wheat provides high quality protein, with fiber, minerals and carbohydrates
- Food allergies are uncommon, comprising only 1% of skin disease in dogs and cats*.
- Of pets who have a food allergy,15% of dogs and 4.5% of cats have been reported to have allergies to wheat.*
- Wheat is the primary grain used in U.S
- Wheat is the third most popular grain in the world
- Wheat is used in many products like pasta, bread, cereal, cookies, gravy, and pastries



^{*}Kempe R, Saastamoinen M, Hyyppa S, Composition, digestibility and Nutrient value of cereals. Agriculture and Food Science Vol. 13: 5-17, (2004)

^{**} A. VERLINDEN, M. HESTA, S. MILLET, and G.P.J. JANSSENS, Food Allergy in Dogs and Cats: A Review, *Critical Reviews in Food Science and Nutrition*, 46:259–273 (2006)

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Why Barley?

- Barley provides high quality protein and has high digestibility (84% gross energy)*
- Barley is high in beneficial fiber; 50% is soluble
- Barley is the world's oldest grain
- Barley is the 4th largest crop in the United States
- Barley has been shown to lower cholesterol in people
- Barley is used in foods such as breakfast cereals, soups, pilaf mixes, breads, cookies, crackers and snack bars



*Kempe R, Saastamoinen M, Hyyppa S, Composition, digestibility and Nutrient value of cereals. Agriculture and Food Science Vol. 13: 5-17, (2004) © 2012 Hill's Pet Nutrition, Inc. ®/TM Trademarks owned by Hill's Pet Nutrition, Inc.



Why Sorghum?

- Sorghum has great energy and digestibility (80% total GI tract digestion)*
- Sorghum is a great protein source
- Sorghum came to the US in the early 1700s
- Sorghum ranks 5th in cereals for global production
- Sorghum contains iron, calcium and potassium. Before vitamins, many doctors prescribed it as a daily supplement for people with deficiencies in these nutrients.
- Sorghum is used to make cereal, snack foods and ground into flour to make pancakes and other baked goods



^{*}Murray SM, Fahey GC, Merchen RN, et al. Evaluation of selected high-starch flours as ingredients in canine diets. J Anim Sci 1999; 77:2180-2186. © 2012 Hill's Pet Nutrition, Inc. ®/TM Trademarks owned by Hill's Pet Nutrition, Inc.



Why Oats?

- Oats provide high quality protein and has high digestibility (86% gross energy)*
- Oats were first brought to North America in 1602
- Oat bran is recommended for people, because it is easy on digestion and assists in regulating gastrointestinal function
- Oats for people have anti-inflammatory properties, and have been clinically shown to help heal dry, itchy skin
- Oatmeal is famous for lowering cholesterol in people
- Oats is used in porridge and muesli, added into breads, biscuits, cereal bars

Agriculture and Food Science Vol. 13: 5-17, (2004)

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^{*}Kempe R, Saastamoinen M, Hyyppa S, Composition, digestibility and Nutrient value of cereals.



Why Grains?

- Common grains are wheat, corn, barley, oats, sorghum and rice
- Grains are highly digestible, (starch component is >99%)
- Total GI tract digestion (gross energy) is 80-88%*
- Grains provide high quality protein
- Grains provide beneficial fatty acids, vitamins and minerals
- Food allergies are rare making up 1% of all skin diseases and 10% of all allergic skin disease**
- Grains are used in breads, crackers, cookies, cereals, pasta, popcorn, gravy and so much more



^{*}Murray SM, Fahey GC, Merchen RN, et al. Evaluation of selected high-starch flours as ingredients in canine diets. J Anim Sci 1999; 77:2180-2186.

^{**}Verlinden V, Hesta M, Millet s, et al. Food allergy in dogs and cats: A review. Critical Reviews in Food Science and Nutrition, 46: 259-273 (2006)

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Why Corn?

- Corn is highly digestible (82% gross energy)* and provides high quality protein
- Corn provides beneficial fatty acids, for skin and coat
- The prevalence of grain allergies is very low compared to other environmental allergies
- Corn is also called Maize
- Corn is the number one crop in the world
- Corn is used cereals, chips, soups, cornbread, tortillas and popcorn



^{*}Kempe R, Saastamoinen M, Hyyppa S, Composition, digestibility and Nutrient value of cereals. Agriculture and Food Science Vol. 13: 5-17, (2004)

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Why Rice?

- Rice is easily digested (88% total GI tract digestion)*
- Rice provides high quality protein
- Rice has the second-highest worldwide production
- Rice is the staple food of over half the world's population
- Rice is used to provide welcome relief from gastrointestinal upset.
- Rice is used for rice-pilaf, noodles, cereal, risotto and sushi



*Kempe R, Saastamoinen M, Hyyppa S, Composition, digestibility and Nutrient value of cereals. Agriculture and Food Science Vol. 13: 5-17, (2004)

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What is the difference between fresh and frozen chicken?



Fresh chicken:

"Fresh" means whole poultry and cuts have never been below 26 °F (the temperature at which poultry freezes).



Frozen chicken:

Temperature of raw, frozen poultry is 0 °F or below.

Both fresh and frozen chicken are inspected by USDA's Food Safety and Inspection Service. The quality and nutrient value is the same for both.

http://www.fsis.usda.gov/fact_sheets/Meat_&_Poultry_Labeling_Terms/index.asp © 2012 Hill's Pet Nutrition, Inc. ®/™ Trademarks owned by Hill's Pet Nutrition, Inc.



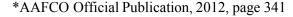
Deboned is a process, not an ingredient

"Deboned. (Process) The flesh resulting from the removal of bones accompanying flesh by mechanical deboning".*

Deboned chicken can still have bones

High calcium and phosphorous levels in foods show high levels of bone in cheaper quality meat

Hill's uses high quality meats, with controlled calcium and phosphorous



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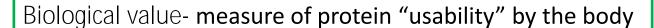
No matter what meat protein is in the pet food the biological value is the same*



Food	Biological Value
Chicken	74%
Pork	74%
Lamb	74%
Beef	74%







*Small Animal Clinical Nutrition 5th Edition, Page 94

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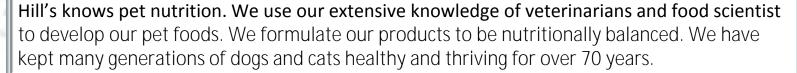
Are chelated minerals necessary in Hill's pet food?



Minerals bound to protein are called "Chelated Minerals"



Hill's products are properly formulated to contain highly available forms of the trace minerals zinc, copper, iron & selenium. Hill's products also avoid excess calcium, phosphorus & magnesium, which can interfere with the absorption of the trace minerals. These factors are combined to allow sufficient mineral availability in Hill's products, without the need for chelated minerals.



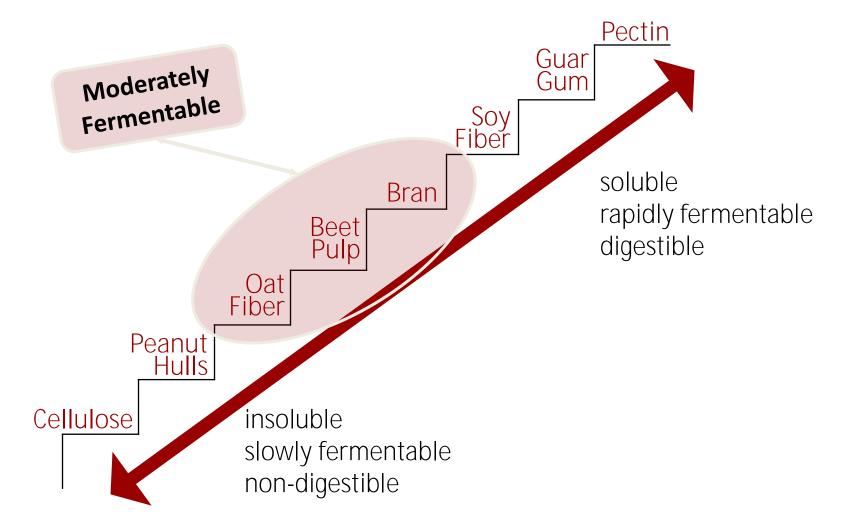




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Fiber is important for digestive health



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Docosahexaenoic Acid (DHA) Nourishment For the Brain

KFY POINTS

- Docosahexaenoic acid (DHA; 22:6n-3) is a polyunsaturated omega-3 fatty acid present in fish oil.
- -DHA is an important structural component of brain tissue.
- -Brain cell membranes and photoreceptor membranes have large amounts of DHA.¹
- -DHA is important for development of the brain and retina—during both fetal and neonatal periods.¹
- -DHA plays a role in biosynthesis of neurotransmitters, dopamine, serotonin and norepinephrine in the brain.²
- -DHA may be a factor in learning ability, orienting, and motor skills. 3,4,5

Review of Fatty Acids		
Fatty acid	A component of fats or lipids Consists of a chain of carbon and hydrogen atoms joined together by chemical bonds One end of carbon chain is a methyl group (CH3); other end is an acid or carboxyl group (COOH)	
Polyunsaturated fatty acid	Contains two or more double bonds. DHA has 6 double bonds (A saturated fatty acid has no double bonds)	
Long-chain fatty acid	Carbon chain is long; 18 to 20 or more carbon atoms (definition varies) DHA has 22 carbon atoms	
Omega-3 fatty acid	First double bond is between the 3 rd and 4 th carbon atoms in chain, counting from methyl (CH3) end	

1Pawlosky RJ, Denkins Y, Ward G, and Salem N. Retinal and brain accretion of long-chain polyunsaturated fatty acids in developing felines: the effects of corn oil-based maternal diets. Am J Clin Nutr 65: 465-472, 1997.

2de la Presa Owens S, and Innis SM. Doccsahexaenoic and arachidonic acid prevent a decrease in dopaminergic and serotoninergic neurotransmitters in frontal cortex caused by a linoleic and alpha-linolenic acid deficient diet in formula-fed piglets. J Nutr. 129:2088-2093, 1999

3Hoffman L, Kelley R, and Waltz D. For smarter more trainable puppies: effect of docosahexaenoic acid on puppy trainability. Research and Development Division, The lams Company, Lewisburg, Ohio. USA. ADSB#07356100

4Llm SY, and Suzuki H. Intakes of dietary docosahexaenoic acid ethyl ester and egg phosphatidyicholine improve maze-learning ability in young and old mice. J Nutr. 130: 1629-1632, 2000.

5Champoux M, Hibbeln J, Shannon C, et al. Fatty acid formula supplementation and neuromotor development in resus monkey neonates. Pediatr Res 51: 273-281, 2002.

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Why Flaxseed?

and coat,

Nutrients from flaxseed provide health benefits for skin and coat, and immune responses for both dogs and cats.

Source of the EFAs linoleic acid and α-linolenic (ALA)

•Linoleic acid is an omega-6 fatty acid important for cell membrane and skin barrier function as well as visible improvements in skin and coat health.

Strong anti-inflammatory effects of ALA

• Evidence exists for strong anti-inflammatory effects of ALA from flaxseed as well, including cats. 1-3

Proteins

• Constitute 23% of the whole flax seed4, helping support the immune response

Fermentable fibers

• Can help to improve and maintain gastrointestinal health. Non-fermentable fibers help to maintain regularity of bowel movements and can aid in the management of both constipation and/or diarrhea

Phytochemicals and antioxidants

•Has comparable antioxidant properties to those of vitamin E.⁵ In humans, flaxseed lignans have been shown to provide benefits in the nutritional management of certain types of cancer, heart disease, and kidney disease, among others.⁶

Sustainability

•One key difference- flaxseed is a sustainable crop, whereas fish may not be. The pressures on global fish stocks may eventually force the global community to ration the world's ocean fish.⁷

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References: 1). Parka HJ, Parka JS, Hayekb MG et al. Dietary fish oil and flaxseed oil suppress inflammation and immunity in cats. Vet Immunology and Immunopathology 2011; 141:301-306. 2). US Patent US6946488 The lams Company- A pet food composition and method is provided for reducing inflammatory response in cats. 3). Pawlosky, R. et al.; "Essential fatty acid metabolism in the feline; relationship between liver and brain production of long-chain polyunsaturated fatty acids" Journal of Lipid Research, vol. 35, No. 11, Nov. 1994, pp. 2032-2040. 4). Lechowski R, Sawosz E, Kluciński W. The effect of the addition of oil preparation with increased content of n-3 fatty acids on serum lipid profile and clinical condition of cats with miliary dermatitis. Journal of Veterinary Medicine, Series A, Vol. 45, No. 6/7, 1998, pp. 417-424. 5). Declercq DR, Daun JK; Quality of Western Canadian Flaxsea Canadian Grain Commission.
[http://www.grainscanada.g.c.a/flax-lin/trend-tendance/qfc-qic-eng.htm] website 2002. 6). Bhathena SJ and MT Velasquez. Beneficial role of dietary phytoestrogens in obesity and diabetes. Am J Clin Nutr 2002; 76: 1191-1201. 7). Westcott ND and AD Muir. Flax seed lignan in disease prevention and health promotion. Phytochemistry Reviews 2003; 2: 401-17. 8). Morris DH. Omega-3 fats in flax and fish are similar in many ways. Flax Council of Canada, 465–167 Lombard Ave., Winnipeg, MB, Canada R3B 0T6, E-mail: flax@flaxcouncil.ca Website: www.flaxcouncil.ca 04.2006ED04.06



Table of Content Nutrition

NN0017 Nutrition for Large Breeds	
NN09-99 Old Shoes	
NN0162 Wet Foods	
NN0165 Bulldog Hunting	





Nutrition For Large Breed Dogs

Key Facts

- Large Breed dogs weigh +55 pounds as adults
 - ½ of all dogs are considered large breed
 - 3 of the 5 most popular breeds are in this category¹
 - #1 Labrador Retriever
 - #2 German Shepherd Dog
 - #5 Golden Retriever
- Large Breed dogs have rapid growth rates
 - Influenced by genetics and high energy intake
 - Excess calcium and energy, plus rapid growth, increase risk of skeletal growth problems

Nutrition designed for large breed dogs can help maintain ideal body weight and healthy muscles, bones and joints

- Feed large breed dogs pet foods that do not contain excessive calcium, fat, or calories
- Feed large breed puppies foods with less calcium, fat, and calories than products for smaller breeds
 - Likelihood of skeletal problems increases with excessive calcium intake
 - High fat/calorie intake cause rapid weight gain, and bones/muscles aren't developed enough to support the excessive body weight

- Glucosamine may benefit large breed adult dogs because it helps maintain joint health and mobility.
 - Chicken cartilage and chicken by product meal are natural sources of glucosamine
- L-carnitine benefits both large breed puppies and large breed adult dogs.
 - In adult dogs, high carnitine levels help turn fat into energy and support lean muscles
 - Large breed puppies fed L-carnitine -supplemented food had increased lean muscles, bone mass, and bone density



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¹American Kennel Club Press Release, 1/26/2011. www.akc.org



Quality Pet Food or Old Shoes?

✓ Don't rely on pet food companies that only tout Ingredients or Guaranteed Analyses as evidence of high quality

- ✓ Coal, Old Shoes, Used Motor Oil and Water when combined can deliver a typical pet food guaranteed analysis
 - ✓ Science Diet® pet foods provide an optimal balance of nutrients to meet the health needs of individual pets

US Vets' #1 choice to feed their own pets

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Hydration is very important to maintain life...

For dogs, wet foods may be a convenient way to help maintain water balance by increasing total water intake* through the higher water content of this type of food.

At least 40% of pet owners top dry foods with wet foods **



Hill's® Science Diet® Canine wet foods are the ideal option for those pet parents who include wet foods in their dogs' daily menu...

- ✓ Contributes to healthy hydration
- ✓ Complements dry food with the perfect nutritional balance to help keep your dog in top condition

*SACN 5, Water Requirements, Pg 52 * *Habits & Practices Study, Sept 2002

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When was the last time you saw a Bulldog hunting?

Maybe on the internet, but not in the wilderness



Dogs may have evolved from wolves, but they are no longer wolves.

Dogs are omnivores and enjoy a varied diet of meat and plant foods just like their pet parents.

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Table of Content Preservatives- Antioxidants

NN0001 Antioxidants	
NN0071 Clinically Proven Antioxidant	





Antioxidants in Pet Food It's The Combination That Matters

Key Facts

- Antioxidants are compounds that fight free radicals, reactive oxygen molecules formed in the body during metabolism.
 - Free radicals cause oxidative damage to cell membranes, which may lead to degenerative problems Examples include premature aging, poor immune system function, degenerative neurologic problems, arthritis, and coronary artery disease in people.
 - Antioxidants inactivate free radicals and protect from oxidative damage – Dietary antioxidants combine with the body's natural system to help protect against cell damage.
 - Antioxidants are most effective when used in combination — Combining specific levels of the key antioxidants vitamins E+C, selenium, and beta-carotene help to support the immune system and contribute to vitality, health, and longevity.

How Antioxidants And Other Compounds Work Together To Protect Cells

Vitamin E	Neutralizes free radicals that cause cell damage.
Vitamin C	Inactivates free radicals, regenerates vitamin E
Beta- carotene	Scavenges free radical, acts synergistically with vitamin E
Selenium	An essential component of beneficial antioxidant enzymes.

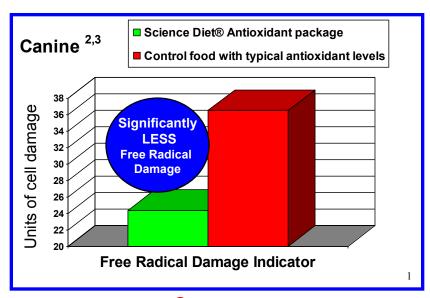
 Antioxidants and other compounds act in a variety of ways to neutralize or reduce the damage caused by free radicals. A combination of these key nutrients at specific levels contribute to vitality, health and longevity in pets.

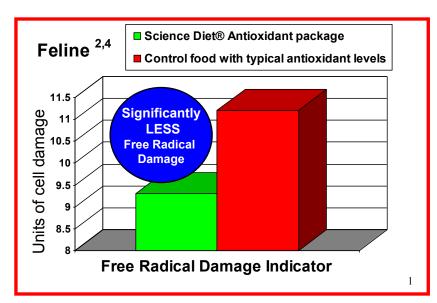
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Science Diet® dry pet food Clinically Proven⁵ antioxidant package

These graphs show the results of the unique blend of antioxidants and the high levels of antioxidants in Science Diet® pet food, which resulted in reduced **Free Radical** damage in cats and dogs.





Science Diet®, the only pet food with a clinically proven antioxidant bundle containing vitamins E, C, beta carotene and selenium.

Copyright Hill's Pet Nutrition Inc 2012 ®/TM Science Diet is the registered trademarks of Hill's Pet Nutrition Inc. ¹ The response variable is 8-hydroxy-2-deoxyguanosine. When damaged by free radicals, this specific piece of DNA cannot be reused and circulates in the bloodstream where it can be measured until excreted. It is therefore a good indicator of free radical DNA damage. ²Effect of Increasing Dietary Antioxidants on Concentrations of Vitamin E and Total Alkenals in Serum of Dogs and Cats Veterinary Therapeutics 2000 1(4):264-271. ³Study #17668 Effect of Antioxidants on Immune System and DNA Integrity in dogs. ⁴Study # 17669 Effect of Antioxidants on Immune System and DNA Integrity in cats. ⁵ Clinically Proven as defined by the Federal Trade Commission which requires two clinical studies for each "clinically proven" claim.



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Our ingredients undergo strict quality controls

We source meat and poultry ingredients from USDA inspected plants. Lamb and Venison are sourced from New Zealand and Australia.

We inspect and test our high-quality ingredients on-site as part of our stringent standards for the production of our premium pet foods.

We analyze our ingredients for over 50 nutrients to ensure the stringent, precise formulation of our products.

Every ingredient is inspected and verified via microbiological, sensory, chemical or foreign matter testing.



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Our pet food plants undergo strict quality controls

Our plants are inspected on average once per month by USDA, State Departments of Agriculture, FDA, AIB International or Hill's Global Quality

All finished products are held until they pass a rigorous testing process that include tests for nutrient levels, foreign materials and salmonella (dry only).

We employ HACCP (Hazard Analysis Critical Control Point) programs.

Samples are taken every 30 minutes to assure nutrients and quality of food



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Hill's Pet Nutrition



Philosophy of Nutrition, Quality and Safety

BALANCED NUTRITION FOR OPTIMAL PET HEALTH	 Hill's core premise is that science has proven the right pet nutrition is vital to pets' living long, healthy lives. Hill's develops products with the precise balance of at least 50 nutrients based on life
	stage, lifestyle, size or special needs. 3. Hill's believes that too little or too much of certain nutrients can adversely impact the health of pets.
CONTINUOUS IMPROVEMENT THROUGH RESEARCH AND TESTING	 4. Hill's continues to invest in nutrition technology and expertise to improve pet health. 5. Hill's uses "evidence based" nutrition to prove the benefits of pet food products.
RESPONSIBLE AND ACCOUNTABLE MANUFACTURING PRACTICES	 6. Hill's sources raw materials only from vendors that have reliable safety procedures in place; primarily United States, Canada, New Zealand, Australia and several European countries. 7. Hill's manufactures all dry pet foods in its own U.S. facilities, supervised by Hill's employees. 8. Hill's conducts 60 quality checks per batch – nutrients levels, moisture, density & pathogens 9. Manufacturing is monitored and we have a zero tolerance for salmonella, with over 1000 tests per month.
	10. Hill's ONLY ships products from our plants AFTER food safety testing is complete.

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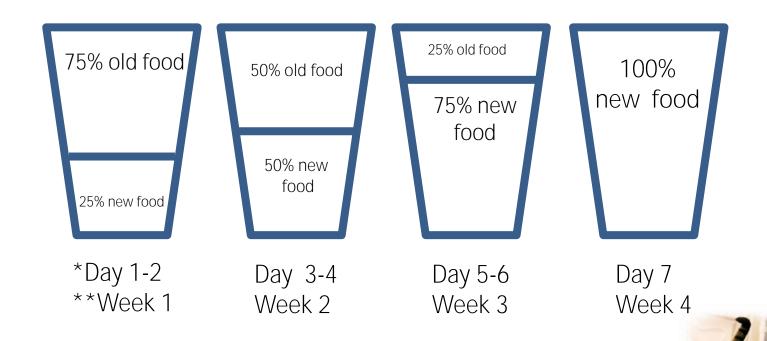
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Cats don't like sudden change. Transition to a new food gradually



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^{*}Average transition

^{**}Some cats will take longer to transition; use a more gradual transition for finicky cats



Tips to help your cat transition to the new food



Try feeding the new and old foods in separate bowls side-by-side







Warm up the food to 102° F (38.9° C)

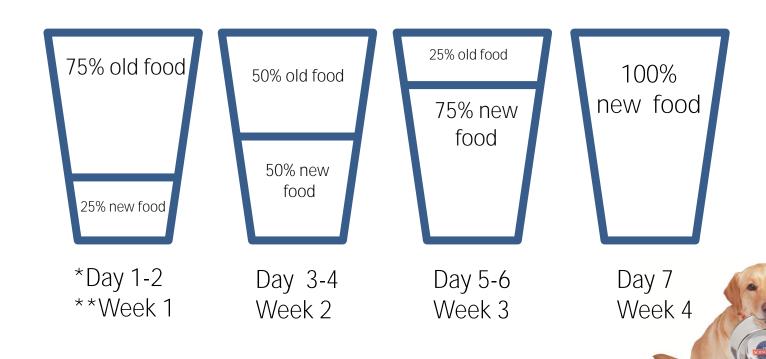


Add low-salt chicken broth

*Do not use when transitioning to or feeding Prescription Diet® y/d™ Feline © 2012 Hill's Pet Nutrition, Inc., ®/™ Hill's, Prescription Diet and y/d are trademarks owned by Hill's Pet Nutrition, Inc.



Pets don't like sudden change. Transition to a new food gradually



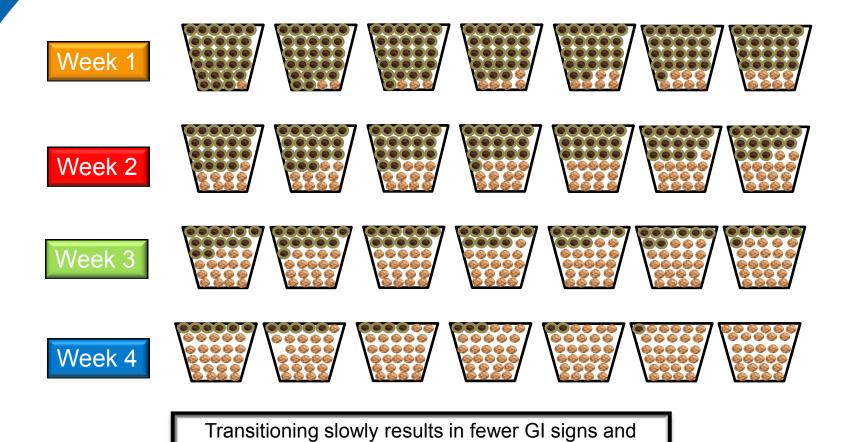
^{*}Average transition

^{**}Some pets will take longer to transition; use a more gradual transition for finicky pets, especially cats

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Making a good transition great!



better acceptance of a new food

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= New food

= Old food



The End

