

Choosing a Diet for Your Dog

By Sy Guth

The world of dog foods seemingly has grown more confusing with many dog owners being pulled in differing directions through dog food advertising campaigns, vet recommendations, breeder recommendations, and the amount of prolific internet information. On the American market alone, there are approximately 1,659 varieties of kibble dog foods and 381 canned dog foods.¹ Add to this, regional kibble, moist, frozen, raw dog foods, and it is easy to see why choosing a dog food and diet for one's dog has become so difficult.

The vast jungle of dog food choices available to feed a dog can be classified into seven different categories, and thereby the choice of what to feed made more manageable. It is important to recognise the different categories and understand their characteristics, because they are not all equal in cost, feeding instructions, and results. Dog owners each have their own areas of interest. Normally these interests are either, money, convenience, or health. For some owners, it can be a varying degree of two or three areas of interest.

It is important to add a note about changing diets – “Take it slow” is the best motto when changing a dog's diet. Add a little of the new diet into the old diet and gradually change over to the new diet. It takes about two weeks for a new diet to take affect.

For dogs that have been fed grain based diets, raw food needs to be introduced gradually and it is generally recommended to do so with one source of protein, such as chicken over a one or two week period to allow the natural enzymes to re-initiate themselves in the dog's stomach. “Take it slow”.

The seven categories discussed in this article are:

- 🐾 Canned / tinned and dog rolls - soft cooked product.
- 🐾 The home cooked diet.
- 🐾 Traditional grain based dry kibble food.
- 🐾 The new grain-free dry kibble foods.
- 🐾 The BARF diet, developed by Dr Billinghurst, a raw food diet.
- 🐾 The prey diet, a raw carcass food diet.
- 🐾 And a hybrid diet which is part prey, part BARF, and part grain-free.

When one selects a diet, considerations should first be given to the pros and cons of the diet. Secondly, one should understand how to feed the diet and any important factors that are to be noted about the diet, such as additives needed for balanced nutrition. The information provided below is a basic summary to stimulate interest in the variety of diets on the market. The reader is encouraged to do further research to satisfy their own needs regarding their dog's diet. Some references have been provided to help the reader get started on research on lesser known diets.

The Canned or Dog Roll Diet

Canned dog foods have been around since the 1950s. However, the number and variety of soft cooked foods have changed over the years. Now there are hundreds of canned / tinned dog foods on the market worldwide. And since canned dog food tends to fall into the category of a soft cooked dog food, we can add dog rolls and some other soft food varieties to this category.

Convenience - Pros

- 🐾 Canned dog food has a good shelf life.
- 🐾 Dog rolls can be frozen to keep longer.
- 🐾 Good choice and variety on the market, and normally found in most pet stores, vet clinics, and super markets.

Expense - Pros

- 🐾 Expense will vary depending on brand and ingredients.
- 🐾 Feeding canned food may be more practical for small breed dogs.

Expense - Cons

- 🐾 Could be rather expensive to feed a large breed dog.

Digestion - Pros

- 🐾 The cooking process makes soft cooked foods easy to digest.
- 🐾 There are dog rolls close to the BARF ingredients but lightly cooked and have no nasty preservatives. These would be comprised of 70% or more meat / fish with or without a balance of fruit / vegetables but no or very little grain.

Digestion - Cons

- 🐾 It can be argued that the dog's digestive system is designed for raw diets and therefore raw is even easier to digest than cooked.

Health- Pros

- 🐾 Can provide a variety of foods to a dog to over come any deficiencies found in a single canned food or dog roll.
- 🐾 There are some high quality dog rolls on the market, patterned after the BARF formula, in a lightly cooked form.
- 🐾 Prepared by companies that specialise in animal nutrition, these products claim to provide balanced diets for dogs.

Health- Cons

- 🐾 Most canned or roll food is cooked using high heat to kill microorganisms, and therefore there will be a varying loss of vitamins / minerals especially those that are heat sensitive.
- 🐾 Synthetic vitamins and minerals do not always have the same three-dimensional structure as their natural counterparts and therefore efficiency and use to the body is substantially decreased.
- 🐾 Cheap dog rolls of inferior ingredients fed long term can cause blindness to dogs as well as other major health issues due to lack of quality ingredients and high temperature cooking leading to compromised nutrients.
- 🐾 In 2007, contaminated canned foods in the US / Canada resulted in the death of thousands of dogs.

Notes:

- 🐾 It is important to read the ingredients label and understand the affect of each ingredient in regards to a dog's digestive system and nutritional needs.

Home Cooked Diet

Prior to the 1950s and the invention of complete kibble dog foods, dog owners fed either raw or home cooked foods to their dogs. The home cooked diet has been around for decades, if not centuries.

However, as with most of the diet options for dogs these days, there are two fierce camps on home cooked diets for dogs – those in favour and those opposed.

One website authored by a holistic vet, Dr Ihor Basko, DVM,ⁱⁱ is one of the few websites on home cooked diets you will find written by a vet who is a proponent of home cooked meals. Most vet associations and vets warn about all the problems that a dog can suffer from a home cooked diet. The reader needs to do their own research on home cooked diets for dogs and then make up their mind if this is the right diet for their dog.

Another group with information is Epi Guardian Angles. This website is dedicated to dogs who have developed epilepsy and been helped mainly through natural nutrition. There are several articles on home cooked meals for the dog including one identifying what supplements to give with home cooked meals.ⁱⁱⁱ

Convenience - Cons

- 🐾 Requires planning, shopping and cooking.

Expense – Pros

- 🐾 Depends on circumstances, if living on a farm or lifestyle block this could be an inexpensive food for dogs.

Expense – Cons

- 🐾 Properly done with sufficient meat protein, could be more costly than other diets.

Digestion – Pros

- 🐾 Most dogs should have no trouble digesting home cooked food.

Digestion – Cons

- 🐾 Cooked bones cannot be given to dogs as they will splinter.
- 🐾 Too many of some vegetables may lead to hypothyroidism.
- 🐾 One needs to be aware of which foods are toxic to dogs such as onions and raw root vegetables.
- 🐾 Cooking destroys some vitamins, minerals, and enzymes.

Health – Pros

- 🐾 Will generally eliminate any risk of e coli and similar bacteria.
- 🐾 Can be cooked for short periods at low temperatures thus preserving most of the vitamins and minerals.
- 🐾 Claimed by many to provide healthier and more energetic dogs with better coats.
- 🐾 Dr Ihor Basko does not believe one recipe fits all, but rather provides recipes for dogs based on: “breed & body type, personality, age, sex, current problems, inherent genetic weaknesses (which may affect them in the future), climate of the season, and their level of exercise and activity and stress.”

Health – Cons

- 🐾 Cooked foods suffer a loss or change in vitamins, minerals, and enzymes, such as B1 and thiamine. Requires study and knowledge to ensure the dog receives all needed nutrients, especially trace minerals needed to maintain good health.
- 🐾 Synthetic vitamins and minerals do not always have the same three-dimensional structure as their natural counterparts and therefore efficiency and use to the body is substantially decreased.
- 🐾 Home cooked does not provide natural balanced nutrients like a raw diet does.
- 🐾 Many vets warn about health issues that arise from feeding a home cooked diet.
- 🐾 Unbalanced hormones through nutrition can inhibit successful breeding, the same as with humans.

Notes:

- 🐾 Need to understand which foods are poisonous to dogs and avoid them.
- 🐾 If not feeding human grade foods from grocery store, need to know the source and / or buy from a MAF / NZFSA authorised source to ensure disease and bacteria free foods.

The Traditional Kibble Diet

Of the total kibble dog foods sited in the introduction, 1,626 or 98% fall into the “traditional kibble” category. This, by far, makes up the vast amount of food world-wide being fed to dogs. It is generally conceded that most traditional kibble contains 40% to 50% grain and the remainder is meat, fruit, vegetable, herbs, and preservatives and are processed using the extrusion heat process.

Convenience – Pros

- 🐾 Easy to feed.
- 🐾 Found at pet stores, vet clinics, or feed stores.

Expense – Pros

- 🐾 Price will vary greatly depending on brand, ingredients, and size of bag.

Expense – Cons

- 🐾 May not prove cost effective in terms of long term health risks.

Digestion – Pros

- 🐾 Many manufactures add digestive aids to the food to enable digestion.
- 🐾 Some manufactures add probiotics to their dry kibble formulas.

Digestion – Cons

- 🐾 Generally, these foods will contain 40% to 50% grain fillers which the dog does not have natural enzymes to digest. Therefore, the grains will be eliminated without proper digestion or nutritional benefit.
- 🐾 Fed over a period of time, tends to suppress the dog’s natural enzymes needed to digest raw foods and bones.

Health – Pros

- 🐾 Claims and studies show this to be a healthy way to feed dogs.
- 🐾 Dog food companies employ animal nutritionists to develop “balanced” foods for dogs.
- 🐾 Provides a huge range and variety of foods, most targeted toward specific types of dogs and age groups.

Health – Cons

- 🐾 There is a legion of information on the internet on this topic by various advocate groups. Highlights are presented below.
- 🐾 Food is extruded at temperatures normally around 155 degrees and above – designed to kill all micro organisms. This enhances self life, but also has been shown to lead to autoimmune disease.
- 🐾 Fed on a regular basis may not be balanced in terms of major nutrients, minerals, and vitamins. Although dog food manufactures do add vitamins and minerals, it is difficult to gage the proper amounts for each breed and individual dog.
- 🐾 Synthetic vitamins and minerals added back in do not always have the same three dimensional structure as their natural counterparts and therefore efficiency and use to the body is substantially decreased.
- 🐾 May introduce a high level of drugs, toxins, and chemicals into the dogs system which “present a continual immunological

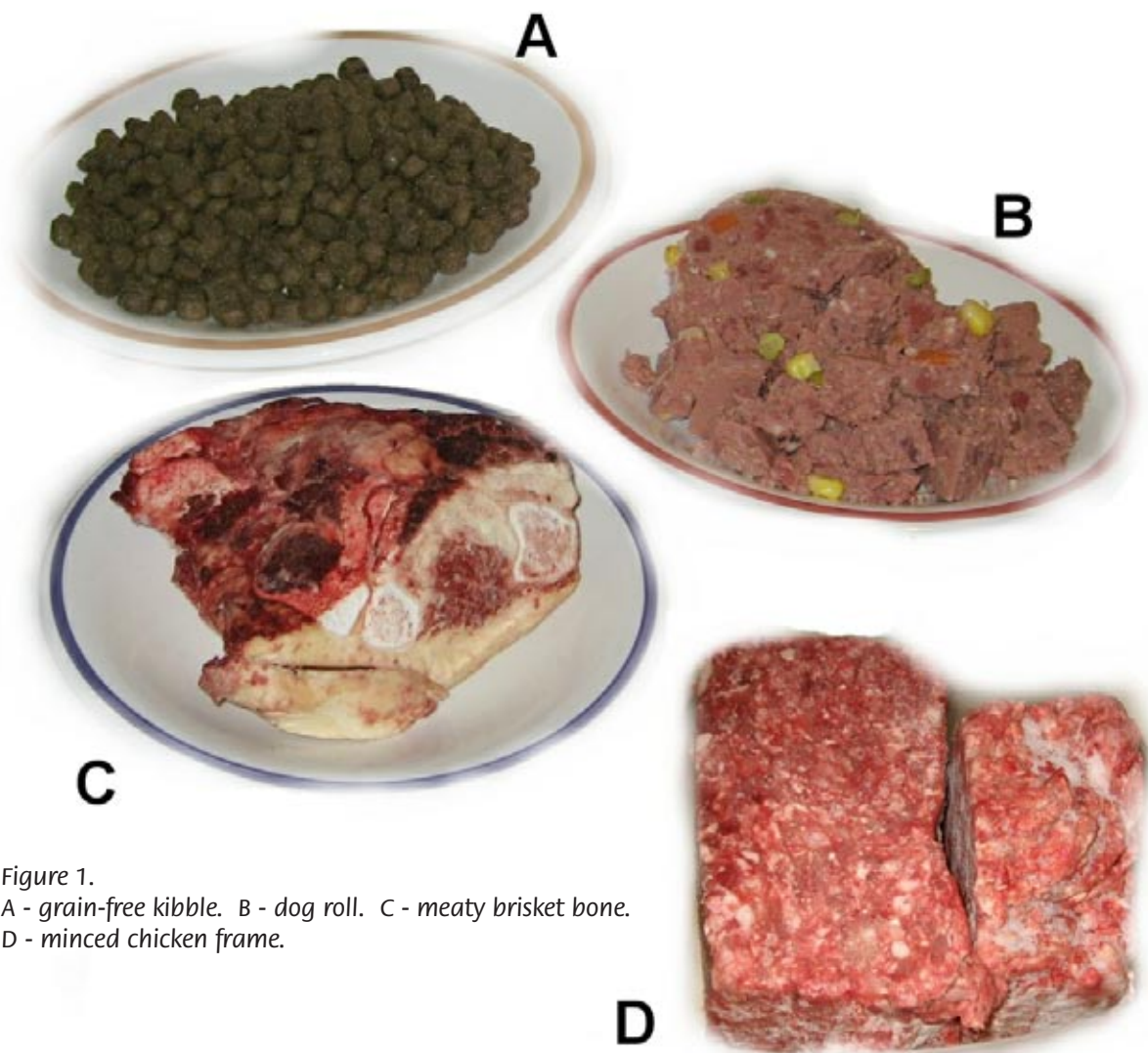


Figure 1.
 A - grain-free kibble. B - dog roll. C - meaty brisket bone.
 D - minced chicken frame.

challenge which can suppress immune function, especially in those animals genetically susceptible to immune dysfunction (immune deficiency, autoimmunity, allergies).^{iv}

- 🐾 Can have a profound effect on thyroid metabolism due to iodine and selenium deficiency occurring from eating cereal grain crops grown on iodine and selenium deficient soil.^v
- 🐾 Carcinogenic preservatives such as BHA, BHT, and Ethoxyquin or toxins like arsenic added to chicken feed in the US to kill parasites, can build up in the dog's system over years and lead to cancer, tumours, and other health issues.
- 🐾 The food is heated / "cooked", and therefore there will be some loss of vitamins / minerals / enzymes and these may need to be supplemented.
- 🐾 Some additives like Rosemary and Beet Pulp cause bowel and allergy problems to some dogs.

Notes:

- 🐾 Rather than depending on advertising and other people's advice, read and study to learn what nutrients are good and bad for dogs and then read the labels and select a food that meets YOUR standards.

The Grain Free Kibble Diet

A few dog food manufactures have started producing grain-free kibble. Of the 1,659 dry kibble dog foods, we only found 33 that were grain free, making this a very small niche market. Of these, the only brand lines we know to be available in New Zealand are Orijen^{vi} (all their imported formulas) and Canidae^{vii} (two of their imported

formulas) both of which have been introduced into New Zealand in recent months.

Dogs should be able to better digest these grain-free foods than the typical grain-based foods. It is recommended that the food should be introduced gradually, mixed with previous foods, over a one to two week period.

Convenience – Pros

- 🐾 Bagged, dry kibble, easy to feed.
- 🐾 Feed less because the dog is able to digest all the ingredients.
- 🐾 No indigestible fillers.
- 🐾 Most are baked at low temperatures for short periods, thus preserving more of the natural vitamins and minerals to a higher standard.

Convenience - Cons

- 🐾 More limited choice and perhaps not as convenient to source.

Expense – Pros

- 🐾 Not paying for ingredients that the dog cannot digest.
- 🐾 Normally do not need to feed as much as with regular kibble with fillers.

Expense – Cons

- 🐾 More expensive per kg than traditional kibble foods.

Digestion – Pros

- 🐾 Will depend on the ingredients, but dogs should be able to digest all ingredients.

Health – Pros

- Should provide a relatively good source of food for the health of the dog.
- Normally guarantees a minimum number of micro-organisms present in food. The lack of bacteria in normal grain-based kibble is a major contributor to autoimmune disease.

Health – Cons

- Does not provide whole meaty bones for cleaning gums and teeth.
- Will be considered by raw food advocates to be not as good as feeding raw because of the heating process.
- The food is heated / cooked, at low temperatures, but there will still be some loss of vitamins, minerals, enzymes and change to molecular structure.
- Synthetic vitamins and minerals added back in do not always have the same three dimensional structure as their natural counterparts and therefore efficiency and use to the body is substantially decreased.

Notes:

- Brands that contain at least one grain-free kibble food in their line: Acana, Before Grain Buffalo, Canidae, Earthbone, Go Natural, Horizon Legacy, Innova EVO, Instinct, Orijen, Solid Gold, Taste of the Wild, Timberwolf, Wellness Core.
- Reviews do carry a caution about feeding high protein foods to puppies, but because these are grain-free food, there should not be a problem, because the puppy's bones and tissues should grow more soundly without the fillers. Given the lack of any long term studies on these "new" grain-free foods, in theory, there should be less chance of injury to bones. DO NOT use a puppy protein step-down diet with these foods as there is no way to reduce the protein content to 20% without bulking with extra ingredients which may unbalance the food.

The BARF (Bones & Raw Food) Diet

In this review, we refer to the BARF diet in its pure state as a raw diet developed by Dr Billinghurst, DMV, in his book, The BARF Diet. For those wanting to undertake this diet, we highly recommend reading the book before starting the diet.

Convenience – Pros

- In some area, BARF type meals are available for purchase.

Convenience - Cons

- Requires sourcing, sometimes from multiple sources and then preparations. Normally requires a freezer.
- Requires adding supplements, such as kelp, Omega 3 & 6, vitamins A, C and E.

Expense – Pros

- This will vary by area and availability to source the raw food needed. Finding good sources can prove much less expensive than feeding manufactured foods.

Expense – Cons

- Depends on sourcing and foods fed, but can be considerably more expensive than other types of diets if foods have to be purchased from grocery stores.

Digestion – Pros

- Dogs get the natural enzymes to digest raw meat, fat, and bones from the raw food therefore making it easy to digest.
- Vegetables must be raw, but crushed for dogs to utilise the nutrients. Using a juicer is recommended.
- Yogurt is recommended as a source of probiotics for dogs with allergies.

- Pancreatic digestive enzyme supplementation may be required for dogs known to have pancreatitis, diabetes, cancer, arthritis, and inflammatory bowel disease.

Digestion – Cons

- If a dog has been fed a grain based or home cooked diet for a period of time, it may take some time for the dog to re-initiate the natural enzymes needed to digest raw food. Feed one source of raw protein for 1 to 2 weeks, like chicken, and then start to vary the diet gradually.
- If a dog has trouble digesting bones and/or passing faeces, increase the meat and decrease or grind the bones.

Health – Pros

- Provides most vitamins, minerals and enzymes in complete and balanced form meant for carnivorous animals.
- Recommends adding Vitamins A, C, and E along with kelp and Omega 3 & 6.
- Reduction in diabetes or cancer diseases that are at least partly due to hyperinsulinemia which is a direct result of feeding biologically inappropriate cooked grain to dogs.

Health – Cons

- Risk of bacteria that under some circumstances the dog's enzymes may not be able to deal with adequately.
- Care not to over feed crucifer family of vegetables (such as cabbage) as they will depress the thyroid if fed constantly in large amounts.
- Depending on meat type and source, may be necessary to worm on a regular basis.

Notes:

- "Sixty percent raw meaty bones; Fifteen percent crushed vegetable material; Ten percent offal; Five percent fruit; The remainder as supplements to mimic faeces and soil."^{viii}
- Freeze raw foods for a week or longer to kill parasites.
- See Raw / Hybrid note section for raw food distributors in NZ.

The Whole Prey Model Diet

The prey-model diet is based on feeding dead, raw, whole prey animals. The dog needs bones and organ meat as well as normal meat to obtain the proper nutrients. The whole carcass is what sufficiently sustains wolves, dogs, wild cats, and ferrets, and that is what nature has perfectly provided for them.^{ix} Packs of wolves will hunt and bring down large ungulates, such as deer, caribou and bison. Individual wolves will hunt and eat smaller prey such as squirrels, rabbits, hares, chipmunks and other rodents. All of these prey animals are made up of bones, organs, muscle meat, skin, hide/hair/feathers, fat and other connective tissue. In the average prey animal, the ratio of these parts is approximately:

- 5-10% organs (1/2 of this amount is liver)
- 10-15% edible bones
- 80-85% muscle meat (and the rest of the critter)

It's crucial that as much variety is fed in the prey model diet as possible, to make up for the fact that commercially raised livestock does not contain the concentration and variety of nutrients that is present in wild prey. Some raw fish is necessary for Omega 3.

Convenience – Pros

- Depends on number of sources needed to acquire foods.
- Feeding is extremely simple – serve a carcass or meat, bone, and organs.

Convenience - Cons

- Depends on sourcing and foods fed, can be difficult to source.

Expense – Pros

- 🐾 This will vary by area and availability to source the raw food needed. Finding good sources can prove much less expensive than feeding manufactured foods. Check butchers and other meat processing sources.

Expense – Cons

- 🐾 If one is not able to find carcasses inexpensively, it will cost more buying whole or part chickens, and other meats through grocery stores.

Digestion – Pros

- 🐾 By nature, the dog will get all the enzymes needed to digest meat, fish, fat, and bones from the raw foods.
- 🐾 If the dog has too hard of a time passing faeces, increase the meat and decrease the bone.

Digestion – Cons

- 🐾 If a dog has been fed a grain based or home cooked diet for a period of time, it may take some time for the dog to re-initiate the natural enzymes needed to digest raw food. Feed one source of raw protein for 1 to 2 weeks, like chicken, and then start to vary the diet gradually.

Health – Pros

- 🐾 Raw whole carcass food provides the balanced vitamins, minerals, and enzymes that dogs require.
- 🐾 Bones clean the dog's teeth and gums naturally of plaque and leave the breath better smelling.
- 🐾 Typically have more energy and endurance, but are calmer and easier to train.
- 🐾 Improved skin and coat.
- 🐾 No or reduced allergies when switched to raw.
- 🐾 Fewer health problems.

Health – Cons

- 🐾 There is the chance of bacteria contamination over load that certain dogs can not throw off. This usually occurs in dogs that have underlying health problems before starting a raw diet or within 10 days following a vaccination that can suppress the immune system up to 80% for a period of 10 days following the vaccination.
- 🐾 Best to vary the diet and not feed only one type carcass.
- 🐾 Depending on meat type and source, may be necessary to worm on a regular basis.
- 🐾 A meat only diet may lead to nutritional secondary hyperparathyroidism.
- 🐾 High levels of protein can damage an already compromised kidney caused by periodontal disease.

Notes:

- 🐾 The more popular of the prey raw food advocates, recommend joining the Yahoo "rawfeeding" group for support and diet information.
- 🐾 Freeze raw foods for a week or longer to kill parasites.
- 🐾 See Raw / Hybrid note section for raw food distributors in NZ.

Raw / Grain Free Hybrid Diet

For those who find the BARF Diet too time consuming to prepare with all the additives, consideration might be given to doing a Raw / Grain-Free Hybrid Diet. This provides the benefits of raw feeding plus the assurance of the extra probiotics, oils, and kelp recommended by the BARF diet.

For example, for a 30 kg dog, feed raw for the morning meal consisting of 1% to 1.5% weight of dog (300 to 450 grams). Suggested weekly meals might include: 1 meal x minced chicken carcass; 2 x CPF Special Raw Mix (see notes); 1 x chicken frame; 1 x tapioca pudding (see notes); 2 x meaty beef brisket bones. The evening meal would consist of ½ the daily recommended amount of grain free kibble (about 150 grams). Added balanced supplement is optional.

Convenience – Pros

- 🐾 Grain free is shipped to the door.

Convenience - Cons

- 🐾 Raw morning meals must be sourced. This may require several shops.

Expense – Pros

- 🐾 Depending on previous diet, could reduce food bill.

Expense – Cons

- 🐾 Depending on previous diet, could increase food bill.

Digestion – Pros

- 🐾 All foods are grain free and natural to the dog's digestion system.

Digestion – Cons

- 🐾 For those dogs on grain based diets, need to ease into a raw diet gradually.

Health – Pros

- 🐾 Foods are varied and include a broad range.
- 🐾 Diet is approximately 90% meat/ fish / bone and 10% fruit / vegetables.
- 🐾 Raw meats contain vitamins and minerals in their natural state.
- 🐾 Bacteria (micro organisms) present in both raw and grain free food, thus reducing the chance of autoimmunity disease.

Health – Cons

- 🐾 The kibble food is low heat cooked, and therefore there will be some loss of vitamins / minerals especially in regards to vitamin C which is heat sensitive. Depending on the balance between raw and grain-free kibble, vitamin C may need to be supplemented along with some trace minerals.
- 🐾 Depending on meat type and source, may be necessary to worm on a regular basis.

Notes:

- 🐾 Dogs with underlying and previous digestion problems like colitis and other digestion issues, may not be able to digest bones except in a minced form.
- 🐾 The "CPF Special Raw Mix" mentioned above, is made by Canterbury Pet Foods (Ohoka, North Canterbury) and is normally available. However, calling ahead is recommended. This frozen minced food can be cut in 2 kg blocks on request. 8kgs beef (40%), 5kgs hare (including carcass) (25%), 3kgs green tripe (15%), 2kgs minced chicken necks (10%), 2kgs Hoki fish fillets (10%). CPF has other raw meats, green tripe, and meaty bones available to the public. CPF will ship frozen via courier to South Island cities (not rural areas) or order can be picked up at CPF. Phone: 03 312 6502.
- 🐾 A North Island source for raw foods is Raw Essentials. Details can be found on their website at: www.rawessentials.co.nz
- 🐾 The tapioca pudding can be made in a slow cooker or on the stove. Single serving consists of 50 grams tapioca, 1 cup goat's milk, and 2 eggs. Soak tapioca for 2 hours, then add beaten eggs. Cook.
- 🐾 Freeze raw foods for a week or longer to kill parasites.



Figure 2. Tapioca Pudding

In summary

Checking your dog's stools is a good way to learn what your dog is digesting. If grains of rice, kernels of corn, chunks of carrot, and whole peas, can be seen in the stools, then the dog is passing these straight through its system without processing them. What passes through unprocessed from dry kibble is more difficult to tell. This is because all ingredients are pulverised and mixed. However, a simple test can be done by feeding equal amounts of grain free kibble for two weeks and feeding a grain based kibble for 2 weeks and comparing the stools from each. One will normally see a smaller amount of stool out put from the grain free diet and the stools will be tightly formed. In the grain based diet, the stools will be larger in volume and softer. This is an indication that more of the grain based food is passing through the dog's system without processing.

A good test for digestibility is to "soak" dry kibble in water for 30 minutes. If the food is still in its original shape and size, it demonstrates that it is difficult to break down. If the food has gone granular and looks like mush, this indicates that the food breaks down more easily. I first realised this testing method when preparing weaning foods for a litter of puppies. I always soak dry kibble for puppies for the first few weeks before feeding the food "out of the bag". At first I added an appropriate amount of Dr Kruger Puppy formula which contains four digestive enzymes to the dry food, filled the container with water to the top of the food and put it in the refrigerator. After 30 minutes it was the texture of fine mush. I quickly realised that the Dr Kruger Puppy formula was meant to be fed with food just before serving, because the enzymes were meant to work in the dog's stomach to break down the food. I then started soaking the same dry kibble with just water overnight, and in the morning the food had absorbed water, but not broken down as it had with the formula. This proved that the enzymes in the formula did work to break down dry kibble. I then tried the test with different brands of food and found not all dry dog foods react the same to the soaked water test.

An early wake up call came for me quite a few years back, when a dog vomited about 3 to 4 hours after eating dry grain based kibble. The contents of the stomach showed no signs of digestion and were still in the same state as it was when eaten. Another instance with a dog that had regurgitated its food and been fed added digestive enzymes given in a teaspoon of Dr Kruger formula resulted in totally broken down and granular kibble. These types of examples are tell-tale signs to how well your dog is digesting the foods it is being fed.

Paying attention to dog stools, will help you to understand how well your dog is digesting the food you are feeding. When you first start to feed raw meaty bones, definitely check the stools. If there are large

chunks of bone, or if the dog is having trouble eliminating its stools, try feeding raw chicken with soft bones for a week or two so that the dog can re-establish the enzymes in the stomach needed to break down these foods. Choose leaner meaty bones with more meat and less fat. Brisket bones are normally a safe option and do not produce runny stools unless the fat content is too high.

When beginning to feed raw meaty bones start out giving only once a week. Feed chicken or some other easy to digest food in-between. Meaty bones fed once or twice weekly, is an excellent way to keep gums and teeth in good condition, but don't over do it. Keep the serving size proportional to the dog's nutritional needs.

Remember, it is absolutely proven that dogs are carnivorous (meat eating). One can read countless articles by vets and other who should know better, stating that the dog is omnivorous (plant and meat eating). One hears this controversy over and over between vets, animal nutritionists, and pet owners. Dr Robert Wayne, PhD, professor of evolutionary biology at UCLA has proven conclusively that the DNA of dogs derives from the Gray Wolf. He states – "The domestic dog is an extremely close relative of the gray wolf, differing from it by at most 0.2% of mt DNA sequence.... In comparison, the gray wolf differs from its closest wild relative, the coyote, by about 4% of mitochondrial DNA sequence."^x Further information on wolves can be referenced through L. David Mech's studies. Dr Mech is a Senior Research Scientist and Adjunct Professor, specialising in Behavioural Biology, specifically the wolf.^{xi}

Keep a clear head when reading about different diets and take a balanced approach to what you determine is the best diet for your dog. Understanding the biological structure and behaviour of the dog may help you to determine how and what you wish to feed your canine friends.

- i. Dog Food Analysis, <http://www.dogfoodanalysis.com>, sponsored by BoxerWorld.com and offered as an assessment of the various commercial foods available, based on the ingredient information given by the manufacturer.
- ii. Dr Ihor Basko, DMV, *All Creatures Great and Small, Pet Nutrition*. <http://www.drasko.com/nutrition.htm>
- iii. *Healthy Adult Diet*, The Epi Guardian Angles, http://www.canine-epilepsy-guardian-angels.com/healthy_diet.htm and <http://www.canine-epilepsy-guardian-angels.com/supplements.html>
- iv. *The Immune System*, by Dr Jean Dobbs, DVM, <http://www.itsfortheanimals.com/Adobe/Dodds%20Immune%20System%20-Autoimmune.pdf>
- v. *The Immune System*, by Dr Jean Dobbs, DVM, <http://www.itsfortheanimals.com/Adobe/Dodds%20Immune%20System%20-Autoimmune.pdf>
- vi. Orijen dog food – www.orijen.co.nz or their Canadian home website – www.orijen.com
- vii. Canidae dog food – www.pawsnall.co.nz or their US home website – www.canidae.com
- viii. *The BARF Diet*, Dr Kan Billinghurst, BVSc, BScAgr, DepEd, p 17
- ix. <http://rawfed.com>
- x. Robert K. Wayne, "Molecular evolution of the family dog," Trends in Genetics, June 1993 (vol. 9, #6) pp. 218-224.
- xi. Dr L David Mech, PhD, Senior Research Scientist and Adjunct Professor, <http://www.davemech.org/biography.html>