

How Diet Affects Dogs with Chronic Kidney Failure



Of all the illnesses that affect pet dogs, kidney failure is one of the most devastating. There is no cure, as yet, and it is sadly all too often only discovered by owners close to the end of their dog's life, after a rapid and traumatic deterioration in health. Apart from all the other problems that go with this disease, owners are usually more saddened and frustrated when one of the classic symptoms presents itself ... almost all sufferers go off their food, refusing to eat even their most favorite meals and treats. This symptom accompanies and exacerbates persistent lethargy, a disinterest in normal routines and an extreme and swift loss of weight.

Chronic Kidney Failure Chronic kidney failure (CKF) affects about 1% of all dogs seen by vets and about 30% of all dogs over the age of 12 years. The damage caused by CKF is irreversible. While this disease is more prevalent in older dogs, it can occur at any age. There are many potential causes, which include birth defects, chronic bacterial infection of the kidneys, high blood pressure, diseases associated with the immune system and acute renal disease (which can lead to chronic kidney disease). Unfortunately, the root of the problem may have become elusive by the time chronic kidney disease gets diagnosed. The delay in diagnosing is usually due to a lack of early symptoms being obvious to owners, which in turn means dogs do not get seen by a vet until the disease has substantially progressed.

In addition to the fact that symptoms of chronic kidney failure don't show themselves until late into the disease, there are also significant psychological and instinctive canine aspects to this problem. The trouble with dogs is they have an inbuilt nature to hide ill-health. Their instinct tells them to disguise any pain and other health issues

because, in the wild, the pack would either kill them or cast them out. This is nature and nature can appear extremely cruel.

The same instinct continues in domesticated pet dogs – which means owners rarely see any symptoms until only about 25% of the kidneys remain functioning. By this late stage the dog is on a downward spiral and death, sadly, is inevitable. However, if a vet diagnoses the disease early enough, various treatments could significantly slow down the damage to essential nephrons. Nephrons make up the basic structure of the kidney and together they act as a filter, sifting out toxic waste products and turning them into urine, which is then excreted. These essential organs also help regulate blood pressure and blood volume and control electrolytes, metabolites and the pH of the blood. When the nephrons of the kidneys fail, dangerous toxins are unable to escape the body, and this has fatal repercussions.

The good news is that early intervention can sometimes extend a dog's life by many months and even up to 1 or 2 years, compared with perhaps only a few weeks with no intervention at all. For this reason alone, it is worth our while as dog owners and guardians to learn more about the disease and act as fast as possible following diagnosis.

Significantly, the American Society for the Prevention of Cruelty to Animals (ASPCA) say: '... a main cause of chronic kidney failure in dogs is dental disease. Bacteria associated with advanced dental disease enter the bloodstream and invades multiple organs, causing irreversible damage to the heart, liver and kidneys.' It is pertinent to emphasize that owners can potentially prevent the disease from occurring by brushing their dog's teeth daily, using a brush and toothpaste specifically designed for canine dental hygiene.

Recent Morbidity Rate Findings

In their 2013 study, 'Chronic kidney disease in dogs in UK veterinary practices: prevalence, risk factors, and survival', the Royal Veterinary College, London, examined the statistics from a merged clinical database of 107,214 dogs attending 89 UK veterinary practices over a 2-year period. They concluded the median survival time from diagnosis was 226 days. Pure-breed dogs were found more likely to suffer chronic kidney disease than cross-breeds, and of the purebreds Cocker Spaniels and Cavalier King Charles Spaniels were higher risk. Early diagnosis, proactive diet management and appropriate treatment were critical factors found to extend the life of dogs involved in the study.

How to Identify Onset of the Disease at the Earliest Stage

There are four stages of CKF in dogs, primarily identified according to serum creatinine levels in blood. This "staging system" was devised by the International Renal Interest Society (IRIS). The normal range for creatinine is 0.6mg/dl to 1.2mg/dl (although some laboratories use a normal upper range of 1.4mg/dl). A dog with a <1.4mg/dl reading is in stage 1 of CKF; 1.4mg/dl to 2.0mg/dl is stage 2; 2.1mg/dl to 5.0mg/dl is stage 3; and above 5.0mg/dl is stage 4 also known as the "end stage". Vets commonly see and diagnose dogs in stages 3 and 4, with stage 4 being the latest stage of kidney failure. In 2014/2015, IRIS began amending these staging

guidelines to take account of the new Idexx SDMA test, which is a more accurate biomarker of renal function than its predecessor, serum creatinine.

The IRIS website states: *'A persistent increase in SDMA above 14 µg/dl suggests reduced renal function and may be a reason to consider a dog or cat with creatinine values <1.4 or <1.6 mg/dl, respectively, as IRIS CKD Stage 1.'*

It is worth pointing out that greyhounds and other breeds with a large muscle mass have a normal creatinine that is higher than these values. In these dogs, it is important to confirm the diagnosis of kidney failure through other tests and, in particular, urine specific gravity and protein leakage into urine. Evidence of hypertension will also add weight to the diagnosis, as high blood pressure is very common in dogs with the disease.

Unfortunately, it is almost impossible for owners to recognise the earliest stages of kidney disease, as dogs will appear well until the kidneys are seriously impaired. However, there is another way of identifying stages 1 and 2 - and that is by having an annual or (even better) six monthly blood test undertaken at the vets to analyze creatinine and blood urea nitrogen (BUN) levels. In addition, a urinalysis is extremely useful, checking for protein leakage and an abnormally low specific gravity. In many cases, a urinalysis can show kidney problems far earlier than blood tests.

Other physical symptoms include excessive drinking and excessive urination, though these can also point to many other illnesses and are not therefore solely indicative of CKF. Dogs that are home-alone for periods of the day may suddenly begin having accidents inside the home due to their inability to control their bladder as they would have been able to do before with ease. Bear in mind, they have probably also been drinking excessively while you were out at work - and more drinking generally involves the resulting production of more urine. Typically, dogs may also urinate during the night, most commonly while they are asleep. Anemia may also occur, which is where the gums seem pale and the dog becomes lethargic and weak (due to a low blood count).

It is worth pointing out that early symptoms change as the kidney failure progresses. For example, in later stages uremia occurs, the symptoms of which include lethargy, apathy and depression, loss of appetite, a brown discoloration of the tongue and a strong ammonia smell to the breath. High levels of urea, protein products, and amino acids in the blood are the primary symptoms of uremia. Consequently, the outflow of urine becomes obstructed and fluid regulation becomes imbalanced, causing an increase in body toxins. Interestingly, it is possible to detect some of these changes during the early development of chronic kidney failure by undertaking a simple urine test. Conscientious owners can routinely test their dog's urine for protein and other relevant changes using widely available test strips or, of course, they can have their vet undertake these tests. These urine composition changes might show six months to several years before other more obvious physical symptoms begin to appear.

For the purpose of clarity, it is also worth saying that in acute renal failure, a dog is likely to suffer anuria, which is where less than normal urination occurs - and this is the complete opposite of what happens with chronic kidney failure.

You should consult your vet without delay if you suspect your dog is suffering from any malfunction of the kidneys or you see any of the above symptoms.

Why Do Dogs With Kidney Failure Stop Eating?

Normal and healthy kidneys deal with toxins and other waste products and create concentrated urine to excrete them safely out of the body. When the kidneys start to fail, a dog's blood becomes intolerably high in nitrogen-rich waste products. Even though a dog is drinking far more water than they did before, there comes a point where no amount of urinating will help rid the body of these toxins. This creates digestive disturbances, which may include retching, nausea and diarrhea. Uraemia is the term used to describe this process and the group of symptoms associated with it.

There is also a psychological element to dogs not eating when they have chronic kidney failure. Because a dog experiences nausea as part of the illness, they commonly associate feeling sick with the last food they ate. Many dog owners feed their dogs much the same food, day in, day out, so it is little wonder a dog suddenly refuses to eat it. In his mind, he is thinking 'this is making me feel sick, so I'm not going to touch it.' Of course, the dog doesn't understand that it's the kidney disease that is making him feel nauseous, not the food in his bowl.

Typically, an owner will then swap the food for something else, which the dog then eats - but later he feels sick again, and then associates the new food with being sick - and so the problem and association with different foods becomes a frustrating vicious circle that the owner must try their best to overcome. Rotating the right foods on a three-day basis is sometimes successful and intermittently introducing previously untried foods in small amounts can also work well. To help reduce the workload of the kidneys and help keep vomiting and diarrhea under control, it is better to feed a daily amount of food as four or more small meals spread out evenly throughout the day.

At the first sign of nausea (or a refusal to eat a reasonable amount of food), ask your vet to prescribe suitable antacid, anti-nausea, appetite stimulants and/or antiemetic medication. These will help prevent the vicious circle forming as described above - and they will also help encourage your dog to take in the essential nutrients he needs from food to support energy levels and contentment (at least for as long as it is possible to achieve).

Ondanestron (Zofran) is a useful HT-3 receptor antagonist that helps solve vomiting within about eight hours, after which many dogs will start eating normally again. Collies are commonly known to suffer from severe side effects from Ondanestron, so it's best avoided in these and all herding breeds. Dogs with liver disease should also not take it.

Reglan (metoclopramide) and dolasetron (Anzemet) are good alternative antacids and anti-nausea medications worth considering. Omeprazole (Prilosec) inhibits acid secretion for 3–4 days and works well as both an antacid and anti-nausea medication for many dogs.

Mirtzapine is an effective appetite stimulant and has added benefits in some cases of canine kidney failure.

All dogs are different and kidney disease progression is equally distinctive in each case. Always take your vet's guidance and advice about medication, as they will be familiar with the individual characteristics of the disease in your own dog and any contraindications or complications presented by other prescribed drugs and/or health issues.

The Role of Phosphorus in Foods

It is commonly stated that one of the important things to consider when feeding a dog with CKF is to make sure foods are low in phosphorus. The reason is that high levels of phosphorus are found in the blood of CKF dogs and this can cause calcium absorption abnormalities and, consequentially, a weakening of the dog's bone structure. As most processed dog foods are very high in phosphorus, many vets recommend alternative specialized dog food products designed for kidney failure, which are low in phosphorus. This is sound advice during the later stages of kidney failure. If CKF is diagnosed during the earlier stages, it is worth checking the amount of phosphorus in blood levels first, because they may actually be more typically too low. If the test isn't done, removing phosphorus from the diet in stages 1 and 2 of CKF may cause even more problems.

A dog will refuse a larger range of foods during the later stages of CKF. This is when an owner may have little option but to offer foods higher in phosphorus, because they are the only options remaining. In this case, ask your vet about introducing a phosphate binder to the diet, which will help offset the effects of eating higher levels of phosphorus by preventing it from being absorbed into the bloodstream. There are several different types and blood level results will be helpful in determining the best to use. Most are either calcium or aluminium based. Many recent studies suggest aluminium hydroxide is more often successful, although aluminium accumulation is a concern with long-term use.

Earlier introduction of a suitable phosphate binder is now recommended, because it is much harder to get binders to work when phosphate climbs too high. The best advice is to restrict phosphorus in the diet to keep blood values within normal limits (even if that's at the high-end of normal), but then introduce a binder as soon as this method starts to fail.

Is a Low-Protein Diet Always Suitable?

Many of the articles on the subject of canine kidney failure dotted around the Internet recommend a low-protein diet. This advice is wrong, because it only tells us half the story! Protein plays a very important role in the diet of dogs and has implications for those with CKF, but the proper level of protein in blood levels needs sustaining throughout the period of illness. Kidney failure variably affects the absorption and metabolization of protein and has consequences on the volume of toxins produced. In short, while it is generally true to say dogs with kidney failure are likely to need a reduced protein diet for part of the time, this is not always the case, and the situation can change during the period of illness several times.

Urea and other waste products result from ingesting and digesting food. Healthy kidneys normally work to rid the body of these wastes and toxins. Most waste products originate from low-quality protein in the diet, so it makes sense to cut the work the kidneys need to do by reducing the amount of protein taken in through food. But we have to remember that protein intake is essential, because it helps replace the cells and tissues that convert fat and carbohydrates into energy.

So it isn't just protein quantity intake that is crucial ... it is also protein quality that plays a major part when devising a suitable diet.

Cheap manufactured dog food is generally high in protein, but the protein is often poor quality and produces an excessive volume of waste products, which the kidneys have to try to deal with. Dog food designed specifically for dogs with CKF is usually low in protein, but the protein is higher in quality - which means a dog gets a suitable amount of protein, but as there are less waste products produced, the kidneys don't have to work nearly as hard. Most of these so-called renal diet products are also high in essential minerals and vitamins, which is important because dogs in CKF tend to lose these minerals and vitamins from ordinary food intake.

A 2009 university paper by the Department of Veterinary Clinical Sciences in Ohio confirmed: 'In a randomized blinded prospective clinical study, dogs with mild to moderate renal failure fed a renal diet had a median survival time of 594 days and fewer uremic crises compared to a median survival time of 188 days in dogs fed the conventional diet. The observed results were compatible with a slower rate of progression of renal disease in the dogs fed the modified diet.'

Unfortunately, these specialized low-protein products are often rather unpalatable to dogs, so it is always worth compromising a little by offering other home-cooked alternatives from time to time. It is also worth having a regular blood-check undertaken, just to confirm how much protein is in the blood. Armed with this information an owner can amend the diet by incorporating more or less high-quality protein, as advised by the vet. Recent studies also point to the fact that protein restriction is only usually necessary in stages 3 and 4 of CKF and any earlier reduction can have adverse health effects.

Incidentally, meats processed for human consumption are often better for CKF dogs, because the protein content is usually much higher in quality. This means a dog gets enough nutrition from a smaller amount of food intake, but with the advantage of less stress on the kidneys. Owners should however be aware that some human foods are unsuitable for dogs, so they should be cautious and undertake some research before adopting this approach.

What About Potassium?

A reduced intake of food and a CKF dog's inability to absorb essential minerals and electrolytes can lead to hypokalemia, which is the term for a low body potassium level. Potassium helps to conduct electrical charges in the heart, nerves, and muscles. Low potassium levels can severely interfere with the normal function of

these tissues, muscles and organs. This is more likely to produce mood swings, lethargy and apathy, but can also lead to muscle weakness and pain.

Although hypokalemia is more likely to affect cats more than dogs, it is worth asking your vet to include a potassium level check when extracting blood for other routine tests. If potassium levels are low, a supplement added to the dog's medication and diet regime will have a positive impact.

The Danger of Omega 6 Fatty Acids

Research suggests Omega 6 fatty acids cause a decline in renal failure in dogs - and are best avoided. Foods that have Omega 6 fatty acids in them include standard commercial dog food, eggs, avocado, some cereals, most vegetable oils (including sunflower oil) and poultry. Foods such as chicken have a beneficial mixture of Omega 6 and Omega 3 fatty acids, which work positively together. Good quality dark meat chicken with the skin on is relatively safe for dogs with kidney disease in small quantities, as the benefits outweigh any disadvantages.

The Benefit of Omega 3 Fatty Acids

Numerous studies have found that supplementation with Omega 3 fatty acids (with Vitamins B, C and E supplements) moderately prolong the life of a dog in CKF. Salmon oil is one of the easiest ways to add this useful supplement to a dog's diet. Just sprinkle it over any other food being given. Take advice from your vet about how much to give, as the volume given depends on the breed, age and size of dog and whether there is any evidence of vitamin E deficiency. Although hugely beneficial, salmon oil depletes vitamin E, which means supplementation may become necessary.

Doses of omega-3 for dogs recommended by Jennifer L. Garcia, DVM, DACVIM (Veterinary Medicine) suggests 370 mg per kilogram of body weight with 2,800 mg/1,000 kcal of diet being the upper maximum for all dogs. Salmon oil ordinarily has about 1590mg of omega-3 fatty acids per teaspoon, so it should only take a simple calculation to work out how much a particular dog should have per day.

There is an important relationship between omega-6 and omega-3 fatty acids. While the former is not particularly helpful in cases of CKF, it is also distinguished by the fact it is stored in the canine body and released as required. Omega-3 is more beneficial but it cannot be stored in the same way, therefore a dog's only source of this fatty acid is through the food or supplements consumed each day. The recommendations of various nutrition authorities suggest a healthy ratio in a dog's diet will include somewhere between 10:1 to 5:1 of omega-6 to omega-3, which is a significant shift from earlier higher ratios of omega-6. At least one reliable and significant study suggests the ratio should be even closer, at around 3:1. Some pet food manufacturers have yet to recognize or adopt this important change in their products.

Nitrogen Trapping

There is a great deal of talk among dog food manufacturers, dog nutritionists and veterinarians about Nitrogen Trapping, which involves adding fermentable fibers to the diet. The theory is this prevents having to consider inflicting a low-protein diet on dogs with CKF and increases the likelihood of lower BUN (blood urea nitrogen) and creatinine levels. Dog owners researching the subject may have discovered some pet food manufacturers making some extraordinary claims about their fermentable fiber content products, specially designed for canine kidney failure pets. In simple terms, a Nitrogen Trap (a trademarked term by Iams) diverts toxic compounds to the colon for elimination, instead of them going through the kidneys.

In her 2006 report 'Nutritional Management of Chronic Renal Disease in Dogs and Cats', Denise A. Elliott, BVSc, PhD, said that 'widespread application of fermentable fiber as a nitrogen trap cannot be recommended.' She does nonetheless suggest fermentable fibers are a useful addition to the diet, though not necessarily for some of the reasons given by some dog food manufacturers. The suggestion is that these fibers positively modulate gastrointestinal health in patients who have chronic renal failure, partly because they act as a natural phosphate binder.

A dog's daily diet can include foods that contain fermentable fibers. Relatively small quantities of boiled cabbage or rice bran will give enough fermentable fiber for a therapeutic impact. Too much fiber can lead to diarrhea, so be cautious with the amount of cabbage or rice bran given. Cabbage is also a natural remedy for ulcers, which is a problem many dogs with kidney failure tend to suffer from.

Green Tripe

I could not complete this article without mentioning the advantages offered by green tripe. People that know me on Internet dog forums are aware I favor this as one of the most beneficial foods for dogs with kidney disease. Dogs with progressive kidney failure present owners with a real challenge ... while it is important to make sure a dog eats enough food to give energy and vitality, it is equally important to cut the amount of waste products such foods might create, because these will impact adversely on the CKF dog's health (the build up of blood toxins is because the kidneys become unable to deal effectively with consumed food waste products).

Green tripe has some excellent qualities. It is rich in essential minerals and nutrients, it provides a good amount of high-quality protein and probiotics, vitamins, natural digestive enzymes, fatty acids and amino acids. It is also low in phosphorus but has a good calcium balance, which is ideal for CKF dogs. There is only one drawback, as far as I can tell, and that is that the stuff stinks when cooked. I buy frozen blocks of green tripe from my local pet store and cook it in the microwave. While its cooking, people run out of the kitchen, because the smell is so intense. Thankfully, green tripe is also now widely available in tins, which will certainly make the lives of those with sensitive noses a good deal easier.

It is essential to buy green tripe and not the white tripe more commonly available for human consumption. White tripe involves a bleaching process, which makes it unsuitable for dogs.

The other advantage of green tripe is that almost all dogs love it. In fact, I have yet to meet a dog that won't eat it - and that includes the more typically fussy CKF dogs - so if you are having problems finding food that your dog will eat, there's every reason to try green tripe.

Canned Food is Better Than Dry Food

I am not an advocate of dry dog food (sometimes called 'kibble'). In fact, my opinion is it is a product entirely devised for a dog owner's convenience, and not with the best interests or good health of dogs uppermost in mind. It becomes even more important not to feed a CKF dog dry food, because one of the main goals is to hydrate them as much as possible. Water intake is essential, because it helps flush harmful toxins out of the body. Canned dog food is usually manufactured with about 80% water - making it a very easy method of hydrating a dog that otherwise might not drink very much.

While on the subject of water ... there is some benefit to using faucet filtered water to fill your dog's bowl, instead of tap water - which is often high in sodium (used by some water companies as a softener). While some dietary sodium is beneficial to dogs to support normal levels in the blood, there have long been concerns that excessive amounts may raise a dog's blood pressure to dangerous levels and is best restricted (hypertension commonly accompanies kidney disease in dogs). The adverse influence of sodium in human hypertension is being questioned by researchers and we do not know whether the outcome of further study will change our understanding of how it may affect dogs. Until we know any different, caution is probably best advised.

Tap water can also contain traces of chemicals, bacteria and even some pesticides, which are usually in such low levels they are safe for ingestion by most human beings, but they will almost certainly add some stress to a dog's damaged kidneys. Some sources suggest distilled water instead of filtered water, but I cannot recommend this, because distilled water has some essential minerals removed during the process ... and these are essential to a dog's health.

Diversifying the Food Variety

A healthy dog doesn't actually need carbohydrates but, in trying to lower the intake of phosphorus, a CKF dog is likely to need about half the volume of daily food in carbohydrates. The intention at this stage of the disease is to give calories without phosphorus ... and that is an uphill struggle for owners already frustrated and concerned about having a beloved pet that won't eat properly. Diversifying the range of suitable foods offered to your dog will encourage it to eat, because these are foods they haven't smelled or tasted before and therefore won't associate them with nausea.

Some studies recommend the best homemade diet for CKF dogs is one containing a third carbohydrates, a third high-quality protein and a third fat. While animal fats are generally very easily metabolized by dogs, excessive amounts can induce and aggravate pancreatitis. If any symptoms of this condition are observed, it is best to

cut back on animal fats completely and replace this 'third' portion of the diet with more carbohydrates.

Sweet potatoes, pasta and winter squashes are useful bulking agents. Adding a little all-natural honey or unsalted butter can make these foods even tastier, without adding any phosphorus to the diet. However, if your dog's blood readings show excessive potassium, I would withhold feeding sweet potatoes as they are potassium rich. Eggs are an excellent high quality protein, but unfortunately the egg yolks are high in phosphorus so always give three egg whites to one egg yolk to balance things out. Whole milk yogurt in moderation is also excellent for CKF dogs, but only use the unflavored variety, as flavored yogurts can contain certain fruit seeds or Xylitol (an artificial sweetener) that are toxic for dogs. Raw vegetables commonly have higher levels of phosphorus, but boiling them reduces it to an acceptable level (unfortunately this also tends to cut vitamin content in the process). Carrots, green peppers and green beans are among the best choices in the vegetable range.

High-fat content meats are better for CKF dogs, which makes lamb, pork and high-fat hamburger the best choices, as they are the lowest in phosphorus content but high in fat. Just make sure the hamburgers have not had anything added to them such as salt, rosemary or onions. Dark meat chicken is better than light meat - and I would always include the skin of the chicken, because this is where most of the fat is. Small amounts of high-fat cottage cheese is also good, except when a dog is suffering from high blood pressure, in which case don't give any cottage cheese at all. Tinned mackerel, pink salmon and sardines packed in water are good sources of energy and omega 3 fatty acids - but always rinse these fish products to remove as much sodium as possible and avoid buying tinned fish in brine (salt water).

Through my administration of the Chronic Kidney Failure in Dogs User Group on MedHelp, the owner of a dog with kidney disease informed me that he had researched and discovered animal lard is a useful addition to diet. I had never heard of this before, but recognised it might have some merit, as kidney failure dogs do well on high fat food sources. The owner told me his dog had survived for three and a half years on the homemade diet he had devised. I researched the subject myself and found that animal lard is actually very beneficial, because it has no protein and no phosphorus. There is however three problems with it that owners need to be aware of. First, animal lard turns rancid very quickly, so it must be frozen while fresh and then defrosted and used as required within a short period. Second, it has no minerals or vitamins whatsoever, so supplementation with other foods is essential. Third, it is better to find a butcher that can supply plain animal lard, and not the type processed in supermarkets, because the processed variety is usually bleached during preparation (while this is safe for human consumption, it is best avoided for dogs in kidney failure).

The person in question used the following nutritional formulae for his dog, which owners may wish to experiment with: boiled white rice; sweet potato, squash or carrots; egg white; human grade chicken; and animal lard in a ratio of 6:6:3:1:1. This type of diet is not suitable for dogs with pancreatitis and an extended use of this diet could potentially trigger this condition, so read up on symptoms and look out for them.

In Conclusion

Managing the diet of a beloved pet dog suffering from chronic kidney failure is a huge challenge. In the end and armed with good information, we can only do the best we can do and hope what we do makes some difference. All dogs are different and the course of CKF can be painfully slow or shockingly fast. While there are effective treatments, diets and supplements available to help extend life, owners are also put in the difficult position of making daily judgements about future prognosis and quality of life. Kidney disease requires a day-by-day assessment and outlook. When our best friends reach a stage of no return, when they have progressively deteriorating blood levels and are visibly suffering, owners must consider the greatest responsibility to their pets.

I think that when things decline to an imminent and unavoidable conclusion, we should feed our dogs their most favorite foods and treats and forget about restricting protein and phosphate, regardless of the likely harm it may inflict. By this stage, it really won't make much difference to their health, so anything that gives them pleasure is worth doing. I think back to one of my old dogs, whose last meal before being euthanized was half a bar of chocolate (a toxic substance for canines, so it was something she could never have during her lifetime). She loved every mouthful, every lick, and went for her last long sleep shortly afterwards, clearly feeling contented and at ease.

CKF is a harrowing and disheartening illness for both dog and owner. I look forward to the day when other forms of treatment, such as dialysis and transplantation, might be more widely available and more successful in canine chronic kidney failure cases ... and more financially viable for the average dog owner. In the meantime, I hope this short article has provided some useful ideas, some valuable information and lots of encouragement to help both you and your best friend.

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