

# Why Use GNLD Molecularly Natural Vitamin C for Puppies and Dogs?

By Sy Guth

*"In our work in veterinary medicine, we found that dogs and cats suffer from chronic subclinical scurvy during most of their lives and benefit from ascorbate supplementation. In the larger breeds of dogs, hip dysplasia, long regarded as a genetic defect, is merely due to a chronic insufficiency of ascorbate." Dr Irvin Stone, " Homo Sapiens Ascorbicus, A Biochemically Corrected Robust Human Mutant" Medical Hypotheses, Volume 5 pp 711 - 722, 1979*

## Frequently Asked Questions:

GNLD vitamin C is molecularly natural. What does that mean? It can also be more expensive than synthetic forms of vitamin C products. GNLD vitamin C cannot be bought in stores, so why go to the trouble of sourcing this particular vitamin C and using it for puppies? How does GNLD Vitamin C work to reduce the risk of HD in large breed dogs? What have the results of using GNLD Vitamin C been? What dosages should I give daily? These frequently asked questions are answered in this paper along with WHY vitamin C is important as a supplement for puppies to reduce the risk of hip dysplasia. As a side note, this vitamin C is just one of the natural supplements made by GNLD for human consumption

## Results from two-studies over a 5-year period

Two articles printed in New Zealand Dog World, the first in 2008 /2009, provided the initial research into whether GNLD Vitamin C could reduce HD and the first study results (the 2007-2008 mini-study) done on 8 puppies entitled "*Reducing the Risk of Hip and Elbow Dysplasia in Large Breed Dogs*".

After the results from the first dog scored in the second study reared on 900 mg daily of GNLD Vitamin C in 2009, an article was written and published in NZ Dog World in April 2011 entitled "*Vitamin C and HD - Revisited*". This study was completed in May 2012. This second study proved the use of GNLD to significantly reduce the risk of HD in large breed puppies regardless of activity level.

First Vitamin C HD Study of 8 Dogs 2007 - 2008				
Mean average score = 9.25 Note: JZ-1 & IY-1 litter sisters. JY-2, HO-2, KE-2, and AN-2 litter mates.				
Code Name	Hip Scores	Parents Hip Scores	Diet	Scored By
JZ-1 (female)	1:2 = 3	Totals 18 & 6	Grain-based kibble. 460 mg GNLD Vit C+ DK sups. 16 weeks x-ray indicated a total 14 - 11 point improvement. Moderately active.	Dr Wyburn
IY-1 (female)	10:6 = 16	Totals 18 & 6	Grain-based kibble. 230 mg GNLD Vit C+ DK sups. 16 week x-ray indicated between 16 and 18 - no change. Moderately active.	Dr Wyburn
JY-2 (female)	4:1 = 5	Totals 6 & 0	Grain-based kibble. 460 mg GNLD Vit C+ DK sups. 16 week x-ray indicated between 16 and 18 - 11 point improvement. Moderately active	Dr Wyburn
SR-3 (male) non-Lorgair bred	5:7 = 12	Totals 12 & 7	Grain-based kibble. 230 mg GNLD Vit C+ DK sups. 16 week x-ray indicated 12 - no change. Active dog.	Dr Wyburn

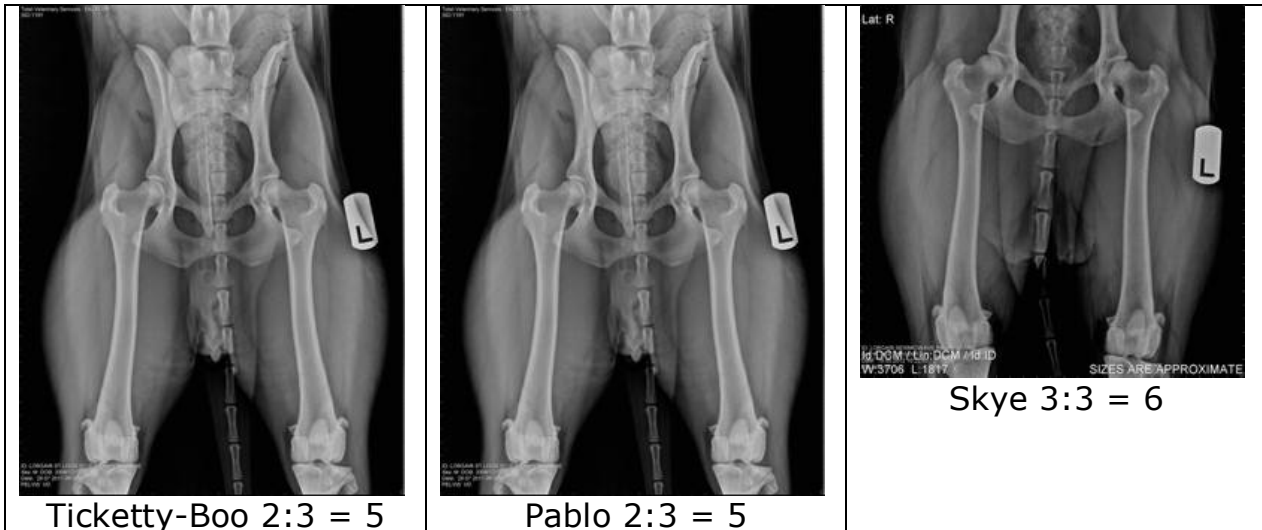
AB-1 (female)	7:11 = 18	Totals 20 & 11	Grain-based kibble. 460 mg GNLD Vit C+ DK sups. Extremely active dog with lots of jumping..	Dr Wyburn
HO-2 (male)	4:4 = 8	Totals 6 & 0	Grain-based kibble. 460 mg to 6 months only + DK. Moderately active dog.	Dr Wyburn
KE-2 (female)	1:1 = 2	Totals 6 & 0	Raw + Home-cooked + bones. No supplements. Lots of running & swimming.	Dr Wyburn
AN-2 (female)	5:5 = 10	Totals 6 & 0	BARF to 7 months; then Grain-based kibble + DK; no Vit C.	Dr Wyburn

Second Vitamin C HD Study of 8 dogs 2009 - 2012				
Mean average score = 3.38				
This Mini-Study is using a diet of <b>900 mg daily of GNLD Threshold (Sustained) Vitamin C + Dr Kruger Joint / Muscle formula</b> . Some dogs had raw meats added to the diet which progressed from 1/3 raw & 2/3 Orijen up to 6 months; then 2/3 raw & 1/3 Orijen up to 12 months; and then all raw from 1 year onward. All Dams were given 900 mg GNLD Threshold (Sustained) Vitamin C through pregnancy and puppies started on GNLD Neo-C (All-C) at 3 weeks of age. The results have been extremely satisfying and consistent within a narrow range of totals between 1 and 7.				
Name	Hip Scores	Parents Hip Scores	Diet	Scored By
Angus (male)	0:1 = 1	Totals 5 & 8	Raw + Orijen + supplements	Dr Wyburn
Pablo (male)	1:1 = 2	Total 5** & 12	grain-free kibble + supplements	Dr Rawlinson
Winky (female)	1:1 = 2	Totals 16 & 7	Raw + Orijen + supplements	Dr Rawlinson
Sunny (male)	1:1 = 2 (U)*	Totals 20 & 7	Orijen + supplements	Dr Rawlinson
Ticketty-Boo (female)	2:3 = 5	Totals 20 & 7	Raw + Orijen + supplements	Dr Rawlinson
Viking (male)	3:2 = 5 (U)*	Totals 20 & 7	Royal Canin*** + supplements	Dr Rawlinson
Brandees (female)	3:4 = 7	Totals 20 & 7	Orijen + supplements	Dr Rawlinson
Amy (female)	2:1 = 3	Totals 5** & 1**	Raw + Orijen + supplements	Dr Rawlinson
*(U) = unofficially scored because the proper pedigree name was not on the x-ray plate. ** Parent was reared on GNLD Vitamin C and Dr Kruger supplements ***Lives in Tahiti -- no grain-free dog foods available. But was kept on the GNLD Threshold Vitamin C + Dr Kruger Joint & Muscle formula.				

The vitamin C affects every cell in the body and helps to form strong bones. The synthesis into collagen develops healthy tissue that holds the bones and muscle mass together. It also makes the tendons and ligaments more supple and elastic helping to reduce critical ligament issues during growth periods.

Hip x-rays from some of the dogs in study 2.





### **Molecularly Natural Vitamin C**

Molecularly Natural Vitamin C is made without chemicals and derived fully from vegetables and fruit. It contains much more than just ascorbic acid. It contains all the ingredients necessary to equal a whole orange --seeds, pulp, etc. This is important, because vitamin C is water soluble. That means that the normal synthetic type vitamin C that you would buy in the health food or grocery store will wash through the body in about 2 hours. GNLD vitamin C, with its molecularly natural formula, stays in the body longer and works more effectively to synthesis into collagen and build sound bones, teeth, and tissues. This is one of the building blocks necessary in relationship to puppy's hip and elbow joints (and humans). It is desirable to supplement both pregnant bitches during their pregnancy and puppies to the age of 18 months to ensure the puppies are producing sufficient amounts of collagen.

GNLD is manufactured to pharmaceutical grade standards and made from raw fruit / vegetables including ascorbic acid, acerola extract, rose hips and citrus juice concentrates. In addition, GNLD combines their own unique Neo-Plex Concentrate, a whole dried citrus concentrate to provide "everything but the water" from an orange. It contains not only vitamin C, but also flavedo, mesocarp, endocarp, citrus protopectins, flavanoid complex and other P-factors that naturally occur in whole citrus. Neo-lex concentrate strengthens the effectiveness of GNLD vitamin C because as independent research has shown, vitamin C combined with similar whole food components is utilised more effectively by the body than ascorbic acid alone. Vitamin C ingested alone will pass through the digestive system and any that is not needed at the time will be eliminated. Also, the long term shelf-life potency of the GNLD product is assured by using 10% -20% more vitamin C than is claimed on the label. This practice ensures a product will be potent for the length of the shelf life guarantee period.

In my first study using GNLD Vitamin C, I achieved good results with two of the puppies when 450 mg was used daily. However, a puppy with a higher

activity level did not show the same degree of benefit. In the second study the daily dosage was raised to 900 mg daily for the Golden Retriever puppies and all showed continently good results proving that an adequate amount of GNLD Vitamin C needs to be given to achieve consistent results. The 900 mg of GNLD Vitamin C I used was up to 66% LESS than the amount of sodium ascorbate used by Dr Belfield in this studies from 1960s to 1980s.

### **The different types of GNLD Vitamin C**

GNLD Vitamin C is available in regular chewable tablet form (this is not slow release, but it is molecularly natural). When preparing weaning foods for puppies from 3 weeks, use a mortar and pestle to grind the Neo- (AKA All-C) into a powder form.

Threshold Vitamin C (Sustained Release formula) maintains sustained release of nutrients for up to six full hours but is best swallowed whole and not chewed.

Neo-C contains the following in the form of chewable (230 mg ascorbic acid per tablet): Neo-Plex Concentrate has all the naturally occurring elements in whole oranges (juice vitamin C, flavedo, mesocarp, endocarp, protopectins, p-factors, and flavonoids) except water, to enhance absorption and utilisation of vitamin C. This is the equivalent of 4 small oranges.

Vitamin C is an essential nutrient that cannot be stored in the body; it must be consumed every day to maintain good health. Current research verifies the importance of vitamin C as a water soluble antioxidant. Vitamin C is also necessary for the body's synthesis of collagen (part of the cellular "cement" that holds us together and provides structure for our muscles, bones, and vascular system). In addition, vitamin C assists the absorption of dietary iron and improves the immune system.

### **What is the recommended Dosage of GNLD Vitamin C for Puppies?**

So how does one know what dosage of GNLD Vitamin C to give a puppy? There are no established guidelines for GNLD Vitamin C because not enough testing has been done by a variety of breeders to establish any recommended levels. The puppies I was testing would have an adult weight between 25 kg and 35 kg so the 900 mg daily amount can be used with confidence for this weight category. For other weight categories, breeders will need to estimate the amounts based on their breed adult weight and trial those amounts. Once the results have been obtained on several dogs, the dosage can be refined to meet the needs of the puppies in the breeder's kennel. More active puppies and working lines need higher levels.

The minimum level of GNLD Vitamin C will be different based on the dog's natural inherited ability to both produce and synthesis vitamin C. The trick is to determine where to start with a specific puppy. For example, one might try to draw parallels in level of vitamin C needed to improve bone and tissue by looking at the hip scores of the ancestors in the first four generations of the puppy's pedigree. The pedigree needs to contain fairly complete hip score information to be of value. If there is a history of high hip scores, then one may want to increase the dosage. For a large breed puppy whose adult weight will be between 25 kg and 35 kg this would be 900 mg daily. Another guideline is historical information from previous litters by the same parent where some or all of the off-spring have been scored.

The other factor that will play into the equation for the puppy is the nutrition of the dam during and after pregnancy. The puppy's development starts in the womb. Feeding the dam GNLD Vitamin C in the last 4 weeks of pregnancy may give the puppies a jump start, as will weaning the puppies from 3 weeks on a small amount (23 grams to start) of the powdered Neo-C (All-C) formula and building up to 450 mg per puppy by age 5 weeks. You will need a mortar and pestle to grind the Neo-C tablets (AKA All-C) into a powder form or use a coffee grinder.

So there are two ways to approach the use of the molecularly natural vitamin C dosage. One can start with a low dosage and wait for the results and then increase as necessary. Or one can start with a high dosage, wait for the results and then keep lowering the dosage until the right dosage for their breed and type is found. Because there are no studies, except for my mini-studies to go by, it is new territory and will take some time for results and a pattern to be formed.

The following is a guideline based on the 2<sup>nd</sup> Lorgair study using 900 mg daily.

Recommended amounts of GNLD Vitamin C				
Age of puppy	<b>Small Weight up to 9kg as adults</b>	<b>Medium Weight from 9kg to 23 kg as adults</b>	<b>Large Weight from 23 kg to 45 kg as adults</b>	<b>Giant Weight from over 45 kg as adults</b>
3 weeks (gradually increasing to 5 weeks of age)	6 mg daily	12 mg daily	23 mg daily	46 mg daily
5 weeks to 3 months	112 mg daily	225 mg daily	450 mg daily	750 mg daily
3 months to 18 months	225 mg daily	450 mg daily	900 mg daily	1800 mg daily
18 months to 8 years	112 mg daily	225 mg daily	450 mg daily	900 mg daily
8 years onward	225 mg daily	450 mg daily	900 mg daily	1800 mg daily

The reason for recommending an increase in Vitamin C supplement post 8-years is that the dog's system decreases in the amount of Vitamin C manufactured in the liver from 8-years onward. This often results in increasing joint and spinal mobility problems.



Several leading vets and breeders supplement vitamin C for both pregnant bitches and puppies to the age of 1 year to 18 months and longer to ensure that puppies are producing collagen and sound bones. The vitamin C supplement needs to be given until the growth plates close. This varies between front and rear assembly of the dog and by dog breed. Elbows normally close between 6 and 8 months and the rear assembly closes in stages the last of which is between 17 and 18 months.

### **Dog Foods**

Neither grain-free or grain-based commercial kibble have enough vitamin C to be effective because the heat process used to produce the food kills water soluble vitamins such as vitamin C and the B complex vitamins, so either will need the added vitamin C. Raw meats should provide some vitamin C, but I still feed the GNLD vitamin C even when feeding raw foods to puppies. With raw / grain-free puppy diets one needs to be very alert to changes in the puppy's proportions especially around 3 to 4 months of age. The only way to bring a puppy on a raw / grain-free diet back into proportion on these high protein diets is to increase the exercise or reduce the amount of food being fed. When puppies on raw / grain-free diets eat more food than they need, it will result in too fast bone growth. If feeding a commercial grain-based diet, I would recommend dropping the protein level to 20% by 14-weeks of age in order to maintain the growth rate and avoid the growing spurts. At 9 months, the protein levels need to return to 24%. The step-down protein diets are ONLY for GRAIN-BASED kibble diets. In study two, a puppy reared on Royal Canin produced the same results as a puppy reared on Orijen and raw foods. Both were given the Dr Kruger Joint / Muscle formula along with the 900 mg daily of GNLD Vitamin C. This would suggest that grain-based versus grain-free will not affect the outcome if an adequate amount of GNLD Vitamin C is given daily.

Heat easily destroys vitamin C (ascorbic acid). Heat is used to process dry dog food in the form of either baking or extrusion methods. Baking uses high and long temperatures and extrusion uses short and high temperatures normally between 130 – 135° C. Any processing above 46°C will diminish some nutrients to a degree. Vitamins C, B group, A, and E are among most sensitive vitamins affected by heat. The reason dog food manufactures use heat to process dog food is to kill unwanted microorganisms. They use the extrusion method to ensure that all the mixture is uniformly exposed to the heat. Some manufactures spray synthetic vitamins and minerals back on the food after the extrusion process, but dog foods have a shelf life of 6 months to a year and storage during this time is likely to be exposed to heat plus synthetic vitamins do not absorb into the system effectively. Given that most dog foods only contain about 50 mg of ascorbic acid per cup, one can begin to see that not much vitamin C if any is available to the dog from dry kibble dog food.

## **Synthetic Vitamin C and Ester C**

Returning to the discussion of normal synthetic vitamin C, the process to produce it is a chemical one that normally includes the use of a form of petroleum among other chemicals. Unless the store bought vitamin C states that EACH INGREDIENT is natural on the label, it is likely that only added flavouring or colouring may be natural. This permits the manufacture to use the word "natural" on the label which can be totally misleading.

A word about side effects from using normal synthetic vitamin C (ascorbic acid) products found in stores or over the internet. Not only are most (if not all) of these products made with a chemical process, many like Ester-C, contain calcium that given in excess can actually cause the hip dysplasia issues. Some even contain aspartame which is a chemical used as a sweetener most commonly found in diet soft drinks. It breaks down and goes into the blood stream. Dr Janet Starr Hull has a website naming and discussing some 94 side effects that can be caused by aspartame. Vitamin C products can also have sulphur dioxide added. This is the chemical compound with the formula SO<sub>2</sub>. It is the combustible result of petroleum and coal, as well as produced by volcanoes. Read the labels of synthetic vitamin C very carefully and understand what the manufacturing process is that makes the products. You can only find this information out by writing the manufacture and asking. Again, GNLD vitamin C products use no chemicals and are made only from natural fruits and vegetables. They also do not list ascorbic calcium or any other calcium additive on the label.

## **Using a High Quality General Supplement with the Vitamin C**

The reason for using Dr Kruger Healthy Joint & Muscle supplement along with the GNLD vitamin C is that the Dr Kruger formulas act to clean the intestinal walls and allow the dog to absorb more of the nutrients from its diet. It also contains 4 digestive enzymes to help the dog digest the high percentage of grain in dry kibble dog food so that more food might be absorbed by the dog's system, rather than passed through the dog. Lastly, the formula contains Glucosamine Sulphate, Chondroitin Sulphate, Dandelion Root Powder, Kelp Powder, Devil's Claw Powder, Yucca Schidigera Extract, all known to aide in maintaining healthy joints.

No guarantees or claims can be made that Dr Kruger Joint & Muscle Formula combined with GNLD natural vitamin C (made from a variety of whole fruit and vegetables) fed with the morning meal will prevent dysplasia, but it may reduce the risk of dysplasia and help to improve the bone and tissue all impacting the numerous issues concerning hip scores and hip dysplasia.

GNLD Threshold Vitamin C (Sustained Release) releases slowly over a 6 -8 hour period in the body, but is best swallowed whole to ensure the slow release action. The Threshold Vitamin C may be best fed in a small ball of mince so that it is not chewed. You may find it easier to feed your puppy

the chewable Neo-C tablets. This is the only molecularly naturally made vitamin C we have found on the worldwide market and can only be sourced from GNLD distributors, not bought in stores. The vitamin C found in health food and grocery stores is most likely synthetic and will not produce the desired effect of reducing the risk of hip and elbow dysplasia in the dog unless it is fed in mega doses. Dr Belfield stated that these forms of Vitamin C were a waste of money –he used sodium ascorbate.

### **How Vitamin C is made in the body**

Ron Kennedy, M.D., Santa Rosa, California writes in an article: "It long has been known that human beings do not produce ascorbic acid (vitamin C). ...In the body of an ascorbate-making mammal, the ascorbate molecule is made from a few small modifications of the glucose molecule. Glucose is in abundant supply in humans and animals at all times. There are four enzymes required to convert glucose into vitamin C. Humans have the first three enzymes, having lost the fourth enzyme somewhere in evolution... The process of atherosclerosis is limited to humans. Animals in the wild do not develop atherosclerosis, therefore no heart attacks and no strokes occur among these citizens of nature. To induce an animal to have atherosclerosis you have to put it in captivity and feed it the kind of diet which humans use to cause the problem."

And guess what we humans have done --that's right --taken our dogs out of the wild and fed them commercial dog foods that contain 40% -50% grains. Dogs do not have natural enzymes needed to digest carbohydrates, so one has to wonder why such a large percentage of filler is used in dry kibble dog food and the answer would appear to be because it's cheap. Therefore, the dog most likely is no longer getting the natural vitamin C they used when fed fresh meat scraps and table scraps or raw wild foods and therefore are not producing the levels of collagen needed for producing sound bones and joints. No studies have been done in the last 30 years to determine how much vitamin C a dog produces and if it is enough to maintain proper collagen levels. The forward to Dr Belfield's book published in 1981 is by Dr Linus Pauling, twice winner of the Nobel Prize, who is credited with his research into vitamin C on a human level. In the forward, Dr Pauling states, "An indication of the amount of vitamin C that is needed for good health is provided by determining the amount of this substance made by various animal species. It is found that the amount made is approximately proportional to the body weight. The average animal weighing 16 pounds makes between 200 and 2,000 milligrams of vitamin C per day, with animals of some species synthesizing the smaller amount and those of other species synthesizing the larger amount. Dogs and cats are in the first group, in that they synthesize only about 200 milligrams of vitamin C per day (for a 16-pound animal), only about 1/5 as much as animals of most other species synthesize. It is probably for this reason that a large amount of supplementary vitamin C is important for the preservation of the best of health in dogs."



In the "Lapdog Library" ([www.lapdog.co.nz](http://www.lapdog.co.nz)) there are a few articles relating to the reduction or elimination of the ability of some dogs to produce collagen after vaccinations or anti-biotic usage. It is advisable that if a puppy is receiving antibiotics or steroids to double the amount of vitamin C. Have a read and then decide for yourself if it might be beneficial in your instance to supplement vitamin C for your dog.

### **What about the theory that low scored parents produce low scoring puppies?**

In the December 2009 / January 2010 issue of New Zealand Dog World, my article entitled *Hip Dysplasia Stats – What Are They Really Telling Us?* disproved the theory that parents with low hip scores would produce low scoring puppies and visa versa for high scoring parents. The statistics took an in-depth look at the results of 4,145 off-spring scores of 165 Golden Retriever stud dogs over a 10-year period. I revisited the subject in 2011 – 2012 by researching each individual litter for the stud dogs who had produced 50 or more scored off-spring and found that the anomalies were just as high when the dam's hip scores along with the stud dog's scores were taken into account. Thus showing that the parents had no bearing on the results of the hip scores for the off-spring. A litter with several scored puppies in a litter ranging from the off-spring scoring in a range of single digits to very high double digits.

### **Ordering GNLD Vitamin C or Becoming a Distributor**

If you are a breeder and think you will be ordering GNLD vitamin C on a fairly regular basis and / or supplying your puppy buyers, you may wish to become a distributor. GNLD is a multi-level marketing company started in 1958 in the USA. Distributors receive up to 25% discount on purchases and orders are sent direct from distribution to the recipient. You can sign-up to become a distributor online at [http://syguth.gnld.net/join\\_dist.aspx](http://syguth.gnld.net/join_dist.aspx) or you can write Sy at, [sy@lorgair.com](mailto:sy@lorgair.com)

Sy's articles appearing in NZ Dog World on HD and nutrition can be found at [www.lorgair.com](http://www.lorgair.com) on the "Dog Food" page.

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