

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

By Sy Guth

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? 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. Two other articles printed in New Zealand Dog World in 2008 /2009, provide the results of a mini-study done on puppies and how the dog's digestion system works. The links to these articles can be found at the end of this paper. As a side note, this vitamin C is just one of the natural supplements made by GNLD for human consumption.

**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 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 the last 3 weeks of 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-Plex 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.

Please note that in my mini study of Golden Retriever puppies, I needed a minimum of 460 mg daily of GNLD vitamin C to effect a positive change in the outcome of two of the puppies in the study. This is 50% to 85% LESS than the amount recommended by those using synthetic vitamin C (not molecularly natural). See table at end of the paper.

So how does one know what dosage of GNLD Vitamin C to give a puppy? To begin with, the level of Vitamin C that I used in my mini-study was 85% less than what Drs Belfield and Billinghurst recommend when using traditional vitamin C. 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 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 double the dosage. For a large breed puppy this would be an increase from 460 mg daily to 900 or 1,000 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 3 weeks of pregnancy may give the puppies a jump start, as will weaning the puppies from 3 weeks on a small amount 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.

A side note, the Lorgair Puppy Protein Step-down Diet is meant to be used only with grain-based kibble foods, not raw or grain-free foods. And along this line, neither grain-free or grain-based kibble have enough vitamin C to be effective, 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. Feeding too much food is not normally a worry on the Lorgair Step-down diet because in order to reduce the protein level to 20%, one must use a senior formula food which, by nature, reduces the amount of protein and therefore limits the rate of growth in the puppy.

At the end of this paper is a comparison of the pedigrees of three puppies raised on the Lorgair Puppy Protein Step-Down Diet using GNLD Vitamin C and Dr Kruger. Two of these puppies were part of the original mini-study and Penn Hip scored at 16 weeks of age. It demonstrates that there are no easy assumptions to be drawn from historical ancestor information. None of the pedigrees have more than 5 or 6 ancestors out of 30 with hip scores over a total 13 score. This equates to approximately 80% ancestors with average or below average hip scores.

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 together. Studies have shown that the collagen type and levels in the dog's body are also relative to good hip joints. (1)

Heat easily destroys vitamin C (ascorbic acid). Heat is used to process dry dog food in the form of either baking or extrusion. 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 micro organisms. They use the extrusion method to ensure that all the mixture is uniformly exposed to the heat. Some manufactures spray 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. 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.

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 affects 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 sulfur dioxide added. This is the chemical compound with the formula  $SO^2$ . 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.

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 if 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.

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.

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 and evening meals 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.

GNLD Threshold Vitamin C releases slowly over a 6 - 8 hour period in the body, but needs to be swallowed whole to ensure the slow release action. 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 dysphasia in the dog unless it is fed in mega doses.

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 probably 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.

### **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-C (AKA All-C) into a powder form.

Threshold Vitamin C 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.

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.

## Recommended Doses of Vitamin C for Puppies and Dogs

As noted previously, my mini-study showed that the minimum level of GNLD Vitamin C needed to affect the outcome of the hip score results on the Golden Retriever puppies tested was 460 mg daily. It also showed that 230 mg daily was too low a dosage to be effective. The 460 mg is 85% less than the amount recommended by Drs Belfield and Billinghamurst. This will be because ascorbic acid by itself is not as effective as the molecularly natural GNLD vitamin C. Based on my mini-study one might start with the recommended doses of GNLD and then based on the results, adjust accordingly. The exception would be if the puppy has an ancestral history of high hip scores behind it and / or the parents are both double digit in their hip scores, especially with one scoring around 20 or above. Then I would start with 900 to 1,000 mg daily and continue to 18 months. It is important that the vitamin C supplement be given to the puppy until their plates close. There are multiple plates in the dog and the closure times for each of the plates varies and further variance will be based on breed and individual. Many of the plates do not close until a dog is 18 months old. However, one should expect that all the plates should be closed by 18 months of age.

The following recommended doses are for **synthetic vitamin C** (this does not include GNLD vitamin C) for dogs:

Joanne Carson, Ph.D on her website for epileptic dogs, recommends these doses of vitamin C be added to home-cooked diets:

Small dogs - 500 mg daily

Large dogs - 1,000 mg to 1,500 mg daily

Extra large dogs - 2,000 mg daily

Dr Belfield in his book, *How To Have A Healthier Dog, The Benefits of Vitamins and Minerals for Your Dog's Life Cycles*, published in 1981, recommends the following doses of vitamin C:

Small Dogs - 500 to 1,500 mg daily

Medium Dogs - 1,500 to 3,000 mg daily

Large Dogs - 3,000 to 6,000 mg daily

Giant Dogs - 6,000 to 7,500 mg daily

Puppies Large Breed - first 4 months - 500 to 1,000 mg daily

Puppies Large Breed - 4 months to adult - increasing gradually - 1,000 to 3,000 mg daily

Dr Billinghamurst's recommended doses with the BARF diet for vitamin C from his book: "Vitamin C, the stress vitamin, may be supplemented at up to 100 mg per LB (200 mg per KG) of pet per day, or even more up to bowel tolerance in conditions of extreme stress." This is comparative to the 6,000 mg daily that Dr Belfield recommends.

Sylvia Hammarstrom, author of [Vitamin C and Hip Dysplasia](#) and long time breeder of Giant Schnauzers, German Shepards, and other large breed dogs has used the GNLD Vitamin C effectively for years. Sylvia has bred over 1,000 champion dogs.

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-study to go by, it is new territory and will take some time for a results and pattern to be formed.

### Breeders needing a regular supply

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, [info@lapdog.co.nz](mailto:info@lapdog.co.nz).

### Analysis of 3 pedigrees / puppies

JY-2 and JZ-1 were part of the mini-study. AB-3 was reared on the same diets as JY-2 and JZ-1, but was born 7 months later. All three puppies were raised on 460 mg daily of GNLD Neo-C Vitamin C.

- JY-2 scored 70% percentile on Penn Hip at 16 weeks and scored 11 points better than expected at a year old. This Penn Hip percentile is 20% higher for the risk of hip dysplasia than the average for the Golden Retriever breed based on Penn Hip mean averages. Also of note is that this puppy had parents whose hip scores were the lowest – reading 3:3 and 0:0. This would have appeared to most breeders and vets to be good scores and expected to produce good hip scores in puppies. The Penn Hip readings disproved this assumption. In fact, this puppy scored in the same percentile as a litter mate to JZ-1, but who was raised on 230 mg vitamin C – a level not high enough to affect as good an improvement in the hip scores as the 460 mg level. Three other litter sisters / brother were part of the study and can be reviewed in the study article.
- JZ-1 scored 50% percentile on Penn Hip at 16 weeks and scored 11 points better than expected at a year old. The 50% percentile is mean average for the breed.
- AB-3 was NOT Penn Hip scored at 16 weeks. The puppy was also x-rayed for hips the day after her heat (commonly accepted by most breeders as not an ideal time to x-ray for hip scoring). This puppy was from the second litter from her dam and the sire was the son of the sire from the first litter. **Further historical information on the first litter** – two puppies from the first litter were clinically dysplastic and three others puppies from the first litter scored 5:26=31, 10:2=12, 3:2=5. The only puppy reared on the Lorgair puppy diet was the 5:26 puppy. The 3:2 puppy was reared on the Lorgair puppy diet plus raw mince and home-cooked. No Dr Kruger or GNLD Vitamin C was used with the puppies from the first litter. The dam did not eat well during pregnancy or after whelp.
- NOTE: The shaded / yellow highlight on the pedigree denotes the ancestors with hip scores higher than 13. There are 5 or 6 instances out of 30 ancestors in each of the pedigrees.

## Pedigree of:

## STUDY JY-2

Date of Birth:

Sex:

Owned By:

**Penn Hip rating at 16 weeks**

**70% (20% higher than breed mean)**

Breed:

Reg No.:

Bred By:

**Hip scores at 1-year-old**

**4:1 = 5**

PARENTS	GRANDPARENTS	GREAT GRANDPARENTS	GREAT GREAT GRANDPARENTS
<b>SIRE:</b> STUDY JY-2 SIRE Reg No. Hips: 0:0 Elbows:  DOB: Breeder:	STUDY JY-2 SIRE G-1-1  Reg No.: Hips/Elbows: 6:4 / Eyes/Other:	STUDY JY-2 SIRE G2-1 Hips / Elbows 3:3 /	STUDY JY-2 SIRE G3-1 Hips/Elbows 4:5 / STUDY JY-2 SIRE G3-2 Hips/Elbows 5:5 /
		STUDY JY-2 SIRE G2-2 Hips / Elbows 11:3 /	STUDY JY-2 SIRE G3-3 Hips/Elbows 12:6 / STUDY JY-2 SIRE G3-4 Hips / Elbows 11:13 /
	STUDY JY-2 SIRE G-1-2  Reg No.: Hips/Elbows: 5:5 / Eyes/Other:	STUDY JY-2 SIRE G2-3 Hips / Elbows /	STUDY JY-2 SIRE G3-5 Hips/Elbows 4:5 / STUDY JY-2 SIRE G3-6 Hips/Elbows /
		STUDY JY-2 SIRE G2-4 Hips / Elbows 7 /	STUDY JY-2 SIRE G3-7 Hips/Elbows 5:5 / STUDY JY-2 SIRE G3-8 Hips/Elbows 8 /
<b>DAM:</b> STUDY JY-2 DAM Reg No. Hips: 3:3 Elbows:  DOB: Breeder:	STUDY JY-2 DAM G-1-1  Reg No.: Hips/Elbows: 9:4 / Eyes/Other:	STUDY JY-2 DAM G2-1 Hips / Elbows 5:4 /	STUDY JY-2 DAM G3-1 Hips/Elbows 7:5 / STUDY JY-2 DAM G3-2 Hips/Elbows 4:5 /
		STUDY JY-2 DAM G2-2 Hips / Elbows 8:5 /	STUDY JY-2 DAM G3-3 Hips/Elbows 4:2 / STUDY JY-2 DAM G3-4 Hips/Elbows 3:6 /
	STUDY JY-2 DAM G-1-2  Reg No.: Hips/Elbows: 12:11 / Eyes/Other:	STUDY JY-2 DAM G2-3 Hips / Elbows 6:6 /	STUDY JY-2 DAM G3-5 Hips/Elbows 13:12 / STUDY JY-2 DAM G3-6 Hips/Elbows 5:6 /
		STUDY JY-2 DAM G2-4 Hips / Elbows 5:5 /	STUDY JY-2 DAM G3-7 Hips/Elbows 7:5 / STUDY JY-2 DAM G3-8 Hips/Elbows 4:4 /

I, the undersigned, do hereby certify that the foregoing estimates are correct to the best of my knowledge and

## Pedigree of:

## STUDY JZ-1

Date of Birth:

Sex:

Owned By:

**Penn Hip rating at 16 weeks**

**50% (breed average mean)**

Breed:

Reg No.:

Bred By:

**Hip scores at 1-year-old**

**1:2 = 3**

PARENTS	GRANDPARENTS	GREAT GRANDPARENTS	GREAT GREAT GRANDPARENTS
<b>SIRE:</b> STUDY JZ-1 SIRE Reg No. Hips: 3:3 Elbows:  DOB: Breeder:	STUDY JZ-1 SIRE G-1-1  Reg No.: Hips/Elbows: 2:5 / Eyes/Other:	STUDY JZ-1 SIRE G2-1 Hips / Elbows 5:6 /	STUDY JZ-1 SIRE G3-1 Hips/Elbows 8:6 / STUDY JZ-1 SIRE G3-2 Hips/Elbows 6:6 /
		STUDY JZ-1 SIRE G2-2 Hips / Elbows 3:6 /	STUDY JZ-1 SIRE G3-3 Hips/Elbows 10:10 / STUDY JZ-1 SIRE G3-4 Hips / Elbows 3:4 /
	STUDY JZ-1 SIRE G-1-2  Reg No.: Hips/Elbows: 7:6 / Eyes/Other:	STUDY JZ-1 SIRE G2-3 Hips / Elbows 7:7 /	STUDY JZ-1 SIRE G3-5 Hips/Elbows / STUDY JZ-1 SIRE G3-6 Hips/Elbows /
		STUDY JZ-1 SIRE G2-4 Hips / Elbows 6:4 /	STUDY JZ-1 SIRE G3-7 Hips/Elbows / STUDY JZ-1 SIRE G3-8 Hips/Elbows /
<b>DAM:</b> STUDY JZ-1 DAM Reg No. Hips: 12:6 Elbows:  DOB: Breeder:	STUDY JZ-1 DAM G-1-1  Reg No.: Hips/Elbows: 9:4 / Eyes/Other:	STUDY JZ-1 DAM G2-1 Hips / Elbows 5:4 /	STUDY JZ-1 DAM G3-1 Hips/Elbows 7:5 / STUDY JZ-1 DAM G3-2 Hips/Elbows 4:5 /
		STUDY JZ-1 DAM G2-2 Hips / Elbows 8:5 /	STUDY JZ-1 DAM G3-3 Hips/Elbows 4:2 / STUDY JZ-1 DAM G3-4 Hips/Elbows 3:6 /
	STUDY JZ-1 DAM G-1-2  Reg No.: Hips/Elbows: 12:11 / Eyes/Other:	STUDY JZ-1 DAM G2-3 Hips / Elbows 6:6 /	STUDY JZ-1 DAM G3-5 Hips/Elbows 13:12 / STUDY JZ-1 DAM G3-6 Hips/Elbows 5:6 /
		STUDY JZ-1 DAM G2-4 Hips / Elbows 5:5 /	STUDY JZ-1 DAM G3-7 Hips/Elbows 7:5 / STUDY JZ-1 DAM G3-8 Hips/Elbows 4:4 /

I, the undersigned, do hereby certify that the foregoing estimates are correct to the best of my knowledge and

## Pedigree of:

## STUDY AB-3

Date of Birth:  
Sex:  
Owned By:

Breed:  
Reg No.:  
Bred By:

**Hip Scores at 1-year-old**  
**7:11 = 18**

PARENTS	GRANDPARENTS	GREAT GRANDPARENTS	GREAT GREAT GRANDPARENTS
<b>SIRE:</b> <b>STUDY AB-3 SIRE</b> <b>Reg No.</b> <b>Hips: 5:6 Elbows:</b>  <b>DOB:</b> <b>Breeder:</b>	<b>STUDY AB-3 SIRE G-1-1</b>  <b>Reg No.:</b> <b>Hips/Elbows: 9:4 /</b> <b>Eyes/Other:</b>	<b>STUDY AB-3 SIRE G2-1</b> <b>Hips / Elbows 5:4 /</b>	<b>STUDY AB-3 SIRE G3-1</b> <b>Hips/Elbows 7:5 /</b> <b>STUDY AB-3 SIRE G3-2</b> <b>Hips/Elbows 4:5 /</b>
		<b>STUDY AB-3 SIRE G2-2</b> <b>Hips / Elbows 8:5 /</b>	<b>STUDY AB-3 SIRE G3-3</b> <b>Hips/Elbows 4:2 /</b> <b>STUDY AB-3 SIRE G3-4</b> <b>Hips / Elbows 3:6 /</b>
	<b>STUDY AB-3 SIRE G-1-2</b>  <b>Reg No.:</b> <b>Hips/Elbows: 5:8 /</b> <b>Eyes/Other:</b>	<b>STUDY AB-3 SIRE G2-3</b> <b>Hips / Elbows 5:4 /</b>	<b>STUDY AB-3 SIRE G3-5</b> <b>Hips/Elbows 7:5 /</b> <b>STUDY AB-3 SIRE G3-6</b> <b>Hips/Elbows 4:5 /</b>
		<b>STUDY AB-3 SIRE G2-4</b> <b>Hips / Elbows 4:3 /</b>	<b>STUDY AB-3 SIRE G3-7</b> <b>Hips/Elbows 4:3 /</b> <b>STUDY AB-3 SIRE G3-8</b> <b>Hips/Elbows 6:6 /</b>
<b>DAM:</b> <b>STUDY AB-3 DAM</b> <b>Reg No.</b> <b>Hips: 9:11 Elbows:</b>  <b>DOB:</b> <b>Breeder:</b>	<b>STUDY AB-3 DAM G-1-1</b>  <b>Reg No.:</b> <b>Hips/Elbows: 3:4 /</b> <b>Eyes/Other:</b>	<b>STUDY AB-3 DAM G2-1</b> <b>Hips / Elbows 10:6 /</b>	<b>STUDY AB-3 DAM G3-1</b> <b>Hips/Elbows 5:5 /</b> <b>STUDY AB-3 DAM G3-2</b> <b>Hips/Elbows 5:5 /</b>
		<b>STUDY AB-3 DAM G2-2</b> <b>Hips / Elbows 4:4 /</b>	<b>STUDY AB-3 DAM G3-3</b> <b>Hips/Elbows 3:6 /</b> <b>STUDY AB-3 DAM G3-4</b> <b>Hips/Elbows 8:12 /</b>
	<b>STUDY AB-3 DAM G-1-2</b>  <b>Reg No.:</b> <b>Hips/Elbows: 12:11 /</b> <b>Eyes/Other:</b>	<b>STUDY AB-3 DAM G2-3</b> <b>Hips / Elbows 6:6 /</b>	<b>STUDY AB-3 DAM G3-5</b> <b>Hips/Elbows 13:12 /</b> <b>STUDY AB-3 DAM G3-6</b> <b>Hips/Elbows 5:6 /</b>
		<b>STUDY AB-3 DAM G2-4</b> <b>Hips / Elbows 5:5 /</b>	<b>STUDY AB-3 DAM G3-7</b> <b>Hips/Elbows 7:5 /</b> <b>STUDY AB-3 DAM G3-8</b> <b>Hips/Elbows 4:5 /</b>

I the undersigned do hereby certify that the foregoing particulars are correct to the best of my knowledge and

Journal of the American Veterinary Medical Association, May 1997, paper by Jens Sejer Madsen, Ph.D., D.V.M., Denmark.

Links to aforementioned papers:

How To Reduce the Risk of Hip Dysplasia in Large Breed Dogs, by Sy Guth

How A Dog Digests Food, by Sy Guth

Both these papers can be found at <http://www.lapdog.co.nz/reducehip.pho>

### Disclaimer

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