The Holistic Home Treatment Handbook for **Canine Arthritis And Hip Dysplasia**

Comprehensive and detailed holistic, complementary and naturopathic therapies for treating dog arthritis and degenerative dog joint diseases of all types.

By

Michael S. Bodri, D.V.M., Ph.D.

William Bodri, M.S.

www.TheSkepticalNutritionist.com

Copyright

First edition 2004.

Top Shape Publishing, LLC
1135 Terminal Way Suite 209
Reno, Nevada 89502

www.TheSkepticalNutritionist.com

Health Disclaimer

This information should not be construed as medical advice or instruction, and is not intended to replace the attention or advice of a veterinarian or other health care professional. This information has not been reviewed or approved by the FDA or any Veterinary Association. It is provided under First Amendment rights for educational and communication purposes only, and should not be construed as medical advice.

No actions should be taken based solely on the contents of this book. The information within should not be interpreted as a recommendation for a specific treatment plan, nor should this information be used in place of the medical opinion of a qualified health care professional. It is not intended to replace, supplant, or augment a consultation with a veterinarian regarding the reader's own medical care for their animal.

Anyone who wishes to embark on any dietary, drug, exercise, or other lifestyle change intended to treat or prevent a specific condition for their dog should first consult with and seek clearance from their veterinarian; readers who fail to consult appropriate health authorities assume the full risk of any injuries. The authors and publisher disclaim all liability for injury or damages that could result from the use of information obtained from this book or its website.

The authors and publisher are not responsible for any errors or omissions in this book.

Table of Contents

What is Dog Arthritis and Hip Dysplasia?

It's terrible to see an animal suffer, especially beloved pets that have been with us for years.

Pets are just like people – they are members of our family and have a consciousness of their own. They have personalities, they experience emotions, they feel pain and suffering.

Watching a dog struggle to get up from their bed, due to the pain of arthritis or hip dysplasia, can be a heartbreaking sight, so we've written this book to enable you to do something about it other than just to give your pet painkillers.

What you really want to do is intervene to help heal the condition, and that's where holistic, complementary therapies come into play and really shine.

When an animal has pain or difficulty while walking, it could be due to a variety of different causes. The only way to begin treatment to help an animal is to first find the cause by obtaining a proper medical diagnosis.

Arthritis is typically the most common problem seen in older dogs that have trouble walking, but other conditions can also cause lameness. The possibilities are as diverse as bone infections, cysts, tumors, fractures, torn ligaments (cruciate injuries in the knee), spinal problems, and joint instabilities (such as in hip, shoulder, and elbow dysplasia or osteochondritis).

Some of the more common problems seen with dogs include the following:

Osteoarthritis, better known in the medical community as degenerative joint disease, is a chronic arthritic condition common in aging animals caused by the breakdown and destruction of a dog's cartilage. As this condition progresses, and progress may be fast or slow, the ends of the bones in the joints begin to rub against one another causing pain, inflammation and discomfort to the animal.

Osteochondrosis is a developmental disease affecting cartilage cells and is therefore seen most frequently in young, growing animals. It may result from poor breeding (hereditary predisposition) but is most frequently associated with rapidly growing, large breed dogs. Males are more likely to be affected than females. It is characterized by cartilage deterioration and tissue that becomes both inflamed and painful.

Osteochondritis dissecans is a particular type of osteochondrosis that often affects the cartilage surface of the shoulder, elbow or knee. The cartilage degeneration extends from the interior of the bone to the joint surface causing lameness in young dogs, particularly giant breeds, and is manifested by limping in the affected limb. Many animals will outgrow the condition if they avoid strenuous activities for a few weeks, but others may require surgery to alleviate pain.

Degenerative Joint Disease is another term for osteoarthritis. Again, it involves some kind of destruction in portions of the joints, usually involving the cartilage, and inflammation may or may not be involved.

Hip Dysplasia is very complex disease that refers to a genetically inherited malformation of the "ball and socket" joint in a dog's hip, which results is excess looseness of the joint and eventually osteoarthritis. In hip dysplasia, the head of the femur, which should be round, becomes flattened and slips from the hip socket. After a period of time, the body attempts to fill in the gap with bone tissue or scar tissue. The two surfaces of a joint must be smooth and lubricated with a fluid called synovial fluid, but in the case of hip dysplasia this smooth surface is lacking and the joint itself becomes "loose". The movement of the joint may therefore cause a great deal of pain and discomfort in one or both of the animal's hind limbs. Complications are not uncommon. Chronic inflammation of the joint and calcium build-ups often occur; there is often muscle pain because of changes in how the animal bears weight; and the tissue in the surrounding areas usually begins to remodel in order to deal with the weight of the animal and the change in posture.

Developmental Dislocation of the Elbow (Elbow Dysplasia) is a similar and possibly hereditary condition typically found in smaller breeds of dogs. With elbow dislocation, the animal's bones become malformed resulting in deformity and possibly limb shortening. Typically, if left untreated, the condition causes lameness.

Knee Dysplasia is also characterized by pain due to bone "joint mice" (bone chips within a joint) and bone malformation in the knee.

Insufficient Knee (stifle) Joint is caused by ruptured or torn "cruciate" ligaments and possibly ruptured menisci (shock-absorbing disks of cartilage) in the stifle (knee) joint of dogs, which cause joint instability and sometimes kneecap dislocation. Pain and inflammation are common, and this condition will result in acute lameness.

Legg-Calvé-Perthes disease, which occurs as a result of cartilage destruction**,** is characterized by a flattening of the head of the femoral bone, and almost always results in canine hip dysplasia. While its exact cause is unknown, we do know that it has a predilection in small breed dogs weighing less than 25 pounds.

Hypertrophic Osteodystrophy and Hypertrophic Osteopathy are two disease that will both result in formation of new bone which causes a tremendous amount of pain. Hypertrophic osteodystrophy may be associated with overnutrition, and the symptoms will cease with skeletal maturity. Hypertrophic osteopathy is usually associated with disease elsewhere in the body.

Shoulder Degeneration in dogs is typically a type of osteochondritis dissecans. It is usually difficult to trace back to a single cause and sometimes involves an unstable joint or a traumatic accident. The shoulder joint is a sliding joint, and degeneration of this joint affects the gait of an animal's walk, in effect slowing them down.

Wrist Arthritis (carpi) usually occurs with pets that are more active, and can be compared with human "carpal tunnel syndrome."

Kneecap Dislocation is usually an inherited condition caused by poorly formed leg bones which allow the kneecap to move out of its proper position. The movement of the kneecap out of normal alignment can cause the leg to lock in an unnatural position.

The first step to helping your dog when they are in pain or limping is to obtain a proper diagnosis of their condition. You want to avoid a common situation where a pet is treated for a very long time, with potentially harmful therapies, because of an improper, incomplete diagnosis.

Getting that diagnosis correct is essential.

When a veterinarian performs a general physical examination, they will look at your animal's limbs, check their range of motion and inspect them for swelling, heat, abnormal sounds (like creaking or "pops"), pain and tenderness. Reflexes are tested with the use of a neurologic hammer. They'll also be looking for bone dislocations or outgrowths and any signs of degenerative joint disease.

An analysis of joint fluid, known as a joint tap, can also help determine the potential causes of joint damage as well.

A simple radiograph (X-ray), which is a test that any veterinarian can perform, will also help reveal the cause of the pet's lameness and will help your veterinarian to provide a proper diagnosis. Sometimes the cause of limping can be a hidden wood splinter, glass shard or other foreign body that will show up on a radiograph. In some cases, special diagnostic procedures like CAT scans or magnetic resonance images (MRI scans) can also assist in making the correct diagnosis.

In some instances, further diagnostic tests must be relied upon to make a definitive diagnosis. If radiographs fail to provide a diagnosis, special examinations, such as myelography or arthrography may be necessary. Neurologic evaluations may also be necessary, necessitating the use of special examinations, including electroencephalography (EEG), electromyography (EMG), and nerve conduction studies.

There is a specific organization, known as the *Orthopedic Foundation for Animals*, that can take a look at the radiographs and offer a second opinion, if necessary, when the causes of lameness are questionable. Once you have a firm diagnosis, then you can look at all sorts of treatment options.

If you are dealing with canine arthritis, the condition commonly falls into one of these three categories:

- Osteoarthritis
- Rheumatoid Arthritis, or
- Septic Arthritis.

For many purebred dogs, canine osteoarthritis (where the cartilage in a dog's joints deteriorates or becomes damaged) is what you can expect to find and it typically worsens with age. It is possible for the progression of the disease to occur so slowly that a dog's owner would not even recognize that their pet had the symptoms.

Osteoarthritis is not unique to any breed, but most commonly affects older animals. Breeding practices have resulted in certain types of lameness becoming a congenital (genetic) condition. The osteoarthritis and hip problems common to older Labrador-retrievers or German shepherds are good examples of disease that may be due to an inherited condition, hip dysplasia. Of course, osteoarthritis can also result from the trauma of a road traffic accident, abnormal joint stresses, from infection in a joint, or just "wear and tear" from advancing age.

As for rheumatoid arthritis, it occurs when the dog's immune system starts attacking the animal's own synovial tissues, ultimately resulting in destruction of the articular (joint) cartilage and bone. The inflammation and tissue destruction causes serious pain. If the condition is not treated properly, a dog will experience debilitating pain from this form of arthritis.

Septic (Infective) arthritis is caused by infections that are carried to the dog's joints through the bloodstream. For instance, a bite, thorn or road accident may give infective organisms a chance to enter a dog's body and travel, via the blood supply, to the joints, which then become inflamed. This is why infected wounds should normally be treated by a veterinarian.

Canine hip dysplasia (CHD) is a disease of young animals. Its progression over time leads to degenerative joint disease. CHD is characterized by a malformed "ball and socket" joint in an animal's hip, and associated joint tissue abnormalities that occur when the body attempts to compensate for the instability that occurs. Dysplasia, which means improper growth, is just what it implies -- the improper growth of a dog's hip joint, which causes decreased flexibility for the animal.

Over time, this poor fitting of the bones also causes a series of other complications such as joint inflammation, calcium build-up in the area, the loss of cartilage, bone spurs and muscle pain for the poor dog. Veterinarians have historically given dogs NSAIDs (non-steroidal anti-inflammatory drugs) for this condition, but many vets are now recommending glucosamine sulfate instead, which we'll soon discuss as a holistic treatment option.

Simply because the parents of your pet never developed hip dysplasia does not mean that your dog cannot develop hip dysplasia, especially if it is one of the breeds that commonly develop the condition. Hip dysplasia can result from silent genes whose expression can skip one or more generations, or from genetic expression as a result of poor breeding practices, such as inbreeding. We'll get into it later, but the supplementation of vitamin C for puppies may help prevent them from experiencing the deleterious effects of this sometimes congenital condition.

Canine hip dysplasia is a progressive condition that will usually result in arthritis and lameness of the animal if left untreated. It may manifest as different levels of severity in different animals and is notoriously common in certain breeds like Labrador and Golden Retriever, St. Bernard, Bloodhound, Boxer, Great Pyrenees, Rottweiler and in German shepherds.

These noble breeds need all the help they can get to deal with the debilitating pain and inflammation of hip dysplasia and osteoarthritis.

Which brings us back again to osteoarthritis …

Osteoarthritis is often described as "wear and tear" arthritis. Many cases of lameness, including osteoarthritis, can be traced back to stresses or injuries to a dog's joints often caused by a traumatic event or other accident, although conditions like hip dysplasia will cause it as well. The "wear and tear" of aging, or the overwork of an animal given its physical condition, can also produce osteoarthritis.

Evidence suggests that the causes of osteoarthritis are not as simple as we would like to think they are because it frequently develops in many joints at the same time and often symmetrically develops on both sides of the body even when there is no reason to believe that equal amounts of "wear and tear" are present.

These factors, as well as others, have led to the suggestion that arthritis may actually be a body-wide disease of the cartilage.

Whatever the ultimate cause, the destructive and debilitating cycle of osteoarthritis usually involves an initial injury to the cartilage. The degraded cells that make up cartilage are then unable to synthesize enough of the proteoglycans,[1] a major portion of the substance in the cartilage matrix, to help the cartilage heal itself.

Because the cells that make up the cartilage become degraded and don't heal, destructive inflammatory enzymes are also released in the region of the affected joint, which in turn further act to damage the joint's cartilage. These enzymes also start to break down the synovial joint fluid that functions as a lubricant and cushioning agent for the smooth movements of the joint.

As this destructive cycle continues, the progressive breakdown of cartilage and joint fluid in turn causes more irritation and further releases of destructive enzymes with subsequent increases in inflammation. As the destructive cycle continues, the result is pain, inflammation and joint instability

But that's not all.

As the cartilage – the spongy, protective cushion between the bones in a joint -- wears away, the joint surfaces that are supposed to glide over each other smoothly become rough and as the lubrication within the joint decreases, the joint bones eventually start rubbing against one another. In time the bone beneath the cartilage starts to become damaged and wears away causing pain, inflammation and stiffness. A dog may then refuse to use the affected limb, which is when pet owners most often come to a vet seeking medical care and attention.

Thus, in osteoarthritis the cartilage first breaks down within a joint and then the ends of the bones in the joint space rub against one another causing deformity, pain, inflammation and stiffness. In canine arthritis, the cartilage that most commonly breaks down is in the hip, knee, elbow and ankle joints, but other joints can also be affected such as the joints between the vertebrae of the backbone.

For many pets, the end result means difficulty rising from a lying or sitting position, or limping or crying when a tender area is touched. This difficulty is most pronounced in the morning, after your dog has been sleeping and immobile for many hours. When we have full blown osteoarthritis it's called "degenerative joint disease"

[1] The proteoglycan molecule is composed of a central protein core with numerous side chain molecules called glycosaminoglycans (GAGS). Glucosamine is a precursor chemical necessary for the production of GAGS and chondroitin sulfate is just one of several different types of proteoglycan molecules found in joint cartilage.

(DJD), which is when the degenerative changes in the bone can been seen in radiographs (X-rays).

Osteoarthritis is one of the major reasons why your animals' movements become more difficult and painful and yet the signs of osteoarthritis often escape many owners, who may believe that their pet is just "slowing up and getting older." That reasoning, while seeming logical, often hides what's really going on and gives owners an excuse not to take their dog to the vet when a trip can save the animal tremendous pain and suffering.

Some pets can be helped with nutritional therapies to heal their joints, whereas the condition may be so advanced in others that you can only work to slow the disease or mitigate the pain rather than effect true healing. The earlier a pet is brought to a veterinarian and diagnosed, the greater the chances for healing to occur using holistic veterinary therapies.

Dogs will often compensate for the pain they experience so we don't notice it by adjusting their gait, balancing out their limbs with slower movements, and/or walking slower or just becoming less active to deal with the condition. The onset of osteoarthritis can be either acute or slow, but this "slowing up" of an animal is usually one of the major signs indicating the condition.

Here are some other symptoms that suggest whether your dog might be suffering from arthritis.

Does your dog seem strangely inactive? Is your dog reluctant to jump into the car, lie down or get up? Are there any signs of stiffness or limping? Do you hear a "clicking" noise from his or her legs when he or she is walking? Is there any change in your dog's behavior that seems to indicate pain or testiness? Are there any signs of increased nervousness, aggression and depression?

If you notice any of the following signs and symptoms, it suggests that your dog may be suffering from arthritis and that you should quickly take him or her for a visit to your vet:

- Difficulty in walking, jumping or playing … you might observe limping, walking with a slow gait, or lagging behind on walks and other signs of lameness
- A reluctance to engage in those activities (walking, jumping, playing or climbing stairs)

- Dragging the back legs so that the tops of the nails scrape the floor, or moving both rear legs in unison
- Difficulty in rising from a seating or lying resting position
- Difficulty climbing stairs
- A creaking, cracking or popping sound coming from the joints
- Decrease in joint mobility
- Yelping in pain when touched, resisting touch or “snapping” when touched in the wrong place; smaller dogs may yowl or grumble when lifted
- Hiding or disappearing from sight
- Whining or making noises for no other reason
- A “personality” change or change in behavior

A holistic vet will first try to determine the true cause behind any of these conditions, and if it’s arthritis or hip dysplasia, will formulate an appropriate plan of intervention to present to you.

When treating dogs who suffer from arthritis or dysplasia, a primary concern is to help the dog live a better life by counteracting the pain and inflammation. In the best of all possible worlds, you also want a therapy that can slow down the progression of the disease and in actuality help the joints to heal themselves. But that might not always be possible. There might also be budgetary constraints that limit what you can do for your dog, and a veterinarian has to take all of these things into consideration when formulating options.

Most standard or conventional therapies are fine for treating the pain and inflammation of canine arthritis and hip dysplasia conditions, but they don’t normally help the animal’s joints to heal. In fact, in some cases, the traditional conventional medications actually result in more cartilage damage over time, which we’ll soon discover.

The beauty of the holistic therapies, when applicable, is that they not only relieve pain and inflammation but actually supply nutrients to help the cartilage to heal. They slow down the destructive processes that are acting to destroy injured joints … and help to rebuild them. That’s not to say that conventional medications are always wrong to use or never helpful, so that’s our next topic of discussion.

Conventional Medical Treatments

When your pet has hip dysplasia or canine arthritis, there are quite a few options for treatment. The treatments can generally be divided into two categories:

(1) Standard veterinary treatments that use prescription medications (or surgery), and
(2) Holistic, complementary or natural therapies.

We're not against using prescription medications because they can indeed play a role in a holistic approach to treatment under certain conditions.

However, if your deeper goal is to help your dog to actually become healthier and not just "cover up" their symptoms … then you want a therapy that can eliminate or slow down the progression of the arthritis and actually help the joints to heal, if possible.

That's what most of the holistic, naturopathic approaches are designed to do.

Many pet owners ask about the best naturopathic approaches to help their pets, and that's what this manual will focus on. Please note, however, that there is no one "best" treatment for every dog since every dog, every case, is different.

Sometimes you have to experiment among several holistic options to find the treatment that will best help your animal and it often comes down to trial and error, trying one option after another just as we do in selecting our own human complementary treatments.

Furthermore, another factor often comes into play when selecting treatment options. As mentioned previously, every dog owner also has different capabilities as to what they can do for their pet because of budgetary constraints. When money is not a factor, you can try quite a few different therapies to see which ones work best for your dog. If you have a limited budget, that can work against you in limiting your options.

We feel that the best veterinarians will look at all the options available, and then help

you choose what has the highest likelihood of working best, given your constraints, while producing the fewest side effects and best results for the animal.

For instance, the traditional approaches to dog arthritis or hip dysplasia sometimes include surgery when radiographs indicate joint malformations and management approaches have proved ineffective. A good example would be hip replacement therapy for severe hip dysplasia.

When surgery is not indicated, advisable, or affordable, which is not an uncommon occurrence, a dog can experience relief from pain and inflammation by taking painkillers such as corticosteroids and non-steroidal anti-inflammatory (NSAID) medications.

In fact, if your pet is being treated for arthritis, the standard veterinary orthodoxy is to prescribe chronic corticosteroids or non-steroidal anti-inflammatory drugs (NSAIDs).

Some of the common pain relievers prescribed for canine arthritis include:

- Rimadyl (carprofen) - a NSAID that has been effective in treating the pain, but which potentially has very serious side effects, as do all compounds in this drug class
- Metacam (meloxicam) – another NSAID
- Hyaluronic acid derivatives
- Adequan (polysulfated glycosaminoglycan) – PSAGS are given by injection twice each week for one month and then every few months, and have anti-inflammatory activity.
- Aspirin (acetylsalicylic acid) – a widely used NSAID
- Ibuprofen – a NSAID
- Phenylbutazone – a NSAID with a mode of action similar to aspirin
- Palaprin6 - a buffered aspirin specifically for dogs
- Anti-inflammatory drugs, such as Aleve and Orudis

The use of NSAIDS definitely reduce joint inflammation but the side affects from this type of treatment can include stomach upset, gastrointestinal bleeding as well as kidney and liver damage. They should be discontinued if vomiting, diarrhea, or loss of appetite occurs. The drugs tend to be well tolerated over the short term though long term usage can cause potential problems, including drug interactions with other steroid medications.

In the case of Rimadyl, the side effects are potentially fatal and the manufacturer reports the following possible adverse reactions: decreased appetite, vomiting, diarrhea, dark or tarry stools, increased water consumption, increased urination, pale gums due to anemia, yellowing of gums, skin or white of the eye due to jaundice, lethargy, in-coordination, seizure, and behavioral changes. Renal, hematologic, neurologic, dermatologic, and hepatic effects have also been reported, as well as death.

That's just one example that tells us it's wise to consider all options before putting an animal on chronic drug therapy, and once again stresses the importance of first obtaining a proper diagnosis. It would be terrible to put a dog on a long term and potentially harmful medication based on a diagnosis that was faulty, and yet it does frequently happen.

Another factor to seriously consider is our notice that the painkillers above only treat the pain, but do absolutely nothing to treat the cartilage damage that is causing the pain. Over time, the long term use of these drugs can even actually *speed the progression of osteoarthritis* by interfering with cartilage repair, and thereby make the disease worse in the long run. With long term use they can actually destroy your pet's cartilage so that its arthritis and joint pain even worsens.

In the past, treatment for canine joint disease was primarily limited to NSAID medications such as aspirin and steroids such as cortisone. In the 1970's and early 1980's, veterinarians started experimenting with hyaluronic acid (a primary component of joint fluid), which was injected directly into the affected joints. Because this treatment often proved successful in helping a dog's joint function, a number of other substances were then also tried as injectables.

The most successful drugs contained a substance naturally occurring in the joint called glycosaminoglycan, or GAG. Adequan, an injectable PSGAG (polysulfated glycosaminoglycan) was determined to be the best of these drugs.

Veterinarians eventually found that they could inject Adequan into muscles rather than into the joints (thus eliminating a variety of problems) and that it could still be taken up by the bloodstream and absorbed by the joint without breaking into separate components.

Research has found that the PSGAGs not only reduce the pain and increase the function of arthritic joints, but also stimulate the joints to produce more joint fluid, and stimulate the healing and repair of cartilage. They block the effects of degrading

enzymes, which in turn halts inflammation, cartilage degradation and synovial fluid destruction.

With the success of Adequan and its abilities to prevent, arrest, or reverse joint disease, researchers then developed oral ingestible equivalents such as Cosequin, Arthroflex and Glycoflex. These are oral supplements primarily consisting of glucosamine and chondroitin sulfate which are the building block substances involved in the GAGS of healthy joints.

It's common knowledge today that oral consumption of glucosamine sulfate and chondroitin sulfate can help in many cases of arthritis, and so they are a primary component of holistic dog therapy. Now you know how veterinarians ultimately arrived at the oral, rather than injectable formulations of substances that can help arthritis by supplying raw materials which help rebuild the joints.

But while glucosamine and chondroitin sulfate are important supplements you can try, they are not the only supplements or treatments available for canine arthritis and/or hip dysplasia.

Also, even though we're focusing on holistic therapies, you cannot always rule out the NSAID therapies for your pet as there are times when this is a reasonable treatment option. In those cases, we usually go by the rule that the best dose of any medicine is the minimum amount that works.

I usually advise medication first thing in the morning, when your dog is most likely to be stiff. If your dog is in good shape but not great, they are often treated again in the evening. If dosing twice a day doesn't work with their pain and suffering, a cautious vet will usually then recommend increasing to dosing three times a day, always being on the lookout for side effects when using NSAIDs (blood in the stool, etc.). When the dog is again comfortable, it's proper to cut back on the amount of medication used.

Just like with people, dogs will have good days and bad days, and the medication can be adjusted accordingly. They usually need the meds early in the day as well as exercise that helps keep them active.

Basically, the secret of coming up with a successful treatment plan for your dog is obtaining an early diagnosis and then carefully managing his or her condition. This means taking your dog to the vet for a definitive diagnosis and obtaining

recommendations on an appropriate exercise program, nutrition and diet, medicinal treatment, and therapy.

The factors we'll cover along these lines are the following:

- **Weight control**. Heavy dogs have to carry the extra weight which puts more stress on their load bearing joints. To help your animal, you should help them lose weight and keep it off.

- **Exercise regulation**. Provide your dog with a reasonable amount of *controlled* exercise, without overdoing it, so as not to overtax their joints. The right amount of exercise helps a dog maintain overall mobility and flexibility without overworking the joints. For instance, much shorter walks on smooth, soft surfaces are better than undertaking marathon marches up steep hillsides.

- Give your dog a high quality liquid **glucosamine or chondroitin formula,** or **DGP,** and/or other natural sources of GAGs or anti-inflammatories

- Try a number of **alternative therapies**, as well, for reducing pain and inflammation

Losing Weight with an Anti-Arthritis Diet

The first rule with arthritic pets is to keep them lean through the use of a proper diet.

In other words, keep their weight down because keeping a dog thin can alleviate some of the symptoms of arthritis. Obesity only increases the burden on painful joints, so help your dogs lose excess weight if they are suffering from arthritis, dysplasia pain and inflammation.

Helping your dog lose weight is a hard thing to do, especially when you cannot encourage more exercise, so how do you do this?

By improving the diet.

The first rule of an anti-arthritis diet for dogs is to remove grains from the diet since they typically increase inflammation and aggravate arthritis.

The number of humans who are “cured” of arthritis after going on grain free diets is simply amazing, as is the number who get cured by also eliminating “nightshades” from the diet – potatoes, tomatoes, peppers (red, yellow, green, jalapeno, pimento, etc.), cayenne, chili, eggplant, paprika, curry, and MSG.

For dogs, too, many animals improve simply by removing grains from the diet, so if you’ve been feeding your animal grains for years, this might be contributing to their problems. If you take them off grains, in many cases you’ll see their condition improve. This means that all forms of kibble are out since they contain a large proportion of grains, but some canned foods are okay if they are grain free.

The problem with grains is not just an allergic reaction, but the fact that many animals already suffer from “leaky gut” syndrome. Some of the pharmaceutical drugs used to treat arthritis in animals can irritate the intestinal tract and as side effects, these medications can degrade the gastrointestinal (GI) system’s ability to keep food substances from leaking into the general circulation. A dog can thereby develop inflammation and allergic reactions (namely arthritis) to food particles floating around in the blood circulation because of a leaky gut.

That's why human enzyme supplements, such as Wobenzyme, work in countering arthritis since they help to cleave these molecules apart before they can produce an inflammatory reaction. The results of using drug medications is a two-edged sword because when the GI tract is affected, not only can food particles leak out of the gut but the intestines can lose their ability to absorb necessary nutrients as well.

Another factor about the diet is that pet owners often simply feed their dogs too much. Remember, research has shown that a dog can go without eating for a full five days before any health effects start to show! They don't have to eat every day, and you can easily reduce the number of calories dogs consume by reducing the quantity of food you feed them by one-quarter to one-third. If you cannot easily make out by touch each of your dog's ribs when you feel for them, there's a good chance your pet is overweight and overfed (or not getting enough exercise).

Basically, an anti-arthritic and weight loss diet follows certain guidelines, some of which can be relaxed as your pet recovers:

- **Eliminate grains** from the diet (allergies to wheat and gluten, for instance, are often known to cause arthritis; modified food starch or MSG or spices usually contain gluten as a binder, filler or bulking agent as do ice cream, catsup, mayonnaise and so forth)
- Do not feed your dog peppers, white potatoes, tomatoes or eggplant because they belong to the "**nightshade**" family of plants, also known to cause arthritis
- **Avoid citrus**, especially oranges, which can also aggravate arthritis
- **No dairy** except raw dairy (yogurt is fine, cottage cheese is good)
- No added salt, sugar, flavorings, colorings, preservatives (no processed food, human or dog, not even treats)
- **Cartilage** from the ends of large bones is beneficial. Feed your dog raw meaty bones from a reputable source (to avoid potential diseases) and be certain the bones can't splinter to cause a whole new set of problems..
- Feed small amounts of **liver** (no more than 5% of total diet)
- **Fish body oil**, which helps with inflammation, can be safely incorporated into the diet
- Add **Ester-C** (buffered vitamin C, calcium ascorbate or sodium ascorbate) with bioflavonoids to the diet instead of ascorbic acid, which can be irritating.
- **Reduce the dietary fat** by feeding your dog leaner meat and increase their fiber intake by feeding them veggies not commonly known to produce

arthritis. Good veggies include celery, carrots, parsley, asparagus, broccoli, cilantro, and garlic.

Frankly, animals that tend to look and feel the best usually are fed home-prepared diets, rather than commercial dog food, and specifically, diets containing a certain balance of organic meats, vegetables, grains and vitamin/mineral supplements.

You can consult a book such as **Love, Miracles and Animal Healing**, by Dr. Allen Schoen and Pam Proctor (Fireside), for specific recipes. Other useful titles include **Home Prepared Dog & Cat Diets** (Donald Strombeck) and **Let's Cook for Our Dog** (Edmund Dorosz). You can also ask a holistic veterinarian to help you design an appropriate diet for your pet.

The general consensus of holistic veterinarians and dog breeders is that most grocery-store pet food is not as good for your animal as a home-made, well-balanced and proportioned diet. However, if home cooking isn't feasible then learn to follow two general rules of thumb:

(1) Look for human-grade organic or quality meats and
(2) avoid grains.

Some top choices for commercial dog-food include PetGuard, Nutravet and Innova.

Regular Exercise and Massage for Your Pet

Regular exercise is extremely beneficial for your dog when they have arthritis or degenerative joint disease. The key is determining what type of exercise is right for your pet, and how much is enough … rather than too little or too much.

For instance, if you are going to give your dog a variety of nutritional supplements to help heal arthritic joints, a standard rule of nutritional practice is that you have to maintain good blood supply to the joints in order for these substances to reach their destination.

You can only maintain a good blood supply if the joints are exercised, so the problem comes down to striking a balance between enough exercise to help keep muscles, tendons and ligaments mobile, strong and maintain their range of motion, while not over-exercising so that your dog hurts its joints.

A good general rule of thumb is to provide your dog with a reasonable amount of controlled exercise. You want your dog to get enough exercise that he or she enjoys it without becoming stiff and aching afterwards. Shorter walks and play time, or swimming throughout the day, are better than marathon walks, marches and play sessions.

Arthritic dogs tend to “loosen up” with exercise. That is why dogs are in more discomfort earlier in the day than late in the afternoon – the opportunity to move around has eliminated some of the stiffness and discomfort following a period of inactivity. This can also be a potential problem however, as a dog may feel well enough to exercise too vigorously, further damaging the joints.

Here is what I advise most of my clients to do – let your dog walk or run or fetch within reason. It can chase Frisbees. It can also swim, which is a particularly good exercise. What it can’t do … and so what you want to avoid … is encouraging your dog to jump up to catch things because of the weight placed on the hips. You also don’t want to play tug-of-war, again because of the excessive strain placed on the joints.

In all these forms of exercise, even the “safer” ones, the key word is moderation.

Daily massages can also be beneficial for your dog in maintaining joint flexibility, which is the point of exercise, and may not only help you relieve your pet's discomfort, but helps you maintain that special bond of quality time with "man's best friend."

Massage therapy has a therapeutic use as well, for it improves muscle and joint flexibility, increases blood supply to joints, and helps prevent or breakdown scar tissue formation. Simply gently leading a joint through its full range of motion – using slow, passive movements -- can help it maintain or regain normal range of motion such as during the recovery from an operation. This type of massage will stimulate blood circulation to the muscles and joints and once muscle strength and usage of the leg returns, it is no longer necessary.

To learn the proper way to massage your dog, you can study with a massage therapist trained in animal anatomy or your veterinarian may instruct you in how you can practice massage therapy on your pet at home. Two books are particular useful for learning these techniques: Dr. Michael Fox's **The Healing Touch** as well as **Love, Miracles and Animal Healing**.

Dogs and cats use stretching to relax and keep in shape but as animals get older and stiff, they can't stretch and move around as easily. Therapeutic massage can help relieve some of their pain and stiffness and help them regain some of their mobility, so let's focus on the therapeutic massage you can use for a dog who suffers from arthritis or dysplasia.

First, you must recognize that there are times when you do not want to massage your dog. This includes:

- Just after they have eaten
- When they are sick, with fever, or have an infection
- Immediately following strenuous exercise to allow their heart rate to normalize to a resting level
- When a dog is pregnant because it's possible to unintentionally induce premature labor

Before you start massaging your dog according to any specific acupressure routine, you should first settle in a nice relaxing place where you and your dog can remain calm and undisturbed. Don't massage your dog if they still want to jump around and

play because you'll have little success in administering a successful therapeutic session. Wait till they've calmed down before you begin a massage session.

Now sit or lay down with your dog and start your massage of him or her by gently brushing your hands over their head and running down their back to their tail. When you follow this direction of massage -- running from the dog's head, neck and back to the rear -- you are actually following the natural lines of the animal's acupuncture meridians.

The most important thing to remember when massaging your dog is to watch their reactions. If they growl, resist or try to nip you because you touch a spot that's painful or sore, listen to them and stop. You've just discovered a "hot spot," so avoid that area. A dog will let you know in no uncertain terms whether they are enjoying your touch or not, and where they don't like it. Don't press into that area or location.

Pets also seem to pick up on your energies when you massage them, so a few more words of advice are not to massage your dog when you are irritable or too hyper as that will, in turn, tend to make the animal irritable. Yu can communicate your own moods through your touch, so only approach your dog when you are sure it will be a pleasurable experience for both of you.

When a dog doesn't like you touching a certain area, inspect the area to determine whether or not there is a problem there. Also, if you are petting your dog and you feel excess heat over an area of their back, it may be an early sign of a "slipped disc" or arthritis that needs to be checked by your veterinarian.

When you find that your dog actually pushes or rubs into your touch instead of moves away from you, or "bathes in ecstasy" when you massage them, that is an area you may want to massage deeper or for a longer period of time.

Here's how to massage that area, and the acupressure points around affected limbs, to provide a deeper therapeutic benefit.

Acupressure points on a dog's body are usually located as small depressions between the muscles, or between the muscles and bones. When you find such an area by your touch, you may apply a steady rotating pressure -- with your fingertip -- to that particular acupressure location.

According to Chinese acupressure teachings, when you want to relax the massage point, gently massage counterclockwise over the point. Conversely, if you want to stimulate an area and increase the energy to the region, rub the acupressure point clockwise.

In other words, if your pet is generally weak then rubbing in a clockwise direction over the limbs and back will tend to energize them and perk them up. If they tend to be a bit sore, nervous, or hyperactive when you touch an area, rubbing the surrounding points in that region a counterclockwise rotation will usually relax the sore muscles and calm the dog down.

When your dog has arthritis in a particular joint, or stiffness in the neck or back, your therapeutic massage can help them relax and relieve the pain for a short while. Let's take the example of a dog suffering from arthritis in their hip to understand how this is done.

The hip joint is surrounded by three acupressure points: One just in front of the hip joint, one above it and one behind it. To massage your dog with therapeutic touch, simply massage those three points -- with just one or two fingers -- with a gentle counterclockwise rotation of the fingers. To massage your animal's spine, you will find that there are small depressions on each side of the backbone that you can also massage, and sometimes this will send your dog into ecstasy.

Let's say your dog suffers from elbow arthritis on their front leg. To help, you can gently massage the acupressure points around the joint as well as the surrounding muscles in the shoulder and the neck. Once again, you must first feel for and find the small depressions that correspond to the acupressure points and then gently rub those areas while observing your dog's response. That's all that's really involved. You find a sore area, locate the acupressure points, and then gently massage them with your fingertips.

Remember that when a dog has arthritis or dysplasia, they will often shift their weight to favor other limbs and hunch their backs to compensate for the pain. You should not just work on the limbs that have arthritis or dysplasia, but should work on those limbs that are receiving the extra load and tension. You should also massage the dog's back, which will have become sore from the "scrunching up" effort.

The point is not to make the mistake of limiting your massage to just a tiny region.

After working on specific locations, be sure enlarge the radius of your attentions and finish up with a general full body massage to help your dog balance its energies and feel comfortable all over. Don't forget rubbing the inside and outside of each ear.

The cardinal rule in giving your pet a massage is to not to push it, but to listen to your pet when they feel pain or discomfort. If your dog doesn't like what you are doing, then stop it immediately.

The general rules for therapeutic massage for arthritis or dysplasia are to find an affected limb or spinal location, locate the relevant acupressure points, and massage your dog gently at those points in an appropriate rotation. Don't just restrict your attention to a small area, but give your animal the pleasure of relaxation by being symmetrical in your efforts. Remember that even a small location like an elbow is connected to shoulder muscles and the back, so try to extend your efforts so that you relax everything connected with an affected limb.

Dogs usually love massage when you do it right, and this is a great way to help relieve your animal of pain and suffering. Most pets love it, and now you know how to do it to help them with their arthritis or dysplasia.

Glucosamine and Chondroitin Sulfate Supplements

Perhaps the most popular alternative treatment for dogs with arthritis pain, inflammation or dysplasia is the natural substance glucosamine sulfate, which has the benefit of many double-blind, placebo-controlled studies proving the effectiveness of this natural supplement against arthritis pain and inflammation.

Glucosamine sulfate is therefore the primary component in nearly all of the multi-ingredient holistic nutritional formulas for canine arthritis and dysplasia because of its proven effectiveness as an arthritis aid.

So what is it?

Glucosamine is a simple molecule composed of an amino acid and glucose. It is naturally produced by the body and found in the cartilage and the synovial fluid of joints. It promotes the incorporation of sulfur into cartilage, and itself acts as a shock absorber for the joints, absorbing and releasing water with each step or jiggle a joint makes. It is the principle ingredient of proteoglycans (water-binding) molecules in cartilage which are the major building blocks of healthy cartilage.

In particular, glucosamine stimulates the production of glycosaminoglycans (GAGs), which are important proteins that are part of the cartilage matrix and “bind” the water within that matrix.

Research on humans and animals has found that when they are given glucosamine, in either the sulfate or hydrochloride (HCl) form, it stimulates the production of the GAGs, which in turn stimulate cartilage production. Since arthritis and dysplasia often involve the deterioration or wearing away of cartilage, stimulating the GAGs to produce more cartilage is a way to directly address arthritis over time by attacking the root of the problem.

Glucosamine does this so well, with very few unwanted side effects while reducing the pain of arthritis in the process, that it’s probably the most commonly used nutritional arthritis supplement on the planet.

While NSAID anti-inflammatory drugs, such as Ibuprofen or aspirin, are traditionally used by veterinarians to treat arthritis, their prolonged usage can actually decrease the production of cartilage in a dog's body. Furthermore, while the anti-inflammatory medications (NSAIDs) do treat the pain and inflammation of arthritis or dysplasia, they do absolutely nothing to help eliminate the underlying cause of the pain and can lead to severe gastric, kidney and liver problems, as well as under extreme circumstances, death.

We have a number of human friends who have been able to toss their arthritis medications away since starting on a good glucosamine sulfate supplement, but the mainstream medical industry in the US still ignores (or fights) this treatment because they cannot patent it and hence there's no big money to be made from it. Even so, in Portugal, Spain, and Italy, glucosamine has been a primary treatment for osteoarthritis for over twenty years and it is widely used by many United States veterinarians.

Glucosamine sulfate doesn't just reduce the symptoms of arthritis but also slows the course of the disease, so it merits the title of being called a "chondroprotective" drug ("chondro" refers to cartilage).

Anyway, in various human studies, glucosamine has been shown to rehabilitate cartilage, reduce the progression of osteoarthritis, and significantly lessen pain from arthritis.

We're not talking about one study, but many studies.

Here's just a few examples …

In one study of 252 osteoarthritis sufferers, 4 weeks on glucosamine left them with less pain and more mobility in the knees and no side effects. Another study of 329 patients found the effects of this natural substance as powerful as … but more effective than … the prescription medication Feldene. Another 3-year study of 350 patients found it just as effective as ibuprofen. Yet another study of 212 people found it can protect joints from further progressive damage.

We could go on and on …

Here's the short of it … Glucosamine has been well proven in clinical study after clinical study to be effective at relieving joint pain and repairing cartilage in humans.

Studies and practical experience show it works for dogs, too.

However, the results you can get from glucosamine sulfate can vary greatly from one brand to another. That's the problem – you might have to experiment with many brands to find the one that works best with your pet. And, of course, even with many alternatives available to try, some animals don't respond favorably to glucosamine despite its combination with other substances.

That brings us to the other substance naturally found within the body's connective tissues, which is normally paired with glucosamine in combination, and that is chondroitin sulfate.

Chondroitin sulfate consists of repeating chains of molecules – called mucopolysaccharides – that supply cartilage with structure and elasticity (flexibility). It holds water and nutrients and actually draws them into cartilage, which has no blood supply of its own. It tends to block enzymes that destroy cartilage prematurely and aids in the cushioning and lubricating of joints.

While glucosamine sulfate is a small molecule, chondroitin sulfate is a much larger molecule, whose increased size makes it much harder for a human (or animal) to absorb.

While research studies suggest that glucosamine may stimulate the production of cartilage-building proteins, other studies suggest that chondroitin may inhibit the production of enzymes that destroy cartilage and that it may help fight inflammation. Animal studies show that it may promote the healing of bone and help restore joint function.

Typically it is taken as a supplement in combination with some form of glucosamine.

The major source of chondroitin sulfate for supplements is from cow cartilage (though it also comes from the gristle around bones) whereas glucosamine is usually extracted from shellfish (mollusk) shells. In a survey of some 1,500 veterinarians, 80% believed these supplements to be effective and safe.

Taking glucosamine and chondroitin supplements provides the natural raw materials your dog can use to boost its cartilage production, stop its deterioration, and increase the production of the synovial fluid found between joints.

We cannot ask hurting dogs how they feel, but can only gauge the effectiveness of these supplements by their results … we often find happy, smiling, running animals again after they've been on it for a few weeks.

If you have a dog that is losing its mobility or is suffering from joint pain, giving your pet a high quality glucosamine/chondroitin supplement is definitely worth a try. Most pet owners find that when they start supplementing their dog's diet with the right glucosamine/chondroitin supplement, they can see a definite improvement within a few weeks. It has been reported to be helpful for canine conditions as diverse as arthritis, inflamed/degenerative discs, sciatic nerve, dysplasia and inflamed joints associated with aging, cartilage-tendon-ligament repair, and in reducing inflammatory responses.

As previously stated, glucosamine has not been associated with any significant side effects, which makes it a superior choice over standard NSAID drug treatments when you are pursuing a holistic option.

Commercial companies offer all sorts of glucosamine supplements, with all sorts of other ingredients. Just type the word "dog arthritis" into Google, the world's largest Internet search engine, and you'll see advertisements for all sorts of glucosamine supplements displayed in a column on the right side of the display page, each from a different company arguing that their form of glucosamine is best.

The question comes down to which supplement to choose.

This is a difficult question, and we refuse to choose brands because frankly, you have to test to know. Every dog is different. Some dogs refuse to ingest certain brands you try to feed them, and so they might be the best in the world but if your dog won't eat them then they're worthless.

Choosing the right glucosamine product can be very confusing because everyone is making scientific sounding claims, and yet it's difficult to determine which supplement will work best from all the marketing literature being bandied about.

Furthermore, most glucosamine supplements come mixed with a combination of other ingredients like methylsulfonylmethane (MSM), green mussel extract (*Perna canaliculus*), boswella, bromelain or vitamin C – which are all known to help counteract inflammation or treat arthritis, so you never know which combo will work best for you pet because of these extra ingredients.

What it comes down to is trying a few different types to see which one does the most for your pet. In trying to determine what to buy, here are a few factors that you should consider:

- Amount of glucosamine per daily dose
- Type of glucosamine (sulfate or hydrochloride)
- Quality of ingredients
- Delivery system (liquid or other)
- Synergistic ingredients (green lipped mussels, manganese, etc.)
- Price per day

The evidence currently suggests that if you give a dog glucosamine HCl, it should be combined with chondroitin sulfate for better uptake whereas glucosamine sulfate can be given to a pet just by itself.

Most vets, we believe, prefer a glucosamine/chondroitin combination rather than glucosamine alone.

A good glucosamine supplement should also include the mineral manganese, which can help increase its absorption. Manganese enhances the effectiveness of both glucosamine and chondroitin sulfate to synthesize the production of healthy cartilage.

Remember when choosing a glucosamine/chondroitin brand to compare the price you will pay per day for treating your dog and not the price you will pay per product. In other words, you should compare costs based on the recommended daily dosage, and there are actually a variety of websites out there that do that for you.

When giving your pet **glucosamine** and **chondroitin**, you should also follow the recommended dosages for the product you purchase. In general, you should start out at giving high doses to see if the product has a positive effect on your dog, and if you see an improvement, you should gradually lower the daily dosage to a smaller amount.

The recommended dosage for dogs is 1,000 mg of glucosamine and 800 mg of chondroitin per 50 pounds of body weight. Usually you'll see recommendations to provide a small dog with at least 500 mg glucosamine plus 400 mg chondroitin, whereas a medium sized dog might get 1000/800 of a glucosamine/chondroitin combo, and a large dog might get 1500/1200 mg or more to start with. For instance a large dog would get between 1,000 and 2,000 mg of glucosamine sulfate per day,

divided into morning and evening doses. Large dogs should be started on glucosamine supplements well before they even start to show symptoms of arthritis.

Some dogs will do well on less than these recommended amounts (remember to follow your brand's instructions) whereas some will need a higher amount to get relief. Every dog is an individual, so every one will react differently. The big thing is the fact that despite its proven effectiveness, it might not work for every animal.

Here's the catch: if you don't see any improvement in four weeks time, try a different brand since different dogs seem to do better with different brands or different types of glucosamine/chondroitin delivery (such as the liquid form found in Syn-flex). The variety of glucosamine brands out there is always increasing and you can readily find formulations such as Cosequin, Promotion, Osteocare and Glycoflex.

You can give glucosamine/chondroitin along with food if you prefer to, but they may be more effective if you give them at least one hour before or two hours after feeding. Once again, these supplements may also work better when they include a small amount of manganese, which helps with their uptake.

You also always have the option of feeding your dog a source of dietary cartilage, from cooked and "de-boned" chicken wings or cooked spare ribs, instead of paying for cartilage products. For dogs with arthritis, there's no harm in adding 1-2 grams of dietary cartilage to each meal. Another popular alternative is giving your dog bovine gelatin (Knox gelatin or Knox Nutrajoint) since it can easily be added to the food (1-2 packages per feeding), and is a wonderful way to provide variety in glucosamine/chondroitin supplementation.

Glucosamine, nonetheless, is usually the first choice a vet will recommend as treatment for your dog due to several reasons:

(1) It's readily available,
(2) It's not that expensive (you can even feed your dog the human brands if you find they are cheaper),
(3) There don't seem to be any significant side effects, and
(4) Dogs often show obvious improvement within just a couple of weeks of treatment.

Best of all, (5) it doesn't just "cover up pain" but actually works to slowly repair damaged cartilage and restore the synovial fluid between the joints. Since it's working to *repair the joints,* it's treating the actual problem rather than just the

symptoms of the problem, which is the hallmark of a good holistic or complementary approach.

That's what you want for your animal!

There's no reason to think that a glucosamine/chondroitin combination product works any differently for dogs than for humans, for whom we have lots of studies, and we often get the same effect of happy running animals again after they've been on it for just a short while.

Frankly, if a pharmaceutical drug could do what glucosamine sulfate does, the drug companies would be shouting out the news from the roof tops but like we said, they can't make big money with it[2] so they best they can do is ignore it or attack it.

The amount of improvement you can expect with glucosamine for your pet depends on quite a few factors, and seems to be individualistic with the animal. In general we'd say you have about a 40-60% chance to at least see a *modest or moderate* improvement in their condition, and a 20-30% chance to see a *great* improvement in the way your pet feels and moves with the supplementation.

Furthermore, remember that glucosamine works *slooooooowly*, so that improvement is going to take time.

There are also the injectible glycosaminoglycans, **Adequan** and **Cartrophen** (Adequan is used in the US, Cartrophen is used elsewhere), when oral glucosamine and chondroitin don't seem to work, so you shouldn't just discount them when a knowledgeable vet wants to try them. Adequan was developed to treat race horses and its success "on the track" prompted the first experimentation with dogs.

All in all, a glucosamine/chondroitin combo is your first good holistic therapy to try when your dog suffers from arthritis or dysplasia. However, there are a number of adjunctive therapies that support GAGs and which fight inflammation, too, which we'll go over next. These are therapies you can use to bolster a dog's diet or use in rotation for their anti-inflammatory properties.

Some References to Check into:

Adequan, Luitpold Pharmaceuticals, Inc., Shirly, NY – Package insert.

Altman, RD, DD Dean, OE Muniz, DS Howell: Therapeutic treatment of canine osteoarthritis with gylcosaminoglycan polysulfuric acid ester. *Arthritis Rheum* 1989, 32(10): 1300-1307

[2] Because they cannot patent it, due to the fact it is a natural substance found within the human body.

Budsberg, SC: Outcome assessment in clinical trials involving medical management of osteoarthritis in small animals. *Vet Clin North Am Small Anim Pract* 1997, 27(4):815-823

Canapp, SO Jr, RM Jr, McLaughlin, JJ Hoskinson, JK Roush, MD Butine: Scintigraphic evaluation of dogs with acute synovitis after treatment with glucosamine hydrochloride and chondroitin sulfate. *Am J Vet Res* 1999, 60(12):1552-1557

Caron, JP, JB Kaneene, R Millar: Results of a survey of equine practitioners on the use and perceived efficacy of polysulfated glycosaminoglycan. *JAVMA* 1996, 209(9):1564-1568

DeHaan, JJ, RL Goring, BS Beale: Evaluation of polysulfated glycosaminoglycan for the treatment of hip dysplasia in dogs. *Veterinary Surgery* 1994, 23:177-181

Hamm, D, EW Jones: Intra-articular (IA) and intramuscular (IM) treatment of noninfectious equine arthritis (DJD) with polysulfated glycosaminoglycan (PSGAG). *Equine Veterinary Science* 1988, 8(6):456-459

Hamm, D, L Goldman, EW Jones: Polysulfated glycosaminoglycan: a new intra-articular treatment for equine lameness. *Veterinary Medicine* 1984 June: 811-817

Kavangh, K, D Gelderman: Oral glycosamines: a survey of responses. *Aust Vet J* 1999, 77(4):220-221

Lippiello, L, A Idouraine, PS McNamara, SC Barr, RM McLaughlin: Cartilage stimulatory and antiproteolytic activity is present in the sera of dogs treated with a chondroprotective agent. *Canine Practice* 1999, 24(lss 1):18-19

Lust, G, AJ Williams, N Burton-Wurster, KA Beck, G Rubin: Effects of intramuscular administration of glycosaminglycan polysulfates on signs of incipient hip dysplasia in growing pups. *Am J Vet Res* 1992, 53:1836-43

Todhunter, RJ, G Lust: Polysulfated glycosaminoglycan in the treatment of osteoarthritis. *JAVMA*, 1994, 204(8):1245-1251

Walesby, HA, R Rosenbusch, LC Booth, CB Riley: Uptake and distribution of tritium-labeled polysulfated glycosaminoglycan in serum, urine, and superficial digital flexor tendon of rabbits after intramuscular administration. *Am J Vet Res* 2000, 61(1): 20-23

Natural Anti-Inflammatories

Glucosamine and chondroitin sulfate are just two of many types of natural supplements that help rebuild cartilage and restore synovial (joint) fluid.

A larger list of these substances, which contain a mixture of intact or partially hydrolyzed GAGs, includes green-lipped mussels, sea cucumber, and other forms of cartilage (such as from chicken necks, bovine trachea and shark cartilage) as well as hydrolyzed collagen protein. For instance, many chondroitin sulfate supplements are derived from shark cartilage.

Most of these substances are less effective than glucosamine sulfate primarily due to its better absorption, and yet they can all be tried in turn should you run out of glucosamine/chondroitin options.

There are a number of other substances as well which are also known to help with human and canine arthritis. Many of these are found in glucosamine/chondroitin combination products, although many can be purchased as separate supplements you can try on your pets. This list of substances includes:

MSM, or methylsulfonylmethane, is a biological form of sulfur found in all the cells of the body. There is some evidence that it reduces the pain and inflammation in arthritis sufferers, so you often find it in canine arthritis/dysplasia formulations. While there are many amazing claims made for MSM in human medicine it clearly has value as an anti-inflammatory drug, as does its parent substance dimethyl sulfoxide (DMSO).

Perna canaliculus, which is the New Zealand green-lipped mussel, is also a well tested substance known to help degenerative joint disease of the knee (stifle) and some arthritis sufferers. In studying the mussels, scientists have found them to be a rich source of the glycosaminoglycans (GAGs) that lubricate arthritic joints. Unfortunately, these GAGs are poorly absorbed when taken by mouth as compared to glucosamine sulfate.

Perna is highly beneficial for the treatment of arthritis, but the observed benefits may come more from its natural anti-inflammatory properties than from its ability to directly supply glycosaminoglycans to the body. Regardless of the exact mechanism behind its beneficial properties, it seems to enhance the regenerative capacities of joint chondrocytes by regulating the chondroitin sulfates and hyaluronic acid production needed to maintain healthy joint cells.

You can find Perna mussel in most health food stores (Sea Mussel by FoodScience or green lipped mussel) though it is also available as a veterinary pharmaceutical (Glyco-Flex), which you can obtain from your veterinarian. The dosage of Glyco-Flex is 1 capsule (contains 300 mg of Perna mussel) for every 15 lbs of body weight per day, divided into 2 or 3 doses.

Vitamin C, or ascorbic acid, is another extremely important ingredient you will usually find in many glucosamine formulations, and is especially important in hip dysplasia because there is evidence that hip dysplasia's genetic component and subsequent expression may be influenced by a deficiency of vitamin C.

When a pregnant dog, for which there is genetic evidence of hip dysplasia, is daily supplemented with 1500- 2000 mg of vitamin C as a preventative measure before breeding, and kept on the supplementation while weaning, and if the pups are then continued on the supplementation until they are nine months old, the majority of puppies will be HD negative.[3]

What's important is that vitamin C is required for the production of collagen (as are copper and proline), which is the main supportive protein in cartilage, tendon, and connective tissue. Collagen is the protein that "holds our bodies together" and is critical to the structure and integrity of healthy joints. Basically, vitamin C should be part of any dog's diet because it is necessary for normal bone development and can help maintain the integrity of the vascular system that supplies blood to healthy bones and joints.

Fish oils contain high concentrations of EPA (eicosapentaenoic acid) and DHA (docasahexaenoic acid), which are omega 3 fatty acids that act as anti-inflammatory

[3] This protocol can be found in the textbook, "Complementary and Alternative Veterinary Medicine: Principles and Practice."

agents in the body. Even dogs need fats in their diet, and the omega 3 fatty acids from fish oils help reduce pain and swelling wherever inflammation is present. Research at Cardiff University has even demonstrated that the omega-3 fatty acids can not only relieve the inflammatory symptoms of arthritis, but can also switch off certain collagen-degrading enzymes that attack and destroy joint cartilage.

Usually, these anti-inflammatory agents are sold as separate products you can give your dog to help control arthritis symptoms. They promote joint health, general well-being and most interestingly, there is an excellent controlled study showing that feeding a diet enriched with DHA, EPA and other nutritional supplements results in a substantial and measurable improvement in older dogs' memory. Most of all, however, they help reduce arthritis pain and inflammation.

Whenever you are supplementing with fish oils, you should also be supplementing with a "full spectrum" vitamin E, which helps the body protect against the oxidation and rancidity of the oils. Vitamin E also helps protect red blood cells and helps the body maintain healthy cell membranes.

Vitamin A is another vitamin you'll commonly find in glucosamine preparations because it helps in the growth and repair of body tissues, aids in bone formation, and helps the immune system fight infection. Together with vitamins C and E, you'll find a variety of vitamins in canine glucosamine formulations. While the dosage recommendations will vary based on the animal, 2,000 IU of Vitamin A per 50lb. dog per day as well as 1000 mg of buffered vitamin C twice a day and 400 I.U. of Vitamin E are general suggestions.

Whenever a dog suffers from dysplasia or arthritis, it is often beneficial to provide one or more herbal supplements that are known to help with arthritis inflammation in humans. You can take turns between various herbals to see if your pet experiences any positive effects, such as rotating among yucca, bromelain, boswella, curcumin (tumeric), and other natural anti-inflammatories. Some of the well known anti-arthritis herbs include the following:

Yucca has a lengthy history in the treatment of osteoarthritis because of the presence of saponins, which block the release of toxins from the intestine that interfere with (inhibit) the production of cartilage. Studies have shown that bacterial endotoxins from the intestine depress the manufacture of cartilage, and yucca

seems to interfere with this result. Yucca also has anti-inflammatory properties and the saponins elevate the body's ability to produce "natural" cortisone.

Bromelain, an enzyme derived from pineapples, has over 200 papers written on it since it was introduced as a health supplement in 1957, and is a key ingredient of the enzyme formulation Wobezyme that's often used by arthritis sufferers. It helps to inhibit pro-inflammatory compounds circulating in the blood that cause swelling, tenderness and pain, so it can help control the progression of canine arthritis. It relieves pain not just in sprains and injuries, but in chronically inflamed joints and some studies have shown it to be almost as effective as NSAID medications for reducing arthritic pain.

Curcumin, which comes from tumeric (a member of the ginger family), is often given together with bromelain to increase their potency. Used in Indian ayurveda for centuries, it's well known for its anti-inflammatory properties, and for alleviating the pain and stiffness of arthritis. Health food stores typically stock combinations of bromelain and curcumin for inflammation and you would give dogs 400-500 mg of bromelain with 500-400 mg of curcumin twice a day.

Boswellia serrata is an herb native to India and used for centuries in the Indian Ayurvedic system of medicine for osteoarthritis. One of the active ingredients, boswellic acid, has well demonstrated anti-arthritic effects because of several different mechanisms: it inhibits inflammation, reduces swelling, prevents decreased cartilage synthesis, and improves the blood supply to joint tissues. It also improves mobility where individuals experience stiffness in the joints.

These are a few of the more useful herbs and supplements that can help with arthritis pain and inflammation. While people also talk about using Devil's claw or feverfew, the products discussed above seem to work best on most animals. If you want to find a veterinary herbalist who is skilled at using herbs like this for animal health and disease, you can contact the VBMA for a reference:

Veterinary Botanical Medicine Association
http://www.vbma.org/

Australian DGP, Dog-Gone-Pain

When the standard remedies, glucosamine and chondroitin sulfate and related substances don't help your pet, another high priority alternative to try is DGP (Dog-Gone Pain), developed out of Australia.

Australian vets and pet owners have found this product can benefit an extremely high proportion of the animals suffering from joint instability, hip dysplasia, spondylosis and joint inflammation.

Dr. C.D. McKellar of Melbourne Australia, a veterinarian, has worked for years to develop DGP to help dogs who have hip dysplasia and arthritis. It contains a variety of herbs – mostly native Australian plant species – and additionally shark cartilage, which is a rich source of GAGs. A variety of human studies have shown that shark cartilage, bovine cartilage and even chicken cartilage are highly helpful for arthritis and help rebuild arthritic joints.

DGP also contains a mixture of enzymes and anti-inflammatory ingredients that are helpful for arthritis and connective tissues. The list of ingredients, which are mostly anti-inflammatory herbs, include:

- Wild rosella (*Hibicus sabdariffa*)
- Aniseed myrtle (*Backhousia anisata*)
- Mountain pepper (*Tasmannia lanceolata*)
- Feverfew (*Tanacetum parthenium*)
- Celery seed (*Apium graveolens*)
- Boswella (*Boswellia serrata*) – well known to help inflammation
- Bromelain (*Ananas cosmosus*) – another famous anti-inflammatory
- Papain (*Crica papaya*)
- Corydalia root (*Cordydalis turtschaninovii*)
- Cayenne (*Capsicum frutescens*)
- Wheat grass (*Triticum aestivum*)
- Tumeric (*Curcuma longa*)
- Shark cartilage

In an Australian test, racing hounds (which are often "retired" after developing severe joint problems), were able to race and function much longer than usual when

on the DGP formula. They experienced far fewer bone fractures and healed quicker. Even *retired* racing dogs were able to return to the track or simply live a normal life without pain after their racing days were over.

The same thing was observed for a variety of other working dogs, including “cow dogs,” police, and military hounds. Remember that thousands of dollars are spent to find and train these beautiful creatures, and DGP helps to both remove their pain and extend their working life span. These dogs actually love being active and DGP gives them a new lease on life.

Unlike glucosamine sulfate, DGP seems to work much quicker, and individuals often notice changes within 1-2 weeks after its use. In other words, you can sometimes see dramatic changes within days and weeks sooner than other supplements like glucosamine and chondroitin sulfate.

But once again, the result is not for certain. It depends on the animal.

It’s reported that giving a dog DGP is like giving them an anti-aging supplement because the dogs become more active and “seem happier.” Probably because a number of these herbs help remove pain and inflammation, I cannot see why animals would be any different from humans in appearing more happy, calm, energetic and relaxed should their chronic pains go away. After all, pain relief is like getting a second lease on life and enables the animals to do what they are meant to do, which is run and play.

Just as with glucosamine sulfate, it takes some time for DGP to truly help rebuild the cartilage of joints, and therefore the product is something your pet will need to take on a continuous basis. Once animals go off DGP, the dog’s pain, inflammation and other arthritic conditions seem to return most rapidly but the longer an animal stays on the product, the longer the tail-off or residual effect until the arthritic condition once again seems to “kick in.”

DGP is in many ways similar to human enzyme cocktails like Wobenzyme and because of the similar ingredients it would not be surprising to expect the same results. For Wobenzyme, those include less inflammation, faster healing rates, less arthritic pain, more mobility and a quicker return to normal functioning. Presumably the same results are happening in dogs.

We don’t know of any product for pets that works 100% of the time, but this is one of our top alternatives when glucosamine and chondroitin sulfate combos fail to produce much progress for the condition.

Alternative Practices and Practitioners: Acupuncture, Homeopathy, Massage and Chiropractic

There are also a number of alternative therapy practices, foremost of which include acupuncture, homeopathy, and chiropractic that can potentially help a dog with hip dysplasia or arthritis.

The big problem with these techniques is not whether or not they work – which you quickly find out by trying them – but whether you can find a qualified veterinary practitioner who is skilled at applying them.

That's the real problem, but we've solved that one for you by collecting information on national and international directories by which you can locate these professionals.

So here are explanations of these practices.

Chiropractic Care for Dogs

In many cases of canine arthritis or hip dysplasia, there is also an underlying misalignment of the animal's spine that can be treated through chiropractic adjustments.

When the spinal vertebrae in a dog are slightly misaligned, perhaps due to a traumatic event or dysplasia, naturally a dog will feel pain. They will also try to torque their body to shift the weight off the painful area. For instance, in hip dysplasia you can expect a pet to shift its weight off his or her hip joints to their front legs, neck and shoulders in order to avoid the painful hind region.

However which way a dog may shift, the shifting will lead to an unnatural load on other joints as well as a rotation of spinal vertebrae, which can produce muscle spasms. The overburdened joints will then begin to attract calcium ions because of the extra work load and necessary bone remodeling. The calcium may then begin to lay down on these surfaces as tiny rough plaques and calcium spurs.

Because a dog will shift its weight unnaturally, any abnormal weight strains on the newly preferred joints will also start to cause an abnormal wear and tear on those joints, resulting in yet more muscle spasms and calcium buildup in that area, as well. Eventually, this overall combination of factors will cause the leg joints to break down, and a dog will have great difficulties in getting up.

Veterinary chiropractors, just like human chiropractors, explain that the dog's vertebrae can not only become misaligned, but through this sequence of events can become coated with various calcium deposits that may interfere with the function of the spinal nerves (that are located between the spinal vertebrae) that stretch out to the animal's muscles and organs.

Chiropractic therapy, however, is aimed at mechanically adjusting the spinal and other joints through physical manipulation to help with many of these problems. A veterinary chiropractor will greet an animal and evaluate the mobility of joints in the spine and elsewhere while searching to locate and adjust any areas that may be contributing to muscle or postural problems, such as the bones of the spine or legs.

The whole purpose behind chiropractic adjustments is to eliminate any restrictions or misadjustments so as to restore the full functioning of the nervous system as well as healthy movement to the joints.

You cannot tell, unless an animal is evaluated, whether chiropractic manipulations will help an animal unless it is taken in for evaluation. Chronic (long-standing) conditions may require a series of treatments. Most chiropractic veterinarians also know how to arrange a holistic diet for a dog and how to prescribe glucosamine supplementation or DGP, and you can find a practitioner through the following association:

American Veterinary Chiropractic Association (AVCA)
http://www.animalchiropractic.org/ 918-784-2231 The referral site to locate a doctor is at http://www.avcadoctors.com/

Acupuncture for Dogs

Veterinary acupuncture therapy is yet another holistic option to investigate for your pet when a dog doesn't respond to other options such as glucosamine or even

steroids and other anti-inflammatory medications. This type of holistic therapy for dogs with arthritis or dysplasia is exactly the same therapy that works for humans.

When a dog or any being experiences disturbances or obstructions to the energy flows in the acupuncture meridians that traverse its body, it's quite common for the animal to feel pain. Acupuncturists are trained to insert needles at certain special points along these meridians in order to clear these energy blocks and obstructions.

In cases of arthritis and dysplasia, those energy blocks are commonly cited as the cause of pain, and acupuncture therapy is well proven to eliminate the pain and restore joint function.

Western science doesn't understand the exact process as to why acupuncture works, yet its effectiveness is not disputed and it has been used in Asia for centuries. Traditional Chinese medical theory basically claims that it works by helping to balance the body's energy system, which has been misaligned by disease or trauma.

Whatever the reason, veterinarians and pet owners appreciate the results of acupuncture therapy, which can tremendously improve the symptoms of arthritis and dysplasia. Basically, if a dog has a problem with a certain area of their body, the acupuncture point connected to that problem area is treated to help relieve the problem. Therefore, acupuncture is commonly used in cases of:

- spinal disorders
- arthritis
- hip dysplasia

We're not dogs, but acupuncturists and veterinarians report that dogs love acupuncture treatments and their sensations, and are often excited to be receiving their next treatments. The big benefit is that acupuncture not only rebalances the energy system in a dog's body to not only help correct the dog's problem, but the dog seems more energetic and happy after a treatment.

Like most holistic remedies, acupuncture treatment is a gradual process that is not a quick fix, and yet veterinarians have seen cases where in just a few treatments animals can leap off tables without pain or yelping. Generally, acupuncture therapy takes several treatments to be effective but if your dog doesn't experience any improvements within 3-5 treatments, you should be looking for other options. When acupuncture does seem to reduce the pain of arthritis, you can usually reduce the visits to "tune up" treatments over the future.

The only way to know if it can help your pet is to take them in for a treatment with a qualified practitioner, who can be found by contacting any of the organizations provided below.

Referrals from the following organizations can assist you in finding a qualified veterinary acupuncturist:

Veterinary Acupuncture Homepage
http://homepage.tinet.ie/~progers/rogpubco.htm contains links to the International veterinary acupuncture society directory:
http://www.komvet.at/ivadkom/vapsocs.htm#pract

American Academy of Veterinary Acupuncture (AAVA)
http://www.aava.org/
If you are looking for a veterinary doctor that can treat your pet using acupuncture, click on the link in the frame to the left labeled "Directory."

International Veterinary Acupuncture Society (IVAS)
http://www.ivas.org/main.cfm
Use the LOCATE A CERTIFIED VETERINARY ACUPUNCTURIST button to find a practitioner near you.

IVAD: The International Veterinary Acupuncture Directory
http://www.komvet.at/ivadkom/vapsocs.htm
Don't live in the U.S.? This map will help you find a Veterinary Acupuncturist in most parts of the world.

Homeopathy for Dogs

Homeopathy is a branch of medicine, which is well over a hundred years old, whose development is based on the "Law of Similars" that involves "treating and curing like with like."

This means that a homeopathic treatment always involves remedies selected to induce symptoms in a healthy person actually similar to the disease of concern, but which when given in extremely low potencies will help to heal a person with similar symptoms.

Homeopathic remedies can be prepared from all sorts of plant, animal, mineral or other materials and though it may seem paradoxical, the dosages are the most powerful when given in their highest dilutions. The energies of the remedies are designed to arouse the body's innate abilities to overcome sickness and restore health.

The selection of the right homeopathic remedy, whether for a dog or human, takes a lot of skill and training. Therefore, while in simple cases pet owners can select the remedies themselves, especially when consulting a book such as Don Hamilton's **Homeopathic Care for Cats and Dogs**, in complicated cases – such as in canine arthritis – the appropriate treatment should be prescribed by a veterinarian who has been trained in homeopathy.

You want your dog treated by someone who has had much experience with your dog's condition, so going to a professional will give you the highest chances that a homeopathic remedy will prove successful.

Two common homeopathic treatments that involve arthritis include Rhus tox for conditions where exercise alleviates stiffness and Bryonia where there is increasing pain with exercise.

It's rare that only a single homeopathic remedy is needed to help heal a chronic condition such as arthritis or dysplasia because those situations are usually quite complicated and will usually necessitate a series of different remedies taken over time. In chronic situations, a series of treatments may take weeks or months to produce the desired results.

A good response to homeopathy is when a dog seems to feel better from the treatment, which you can usually tell by an increase in their energy levels, an improved temperament, and/or the relief of more serious symptoms. Sometimes as a dog is progressing toward healing, just as with humans, there may be a temporary return of the old symptoms that were not adequately resolved previously through the initial homeopathic treatments.

You have to be careful when giving your animal homeopathic treatments because other therapeutic treatment methods can also interfere with the healing response activated by homeopathy such as vaccinations, medications, surgery, dentistry, anesthesia, acupuncture, herbs and even other homeopathic remedies. However, massage and nutritional supplementation can be safely be used alongside of homeopathic treatments.

There are a number of rules to follow when administering homeopathic remedies to an animal. The first rule is not to give them at the same time as food. Also, the remedies should not be touched so as not to contaminate them.

Remedies can be administered via small pellets or tablets or may be diluted in pure water or purchased in liquid form. If using pills, you put the requisite amount on your dog's tongue and let the medicine dissolve. When using drops, you put them in your dog's mouth also without letting the dropper touch the mouth or tongue in any way.

Homeopathic remedies are sensitive to light and heat and must be stored in a cool, dry place. To find a practitioner in your area, you can check with one of the following organizations:

International Association for Veterinary Homoeopathy (IAVH)
http://www.iavh.at/

Academy of Veterinary Homeopathy (AVH)
http://www.theavh.org/ 866-652-1590

Other Alternative Treatments

The field of alternative therapy for animals is expanding exponentially. There is acupressure, therapeutic touch, animal communication, healing touch, hydrotherapy, magnet therapy, Reiki, veterinary orthopedic manipulation and Traditional Chinese Medicine for dogs.

We cannot go into all of these therapies, but if you want to pursue them further you're advised to contact the International Alliance for Animal Therapy and Healing, which brings together complementary and alternative animal healers. They can be reached through:

International Alliance for Animal Therapy and Healing - http://www.iaath.com/ - IAATH brings together complementary and alternative animal healers and promotes the concept of concurrent care, where traditional and complementary practitioners cooperate in providing comprehensive care for animals.

If any of these other directories failed, in general you can find many skilled veterinarians of all types through the directory at the American Holistic Veterinary Association, found at: http://www.ahvma.org/referral/index.html , which covers North American and Canadian practitioners.

The general contact information for the organization is the following:

> American Holistic Veterinary Medical Association - http://www.ahvma.org/
> Organization of skilled veterinarians who practice holistic, complementary and alternative veterinary medicine and natural healing for pets and animals, including chiropractic, homeopathy, acupuncture and nutritional therapy.

Our final advice is that you should do your utmost to find a skilled holistic veterinarian to help you with your pets. A good holistic veterinarian can be "worth their weight in gold." Once you find one, together you can work out various treatment options for your dog's problems and can try various approaches to see which one works best.

Helping your dog when they have arthritis or dysplasia is not that difficult when you have all these holistic options. Remember to help your dog lose weight, give them the right amount of exercise, and massage the affected joints with therapeutic touch. You can also try a number of supplements such as glucosamine/chondroitin, DGP and other natural sources of GAGs or anti-inflammatories to see which produce the most beneficial effect for your pet. If that isn't enough, you also have the options of homeopathy, chiropractic and even acupuncture to find something helpful.

Most of all, you have to TRY to find something that will work for your dog as every case is different. You've taken the first step in buying this book, and now it's up to you to take the next steps that will truly benefit your animal.

Good luck,

Michael Bodri, DVM, Phd
and William Bodri, MS