Comprehensive Joint Care with ArthraPro®

Arthritis in Dogs

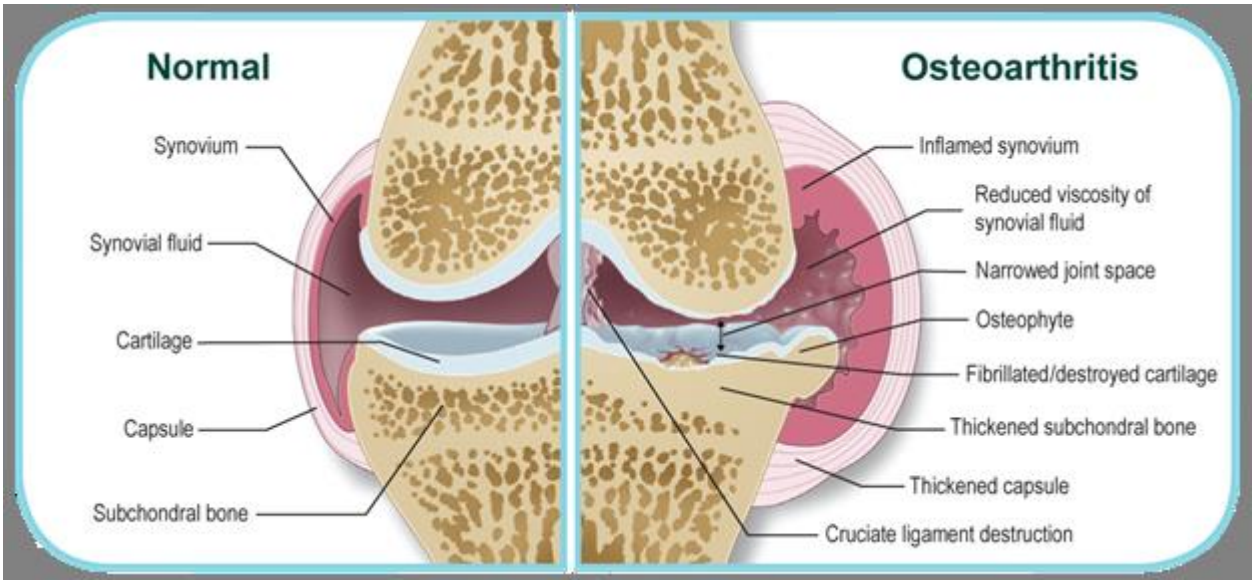
One out of every five dogs less than seven years of age are affected by joint injury or disease. Sadly, almost seven out of every ten dogs over 7 years of age suffer from osteoarthritis.

All told, it is estimated that over 14 million pets in the U.S. have arthritis – some as young as one year of age. Unfortunately, only a small percentage of these animals are receiving treatment.

What Causes Arthritis?

- Developmental disorders, such as hip or elbow dysplasia
- High calorie, carbohydrate-based diets that provide excessive energy during growth causing the body to grow faster than the cartilage producing deficits
- Injury or trauma to a joint such as a ruptured anterior cruciate ligament (ACL)
- Bacterial or tick-borne infections
- Autoimmune disorders that cause your pet’s immune system to attack itself

Osteoarthritis is the most common form of joint disease in pets. It is characterized by the breakdown of cartilage in one or more joints accompanied by inflammation and pain that progresses to a debilitating condition that can severely affect joint mobility and health.



A healthy knee vs. an arthritic knee

How does Arthritis Start?

Arthritis is an inflammatory response to joint trauma or disease that causes further damage to joints when the inflammation continues. The joints of your pet's body are composed of soft connective tissue and cartilage. Arthritis in middle-aged or older pets usually develops as a result of an earlier (sometimes much earlier), often seemingly minor trauma involving a joint. Even the smallest of injuries where limping or soreness of a joint is present should be checked out by your veterinarian. Early Injuries often lead to debilitating arthritis in a pet's later years.

Common Symptoms of Osteoarthritis

Pain
Inflammation
Erosion of Cartilage
Loss of Joint Lubrication
Loss of Mobility and Flexibility
Atrophy of Surrounding Muscles

Identifying Joint Disease

Your dog can't explain what's wrong with him, so it's important to watch his non-verbal cues closely and take even subtle changes seriously.

Clinical Signs of a potential joint problem:

- Favoring a limb
- Difficulty sitting or standing
- Sleeping more
- Weight gain
- Hesitancy to run, jump or climb stairs
- Decreased activity or interest in play
- Becoming less alert and responsive
- Attitude or behavior changes

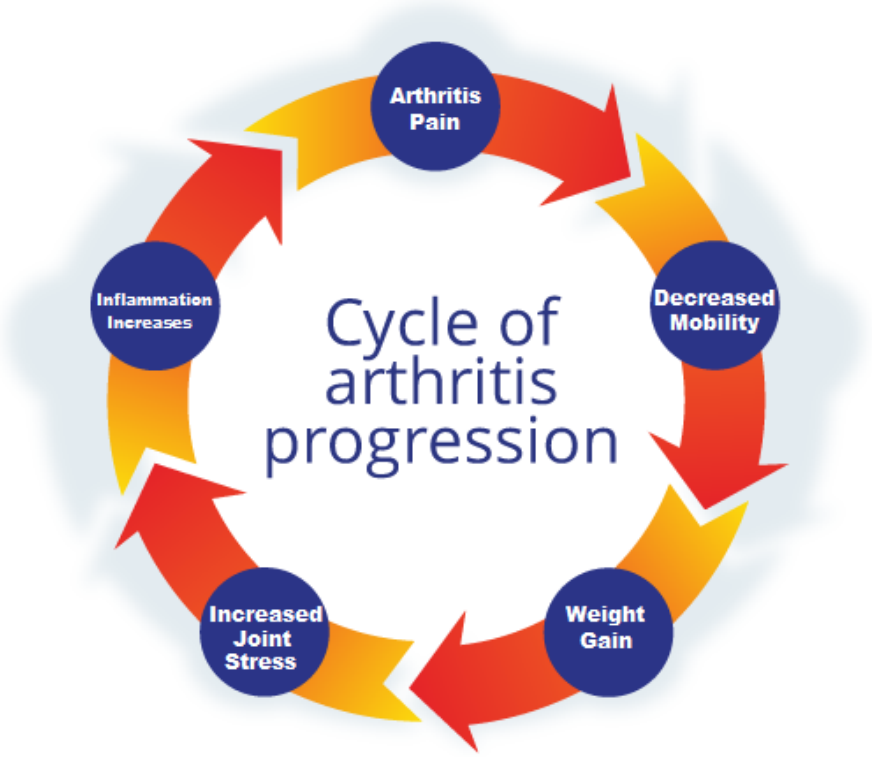
If your dog appears to have any of these symptoms for more than two weeks – take him to your veterinarian for an evaluation. This may include a physical exam, X-rays or even more advanced diagnostic procedures. The best thing you can do in the overall management of a joint problem is to get a proper diagnosis and start a treatment plan as soon as possible.

The Osteoarthritis Process

Initiation (how osteoarthritis begins)

- Aging, stress or injury produces wear and tear on the joint cartilage
- Body reacts by secreting pro-inflammatory cytokines and adhesion molecules
- Inflammation builds until the threshold is met

Inflammatory Phase



- When the inflammation threshold is reached
- The immune system sends Killer T-cells to the inflammatory site
- Killer T-cells activate the production of collagen-specific antibodies from B-cells
- The antibodies migrate and bind to the joint cartilage

Destructive phase

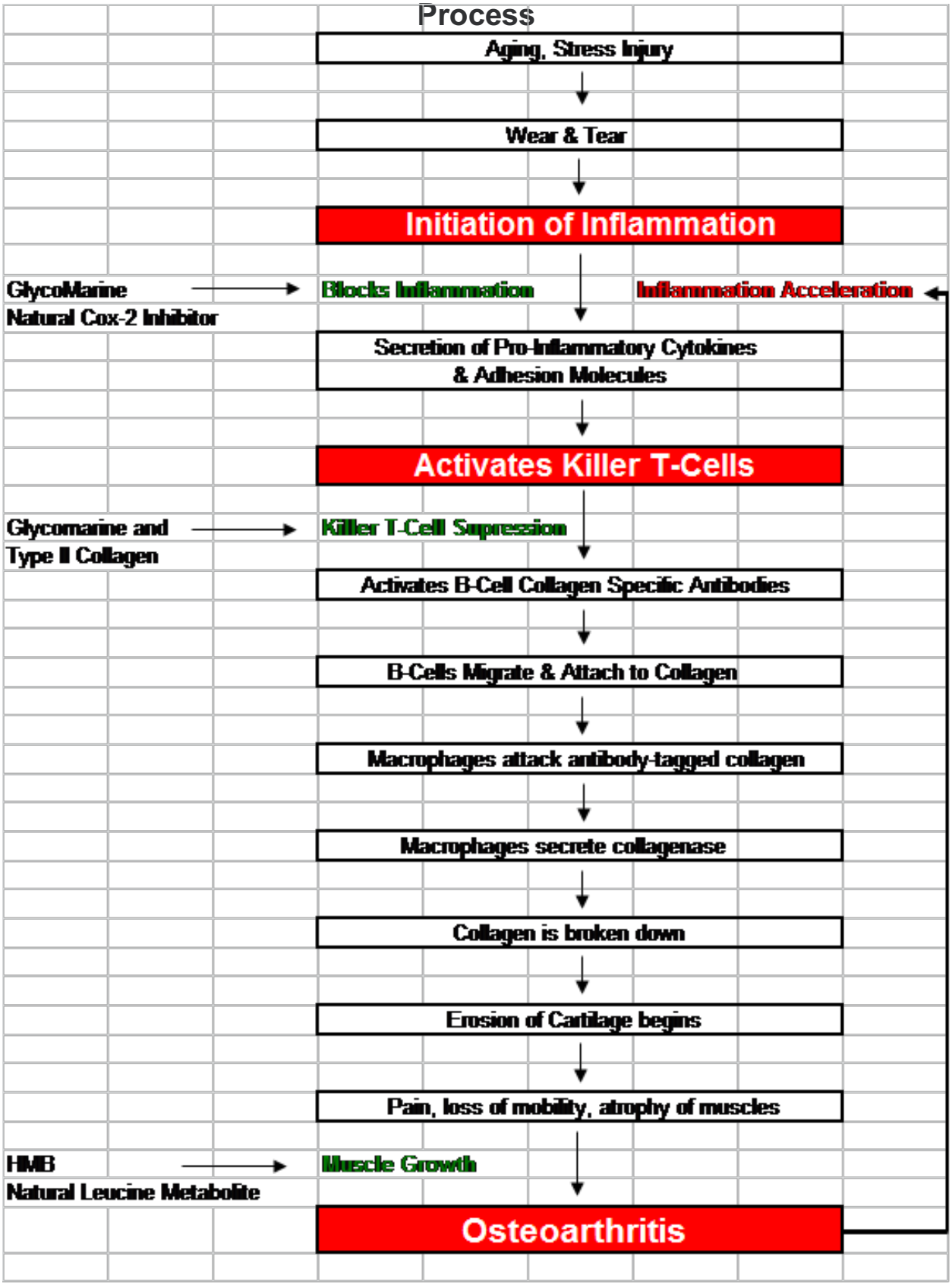
- Antibody-tagged cartilage is then targeted by macrophages
- Macrophages release a powerful enzyme (collagenase) that breaks down collagen
- Erosion of the cartilage surface follows

Debilitating phase

Continued exercise or movement within the damaged joint causes a cyclic acceleration of the inflammatory phase resulting in:

- Increased pain
- Loss of mobility and flexibility
- Further erosion of joint cartilage
- Resulting Atrophy of surrounding muscles
- Weakening of supporting ligaments and tendons

The Osteoarthritis Process



ArthraPro® the Comprehensive Joint Care Solution

ArthraPro is the most comprehensive, natural Joint Formula available today. ArthraPro contains a proprietary Aliva® Joint Support Complex; key ingredients that work synergistically to control the events that allow joint damage to become a chronic destructive and debilitating disease.

Breaking the Osteoarthritis Cycle

Initiation Phase

Green Lipped Mussel Extract (GLME™) is a powerful and completely natural Cox-2 inhibitor that can block the cyclooxygenase pathway limiting the secretion of pro-inflammatory cytokines and adhesion molecules thus blocking the inflammatory threshold from being met.

Inflammatory Phase

GLME and Type II Collagen have both demonstrated their ability to suppress the activation of Killer T-cells thereby greatly reducing the number of B-cell collagen specific antibodies that can attach to the cartilage surface.

Destructive Phase

With the amount of antibody tagged collagen greatly reduced the body stops sending macrophages to the area and the destructive phase is greatly diminished.

Debilitative Phase

Without the inflammatory cycle repeating itself, the joint can actually begin healing itself. For healing to occur the joint needs collagen

producing precursors (Chondroitin) that is uniquely supplied in its natural form by both the GLME and Type II collagen. In addition, GLME and Type II collagen are rich in Hyaluronic acid which helps bring back natural lubrication of the joint surface.

When a limb is not used for a period of time due to pain and inflammation the surrounding muscles, ligaments and tendons begin to atrophy (lose their size and strength). This leads to destabilization of the joint and additional damage to the collagen surface. In order to strengthen the atrophied muscles and supporting structures the Aliva® Joint Support Complex includes β-hydroxy-β-methylbutyrate (HMB). HMB, a Leucine metabolite, has been proven in scientific studies to increase muscle size and strength by over 20% even when exercise is being restricted. In addition, Complete Joint Care provides TendoGuard™ to strengthen the ligaments and tendons that provide stability to the joints of the body.

Aliva® Joint Support Complex

1. GlycoMarine™ – New Zealand Green Lipped Mussel Extract (GLME)

GlycoMarine™ is a freeze dried powder prepared by patented process from a liquid extract of the Green Lipped Mussel Perna canaliculus. Unlike the commonly used Green Lipped Mussel Powders, GlycoMarine™ is a proven Cox-2 inhibitor similar in strength to most NSAID drugs.

Clinical Use:

GlycoMarine™ is currently used for the treatment of both rheumatoid and osteoarthritis in both human and animal subjects. It is classified as a chondroprotective nutraceutical and has the backing of 30 years of peer-reviewed research to support its pharmacological activity. The main reason for its extensive use is that it is an effective, natural anti-inflammatory with selective cyclooxygenase (COX-2) inhibitory properties that can be used on a long term basis without the complication of any adverse side effects.

Pharmacological Functions:

1. Anti-inflammatory – GlycoMarine™ inhibits both the cyclooxygenase and 5-lipoxygenase enzyme cascades with COX-2 selectivity. These functions are a response to the lipid component of the extract.

2. GlycoMarine™ also inhibits a number of pro-inflammatory neutrophil functions including: neutrophil emigration, catabolic cytokines and the mediation of T-lymphocyte activity. These functions are a response to the carbohydrate component of the extract.

3. Chondroprotection – GlycoMarine™ inhibits the catabolic degradation of articular cartilage and enhances the lubrication and buffering of arthritic joints. GlycoMarine™ provides natural Chondroitin and Hyaluronic Acid to support rapid healing and the return to optimum joint health. This activity is a response to the amino acid and glycosaminoglycan content of the extract.

4. Gastroprotection – GlycoMarine™ protects the stomach unlike the ulcerogenic effects of non-steroidal anti-inflammatory drugs. This activity is a response to the lipid component of the extract.

5. Pain relief – GlycoMarine™ relieves pain as a result of its natural anti-inflammatory and chondroprotective properties.

Note: By directly supplying Chondroitin and Hyaluronic Acid – GlycoMarine™ far surpasses Glucosamine when it comes to providing joint matrix components.

2. Type II Collagen

kollaGen II-xs™

Type II Collagen is the major component of articular joint cartilage. Our Aliva® Joint Support Complex uses a unique, patented Type II Collagen derived exclusively from avian (Chicken) sternum cartilage. The specific manufacturing process optimizes the low molecular weight for maximum absorption without affecting its beneficial effects on joint health. Aliva® Joint Support Complex Type II collagen has a protein content of 65-70% with 18 specific long chain amino acids that remain intact ensuring the

animals natural enzymes will recognize the precise genetic code for maximum assimilation and ultimate joint health results.

This Type II Collagen additionally supplies 25 – 30% naturally occurring mucopolysaccharides consisting of natural Chondroitin and Hyaluronic acid that are essential for the production of collagen cells and the biosynthesis of synovial fluid.

Research has demonstrated that our Aliva® Joint Health collagen works with the immune system to deactivate collagen-specific T cells which prevents the secretion of collagenase enzymes responsible for the breakdown of joint collagen. Once the immune system is alerted to stop attacking its own collagen, the numbers of inflammatory cytokines that trigger the damaging inflammatory reaction are decreased resulting in a slowing and then stopping of the destructive cycle of collagen erosion in the joints. This allows the body the opportunity to ultimately rebuild cartilage and heal affected joints.

3. HMB (β-hydroxy-β-methylbutyrate)

HMB is a unique nutritional ingredient produced naturally in the body from the essential amino acid Leucine. As one of the essential amino acids the dog is unable to synthesize it. Therefore, it must be obtained either through diet or supplementation.

HMB is a fifth generation metabolite of Leucine, which functions at a much higher level in the body as a primary component or building block of muscle tissue. In situations where metabolic demand is high as in rigorous exercise, disease processes or rehabilitation – the body cannot supply sufficient amounts of HMB to meet specific tissue needs. In these situations, dietary supplementation of HMB has been shown to be highly advantageous in maintaining maximum muscle size and strength, preventing muscle wasting and reversing muscle atrophy.

Research Studies:

Both human and animal studies have shown that HMB is a critical element in preserving muscle size and function and is capable of slowing the loss of muscle associated with stress and disease. It has also been proven capable of increasing muscle strength and functional ability by up to 33% in adult and senior animals.

HMB strengthens the muscles that support joint stability helping animals return to a more active, flexible and mobile state. As such, it is considered to be a vital component in osteoarthritic conditions. HMB has also been shown in numerous human and animal studies to be completely safe. Ross Labs uses HMB in their human post-operative hip replacement protocols to improve recovery time and has recently added HMB to its popular senior drink Ensure.

4. TendoGuard™

TendoGuard™

100% Avian Eggshell
Membrane & Chicken Sternum Cartilage

U.S Patent #8,344,106 B1

TendoGuard™ is a proprietary (patented) dietary supplement formula containing a perfect balance of collagen Types I, II, V, X, Hyaluronic Acid, Chondroitin Sulfate and Mucopolysaccharides.

TendoGuard™ naturally contains anti-inflammatory and antibacterial compounds to support tendon recovery and to maintain healthy and strong mechanical properties of tendon, bone, and joint functions.

Additional Joint Support

Oxidative cellular destruction is greatly accelerated during most disease processes especially chronic inflammatory diseases like arthritis. To protect against increased cellular damage, Complete Joint Care includes a powerful blend of known antioxidants responsible for removing free radicals that cause cellular damage in dogs.

Supporting Joint Health

1. Weight Control – maintaining normal body weight in dogs is the most proactive thing you can do to help prevent or manage osteoarthritis. Weight loss is a matter of balancing the number of calories going in with the amount being expended. Safe and effective weight loss can be accomplished by reducing a dog's regular diet by 25% and replacing the lost nutrients with Canine or Feline Fitness & Health products. It is the most complete and balanced nutritional supplement available.

2. Exercise – is one of the most important aspects of keeping a dog fit and healthy. When faced with joint disease, exercise should be limited to leash walking, swimming or other low impact exercises until the joint becomes stabilized and muscle atrophy is reversed. Just controlling pain and allowing a dog to over-exercise will thwart any attempt by the animal to reconstruct damaged cartilage and will cause the osteoarthritis cycle to continue.

3. Steroid and NSAID Treatment – may be effective in relieving pain and discomfort when an animal first presents with osteoarthritis but, is not a safe long term strategy. Starting an animal on ArthraPro™ at the same time will greatly limit the need for additional steroid or NSAID therapy thereby minimizing the potential side effects usually associated with these medications.

4. Prevention – Proactive supplementation of specific joint health ingredients in large breed dogs, athletic animals and those breeds having a high incidence of hip dysplasia is also highly recommended. Choosing a safe and effective product early in life may go a long way towards eliminating more costly and painful events down the road.

5. If you use a choke collar or common neck style leash, cervical damage can result from dogs that pull, leap or jerk against the collar or owners that believe jerking back on the collar is a good way to correct poor behaviors while walking.