



ARTHRITIS

DEFINITION:

- Osteoarthritis is chronic degenerative joint disease. It is the cumulative effect of long term wear and tear on the joint structures, where the net effect of daily damage versus daily homoeostatic repair results in subtle long term degeneration.
- Rheumatoid arthritis is an autoimmune disease, where the body produces auto-reactive antibodies that attack the joint structures and results in chronic long term inflammatory joint disease. The net result of rheumatoid arthritis is a similar pattern of chronic degenerative joint disease, but the degeneration can occur much faster, and be more severe.

PATHOPHYSIOLOGY:

The typical joint has three main components:

- (1) The articular cartilage (hyaline cartilage), which forms a smooth, shock absorbing layer over the end of the bone. It is comprised of cells called chondrocytes.
- (2) The joint fluid, a thick, viscous layer of fluid that separates the two cartilaginous joint ends. It provides lubrication for the joint, acts as a shock absorber, and also feeds the chondrocytes that make up the cartilage surface.
- (3) The synovial membrane and joint capsule, which is firmly attached to all the bones of the joint, and forms a complete capsule that contains the cartilage ends and joint fluid. The outer surface of the joint capsule is made of tough elastic fibrous tissue, and often contains, or is confluent with, the ligaments of the joint. The inner surface is the synovial membrane, a layer of cells that manufactures the joint fluid and feeds the joint tissues.

During the normal course of activity, the joint undergoes concussive forces on a constant basis. Most of the energy of the force is absorbed by the joint capsule, joint fluid and cartilage layer, and this can result in micro damage to the chondrocytes and synovial cells. The damaged cells release inflammatory enzymes (Cyclo-oxygenases etc), which stimulates the inherent repair mechanisms of the body, resulting in increased blood supply to the joint, and an inflow of immunomodulatory cells that repair the damage. This process occurs constantly in the normal healthy joint on a daily basis.

With the normal ageing process, repair mechanisms in the body begin to slow down, or fail, and nutrient uptake from the intestines is impaired. The combined effect of loss of nutrients required for repair, and diminished repair mechanisms, is degeneration (degenerative disease)

In the joint, this results in gradual degenerative changes that begin to accumulate :

- Cartilage surfaces are slowly eroded away, joint fluid is diminished, and synovial membranes slowly thicken, and lose their elasticity.
- The damage process begins to accelerate as the animal ages further.
- The chronic damage results in increased release of inflammatory enzymes, which further damages the cells of the joint, and causes swelling and pain inside the joint.
- Cartilage is eroded away to expose the underlying bony surfaces, which results in further pain, and new, uncontrolled, bone growth (bone spurs).
- The joint capsule is chronically inflamed, and the increased blood supply and inflammation results in calcification (mineralisation) of the capsule, primarily at the edge of the joint where it attaches to the bone. This in turn causes loss of elasticity (stretch) in the joint, and results in decreased joint fluid production inside the joint, which further accelerates cartilage damage....etc. etc. etc.

The end result is a painful, stiff, swollen joint. The bony changes on the surface of the joint causes palpable changes to free rotation / manipulation of the joint called "crepitus".

In the earlier stages of arthritis, pain is most notable after exercise/rest cycles, whereby the inflammatory process is in peak activity towards the end of activity, and continues during the resting cycle, and then abates at the onset of the next activity phase. Once advanced, arthritic pain becomes more constant.

DIAGNOSIS :

Diagnosis can be made by a combination of :

- Clinical history – type of pain, when it occurs, better with exercise or rest, age, size, breed of animal, predisposing factors
- Physical examination – full manipulation of all the joints, including rotation, flexion, extension, abduction and adduction. Palpate all the associated muscular and soft tissue structures. Perform neurological examination.
- Radiology – an xray of a joint is the most diagnostic tool. Look for degenerative bone surfaces, exostoses (bone spurs), calcification around the joint capsule
- Blood tests – given that many animals with arthritis are old, it is important to assess the entire health of the animal. A routine blood exam can pick up early signs of renal failure, diabetes, liver problems, or may indicate further testing for thyroid function etc.
- Common mis-diagnoses – lumbar pain due to muscular or spinal problems, cruciate injury, luxating patella, ascending myelopathies (like

MS), trigger points, bone cancer (osteosarcoma), ligament / joint capsule tear, chip fractures, Ross River fever

PREDISPOSING FACTORS :

- Age – gets worse with age
- Size – larger breeds are affected more than smaller breeds
- Weight – obesity hastens the onset of arthritis
- Diet – poor nutrition impairs repair processes
- Activity level – strenuous activity accelerates damage
- Conformation – abnormal load on a joint will hasten damage
- Developmental / Growth deformities – Hip dysplasia, OCD
- Hereditary – genetic link to poor repair mechanism
- Injuries – a serious joint injury will accelerate onset of arthritis

CONVENTIONAL VETERINARY TREATMENTS:

- NSAID's – Non Steroidal Anti Inflammatory Drugs. These drugs block parts of the inflammatory cascade, and result in pain relief. The new generation drugs specifically block the COX 2 enzymes (eg Metacam, Rimadyl). Also commonly used are the Profen group, Aspirin, Phenylbutasone (PBS, Butalone), and Indomethacin (Cu-Algesic)...
- The main disadvantages to NSAID's are tolerance build up to the drugs effect, increasing chance of gastrointestinal ulceration, kidney and liver damage, and "masking" of pain, that allows the animal to work the joint much harder than would otherwise be possible, thereby accelerating damage (pain is nature's way of saying "slow down").
- Cortisone – A steroidal anti inflammatory agent. Cortisone blocks most of the inflammatory cascade, and is an effective pain reliever. Due to its deleterious short and long term side effects, it is not used very often for arthritis nowadays, or only as a last resort.
- Pentosan polysulphate – a synthetic, injectable compound that stimulates joint fluid production and viscosity, thereby effecting pain relief and some joint repair. Eg. Cartrophen, Pentosan. It is most effective in early onset arthritis.

EMERGING VETERINARY TREATMENTS

- Treatments that are gaining acceptance in conventional practice

- Acupuncture
- Chiropractic / osteopathic manipulation
- Glucosamine/ chondroitin sulphate products (GAG;s) – Cosequin, Sasha's Blend, Joint Formula, Shark Cartilage, Arthracart.

COMPLIMENTARY TREATMENTS ALSO AVAILABLE

- There are also many non-conventional or alternative treatments available that are highly effective. You can seek advice on many of these options from your closest “open minded” vet.

- Orthomolecular Shark cartilage
Green lipped mussel (*Perna canaliculus*)
Vitamin C, B6
MSM (methyl sulphonylmethane)
Boron
Calcium
Magnesium
Copper
Selenium
Zinc
Manganese

- Herbal Devils claw
Boswellia
White willow bark
Ginger
Flax seed oil, Fish oil
Turmeric
Guaicum
Celery seed
Liquorice

- Homoeopathic Arnica
Rhus tox
Apis mel
Bryonia
Ledum
Ruta grav
Causticum
Calc flor
Silica

- Magnetic therapy Eco flow collars, pet beds, leg wraps

- Tactile Massage
TENS
T Touch
Craniosacral therapy

DR SYME'S PERSONAL CHOICES

Having treated literally thousands of animals for arthritis, using most, if not all, of the above treatments, I have developed a system that caters for all types of animals, and all types of arthritis.

- **GROWTH DISORDERS**

Both hip dysplasia and elbow OCD (osteochondritis dessicans) are developmental abnormalities, and are generally seen in growing pups between 6-12 months old. As long as the condition is diagnosed early, I have found the combination of shark cartilage and vitamin C supplements to work highly effectively, and remove the need for expensive surgery.

Shark cartilage provides naturally high levels of glucosamine and chondroitin sulphate, which stimulate and accelerate natural repair in the joint, and provide some natural pain relief. Vitamin C accelerates collagen repair to damaged tendons, ligaments and joint capsule.

It is important to note here that the shark cartilage should not be used in any dogs under 4 months old, and in fast growing large/giant breed dogs, it is best to check with your vet to see if their growth plates are still active. If the dogs are still actively growing, it may be safer to use a lower dose.

Shark cartilage and vitamin C can both safely be used in conjunction with Cartrophen or Pentosan injections.

- **EARLY ONSET ARTHRITIS**

This occurs in many large breed dogs at age 5-6 +, or in dogs with a history of joint injuries, or with milder versions of the early growth disorders mentioned above. It can also occur in dogs on a poor diet, overweight dogs, or in highly active or working breeds.

Combined with a change to healthy raw food diet, the combination of shark cartilage and vitamin C again works very well here. If a specific joint or leg is affected in isolation, I will also use acupuncture to stimulate healing.

- **MATURE AGE ARTHRITIS**

This is the more traditional "old dog" arthritis that affects most pets in the latter years of life. In this situation, diet change and weight loss are often important factors. As a general rule, dogs at this age are often starting to show signs of nutritional deficiency, which accompanies most degenerative changes. Often the bones have become more brittle (osteoporosis), and the arthritic changes are more advanced. Here I prefer to use my Joint Formula combination. It has the benefits of the shark cartilage and vitamin C, but also has Green Lipped Mussel (more GAG's), Flax Seed meal (Omega 3), Devils Claw herb and Ginger (anti inflammatory), Dolomite (calcium and

magnesium), Copper and Sulphur (mineral supplements), and Boron (mineralisation of bone). It provides both for joint repair and corrects the nutritional deficiencies that cause accelerated degeneration. It also provides ongoing mild pain relief.

I have also found that using magnetic collars is quite effective, especially in conjunction with the Joint Formula.

In very old dogs, or in refractory cases, I will also use a traditional non steroidal anti inflammatory agent, like Metacam, but I keep this until the very end, when the dog is no longer very active, and unlikely to do any further damage to the joints.

Chiropractic manipulation can be very beneficial in older dogs, but I prefer to take an xray first, before suggesting this type of treatment.

Accupuncture can also be very effective to control pain and lameness in older pets if the Joint Formula alone is not enough.

- **JOINT INJURIES**

Joint tears, subluxations, dislocations etc often need immediate veterinary care. Once the joint has been stabilised, a combination of rest, shark cartilage, vitamin C and weekly acupuncture is the best treatment. This can also work very well for mild/partial cruciate ligament injuries.

A joint injury can often result in arthritis in later life, so it is worth treating them at the time, for at least 3-6 months on shark cartilage.

Homeopathic injections can also be used into an injured joint, with much greater safety than using cortisone etc

- **HORSES**

Joint Formula has been shown to be equally effective in treating joint problems in horses. It can be mixed into a wet feed, or chaff and molasses, at a rate of 20g per 100kg bodyweight (average horse gets 4-5 tablespoons per day).