Joint Supplements

Joint disease affects many dogs and is a frequent reason for owners visiting the vet. The most common form of joint disease is osteoarthritis, a degenerative joint condition, which is thought to affect up to 1 in 5 dogs, with geriatric dogs most at risk.

What is synovial fluid?
Synovial fluid is a lubricating and shock absorbing fluid which is contained within the synovial membrane and fills the joint cavity (see diagram 1). Its main function is to reduce friction between articular cartilages during movement, it needs to be viscous in order to do this.

What is cartilage?
Articular (joint) cartilage is a thin layer of specialised tissue (see diagram 1) covering the end of bones. Its principal function is to provide a smooth, lubricated surface for low friction joint movement.

Focus on osteoarthritis
Osteoarthritis involves the breakdown of substances within synovial fluid which leads to a thinning of the usually thick and viscous fluid. As a consequence, cartilage which lines the joint surfaces is worn away. Destruction of this cartilage can arise from repeated trauma and/or excessive use, which is why these changes are frequently identified as dogs get older. Pain, swelling, lameness and reduced mobility occur as a result and lifelong treatment/management of the condition is usually required.

Which dogs are affected?
Large dogs are particularly susceptible to arthritic conditions e.g. German Shepherd dogs and Labrador Retrievers, whereas small or medium-sized breeds are less commonly affected. Obesity is an important risk factor for the development of osteoarthritis and this is becoming an increasingly significant problem in all breeds. Young animals can be affected by developmental joint disease, such as hip dysplasia and Osteochondritis Dissecans (OCD), predisposing them to arthritis early in life. Active dogs can develop arthritic changes arising from excessive wear and tear but also traumatic injury, such as cruciate ligament rupture.

Recommended by vets
The aim of treatment for joint disease is to lessen inflammation, prevent further cartilage degeneration, relieve pain, improve joint mobility and most importantly, enhance quality of life.

Whilst anti-inflammatory medicines are frequently prescribed (as well as surgery in some cases), vets are beginning to look to a ‘multi-modal’ approach to treatment. This includes the use of nutritional supplements, physical therapy (such as hydrotherapy, controlled exercise and weight loss regimes) and alternative therapy (such as acupuncture).
**Nutritional supplements**

**Glucosamine**

Glucosamine is one of the major components involved in the formation of glycosaminoglycans (GAGs), including chondroitin. GAGs are essential constituents of synovial fluid, where they are important factors in maintaining its viscosity. They are also important in cartilage, where alongside collagen fibres and water, they form the matrix which gives cartilage its structure.

**Chondroitin**

Chondroitin is a glycosaminoglycan. It is a major structural component of cartilage and provides much of its resistance to compressive forces. Both glucosamine and chondroitin play an important role in joint lubrication and shock absorption and are necessary to maintain and restore healthy joint function.

**Omega-3 fatty acids**

Omega-3 fatty acids are considered essential fatty acids EFAs: they are necessary for health but the body can’t make them, therefore, they have to be provided by the diet. Eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are both omega-3 fatty acids and oily fish and fish oil supplements provide a very good source. Dogs with inflammatory conditions, such as arthritis, can benefit from supplementation of these omega-3s which reduce the production of inflammatory substances. Research has demonstrated an improvement of clinical signs in dogs with arthritis when supplemented with omega-3 fatty acids.

**MSM**

MSM (Methylsulfonylmethane) is a bioavailable source of sulphur. It supports the synthesis of collagen, the main structural protein of connective tissues such as tendons, ligaments and muscles which can all play a part in stabilising joints and minimising wear and tear.

MSM promotes the dispersion of fluid at injury sites via its role in the permeability of cell walls.

**Vitamin E and C**

Vitamin E and C are antioxidants. These neutralise excess damaging substances, called free radicals, which are produced as a consequence of inflammation in and around the joint.

**Just for older dogs?**

The process which causes arthritis can often begin early in life. The stress of an active lifestyle, e.g. working dogs, agility, flyball etc. can cause inflammation of the synovial membrane, which sets off a cascade of events leading to a thinning of the synovial fluid which lubricates the joint, and ultimately cartilage destruction. Cartilage has a limited capacity for healing and repair, therefore preservation of cartilage is important. It may be of benefit for hard-working dogs to begin nutritional supplementation for their joints at an earlier age. Conversely, for young, healthy pet dogs that are fit and not overweight, joint supplements are probably not necessary.

In conclusion, if your dog is showing signs of stiffness or reduced activity; if you have a young dog that is working hard; or if your dog has suffered an injury to his joint structure I would recommend the addition of a top specification joint supplement to his feed.