WALTHAM Viewpoint

Arthritis management in dogs through diet

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Osteoarthritis (OA) is a complex, degenerative disease of synovial joints that is common in both humans and animals. It is a progressive condition that is characterised by the degeneration of articular cartilage and the formation of new bone at the joint margins. Inflammation of the synovial membrane may also be present in some cases, but is a variable feature throughout the course of the disease. Although OA is most commonly seen in middle aged or geriatric animals, it can occur in dogs as young as one year of age, particularly in fast growing individuals of the larger breeds that are susceptible to developmental bone disorders.

In the dog, most cases of OA occur in association with some predisposing joint disease, injury or other abnormal stress within the joint. These produce focal areas of increased stress and result in accelerated turnover of the articular matrix. Although both the synthetic and catabolic activities of chondrocytes are increased, the balance is tipped towards matrix depletion with a net loss of cartilage matrix components. This produces softening and weakening of the articular matrix and creates a self-perpetuating cycle of events, which eventually result in localized erosion of the cartilage and exposure of the underlying bone.

Enlargement of the joint may be evident and is related to osteophyte production, joint effusion resulting from synovial inflammation and thickening of the joint capsule. Clinically, most cases of OA ultimately present with stiffness or lameness, although structural damage may exist for some time before signs are apparent. Lameness is due to a combination of joint pain and restricted movement of the joint, and may be gradual in onset or may present acutely following some minor trauma or excessive exercise. A number of mechanisms are thought to be involved in the pathogenesis of joint pain itself, but one factor is the variable presence of synovial inflammation.

Osteoarthritis is an active process and it is possible that dietary measures can modify this process in a number of ways, including modulation of the inflammatory response, provision of nutrients for repair, and protection against oxidative damage. Where effective, dietary management may help to reduce or eliminate the need for conventional drugs, some of which are associated with undesirable secondary effects. Dietary supplements such as chondroitin sulfate, glucosamines, antioxidants and omega-3 fatty acids have been suggested to help alleviate arthritic symptoms (1). As another nutritional supplement, green-lipped mussels (GLM) have traditionally been used in the treatment of arthritis and interest has been focused on the potential nutritional benefits of the New Zealand green-lipped mussel (*Perna canaliculus*) in the past 25 years (**Figure 1**) (2). While GLM is known to contain anti-inflammatory components and other nutrients that may benefit the joints, the precise mechanism(s) of its actions are unknown.

In a series of clinical trials conducted over the past 18 months, researchers at WALTHAM have shown the efficacy of GLM in alleviating arthritic signs in dogs (3, 4, 5). Using this knowledge has helped to develop two products, the Exelpet® ARTHRI-CARE treat (Australia) and the WALTHAM® Joint Support Veterinary Diet* designed to help manage dogs with arthritic signs. In the randomised double-blind trials, the final products were tested in dogs (8–13 years) with arthritic signs. Veterinary examination confirmed that all participants had arthritic signs but were free of other diseases that may have complicated the study.

Figure 1 *Shells of green-lipped mussels.*

All dogs were adapted to a base diet for each study for six weeks prior to baseline measurements at week 0. Subsequently, dogs were randomly assigned to separate groups and fed the test diet (control or modified base diet) over the following six weeks. At weeks 0 and 6, visual and physical assessments for arthritic signs were carried out by a veterinarian whose consistency in scoring was validated prior to the study by assessing the same 20 dogs on three consecutive days. Dogs were also video-taped for reference and to aid in assessment.

Total arthritic scores were calculated by averaging scores for mobility (obtained by visual assessment of lameness in walking, trotting, climbing stairs), degree of joint pain, swelling, crepitus and reduction in range of movement. For each parameter assessed physically, major joints of each limb were examined individually and given a separate score. Scores of 0 (none) to 4 (severe) were used for each parameter assessed.

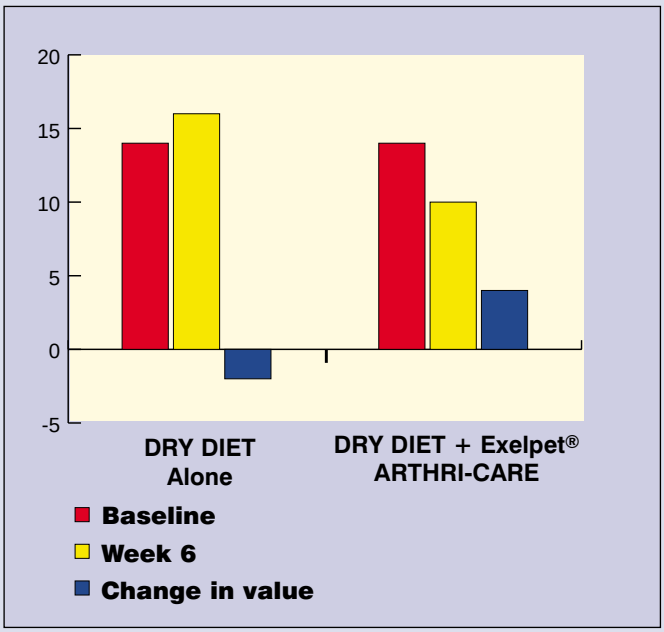

Figure 2 *Total arthritic scores relating to Exelpet® ARTHRI-CARE.*

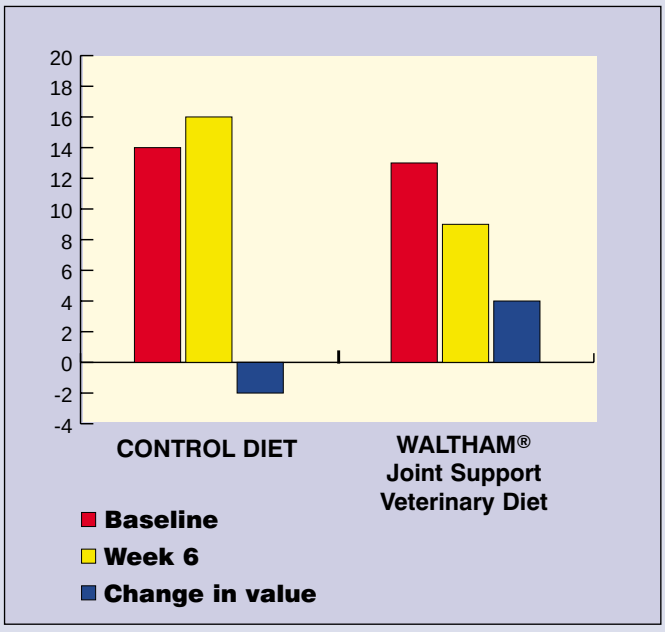

Figure 3 *Total arthritic scores relating to the WALTHAM® Joint Support Veterinary Diet*.*

Results from dogs fed either the Exelpet® ARTHRI-CARE treat or the WALTHAM® Joint Support Veterinary Diet showed significant improvements in total arthritic scores as compared to their respective control groups (**Figures 2** and **3**). Significant improvements were also observed in joint pain and swelling in the dogs fed the test products as compared to their respective controls. These data support the conclusion that GLM powder incorporated into the final product was efficacious in relieving signs of arthritis in dogs.

** Currently only available from WALTHAM USA*

● REFERENCES ●

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