

rheumatoid **ARTHRITIS**

Nutritional Management of Osteoarthritis

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Osteoarthritis (OA) is a degenerative joint disease, which mainly affects the articular cartilage. It is associated with ageing and will most likely affect the joints that have been continually stressed throughout the years. OA has traditionally been regarded as a non-inflammatory condition. However, with improved detection methods it has now been proven that inflammatory pathways are up-regulated in OA. Studies confirm that low-grade inflammation plays a pathophysiological role in OA.

There is a strong association between obesity and OA. Obesity is typified by nutrient excess and insulin resistance, closely related to excessive proinflammatory cytokine production seen in chronic inflammation. Nutrient excess produces reactive oxygen species, resulting in oxidative stress that damages cells and triggers an inflammatory response. As insulin resistance progresses, inflammation increases, initiating a vicious cycle of excessive nutrient intake, insulin resistance and inflammation.

Intervention: Targeting the cause of inflammation in the body is an important factor in the management of OA. Aggressive lifestyle intervention helps reduce inflammatory responses.

Exercise: Non-loading activities such as swimming and weight-bearing exercises have been shown to reduce symptoms, increase mobility and reduce continuing damage from OA. Weight loss reduces risk factors for symptomatic knee OA and reduces pro-inflammatory cytokines and adipokines believed to play a role in cartilage degradation, thus reducing OA-associated pain and improving physical activity.

Dietary guidelines and lifestyle changes for intervention include:

- Ensuring an adequate intake of calcium and vitamin D, as patients with OA are often deficient in these nutrients.
- Consuming a diet rich in whole-grains, fruit and vegetables, nuts and seeds which provide fibre, vitamins, minerals, phytonutrients and antioxidants with anti-inflammatory properties.
- Ensuring adequate intake of omega-3 fatty acids by eating oily fish at least twice a week.

Supplements or preparations, aimed at reducing pain and inflammation in the joints associated with arthritic conditions, are available.

Glucosamine and chondroitin: These are essential components of the proteoglycan in normal cartilage, which is the main reason for their use as supplements in the management of OA. Glucosamine is used as an agent to help relieve the symptoms and delay the progression of OA. It is hypothesised that OA is associated with a local deficiency in some key natural substances and that glucosamine might act as a substrate for cartilage repair, by stimulating proteoglycan synthesis by chondrocytes. Glucosamine is a slow-acting substance as treatment is usually characterised by several weeks delay in the onset of improvement in symptoms of OA.

Chondroitin is important for the structural and functional integrity of the joints as it constitutes the majority of glycosaminoglycans in articular cartilage. Chondroitin helps maintain the viscosity in joints, stimulates cartilage repair and inhibits enzymes that degrade cartilage. These properties may result in pain relief and improved joint mobility in patients with OA as well as a reduced rate of joint destruction.

The use of glucosamine in conjunction with chondroitin is believed to be more effective compared to each used in isolation.

Omega-3 fatty acids: A diet high in omega-3

(Ω -3) fatty acids (FAs) has been proven to reduce inflammation. The ratio of omega-6 (Ω -6) to Ω -3 polyunsaturated fatty acids (PUFAs) in most common western diets favours Ω -6 PUFAs. As a result, the anti-inflammatory effects of Ω -3 PUFAs are counteracted by the proinflammatory effects of Ω -6. It is therefore recommended that a diet rich in Ω -3 fatty acids be consumed, by including the best dietary sources of Ω -3 FAs, which are fatty fish (e.g. herring, trout, salmon, pilchards) at least twice a week, to improve the Ω -6/ Ω -3 ratio and help reduce inflammation.

Rose Hip from *Rosa canina* as a supplement for OA: *Rosa canina* (or rose hip) is a herbal

anti-inflammatory which has attracted particular interest for its possible pain alleviating properties, especially in joint pain. In a trial by Winther *et al.*, (2005) it was found that joint pain and stiffness was significantly reduced within three weeks of initiating a supplement of rose-hip powder. During the course of the three-month treatment period in which patients received active treatment, there was a significant reduction in the consumption of traditional painkillers such as paracetamol.

In two systematic reviews done in 2006 and 2008 by Chrubasik, *et al.*, it was concluded that although evidence of the effectiveness is

only moderate for OA, there is a proven overall antioxidative, anti-inflammatory effect and analgesic potential of rose hip.

Conclusion: Dietary supplements can be used to relieve pain in OA, but not as treatment. A healthy lifestyle remains the core component of preventing and managing chronic disease. A diet low in inflammation-inducing molecules, saturated and trans fatty acids, sugar and refined carbohydrates, and high in anti-inflammatory molecules, Ω -3 fatty acids, plant fibres, vitamins and antioxidants found in fruit and vegetables, is effective in reducing the incidence of OA.

References available on request.

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NATURAL JOINT HEALTH

“Herbal anti-inflammatory medicines have been researched as an alternative treatment for joint relief. *Rosa Canina* (or dog rose) has attracted particular interest for its possible pain alleviating properties.

SCIENTIFICALLY TESTED

In two medical literature reviews in 2006⁽⁶⁾ and 2008⁽⁷⁾ it was concluded that there is a proven overall antioxidative, anti-inflammatory effect and pain relieving potential of powder from *Rosa Canina*.

EFFECTIVE IN 3 WEEKS

In a clinical trial published by a Danish doctor in 2005⁽⁸⁾, it was found that joint pain and stiffness was significantly reduced in 4 out of 5 people, within 3 weeks of consuming a patented supplement from this rose. During the 3-month treatment period, there was a significant reduction in the consumption of traditional painkillers⁽⁹⁾.

Content provided by Registered Dietitians.

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