



Osteo & Rheumatoid Arthritis

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Literature Education Series On Dietary Supplements

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Arthritis is characterized by an inflammation and/or pain in a joint or joints of the body. Symptoms of chronic arthritis are pain, swelling, stiffness and deformity of one or more joints. Although there are different forms of arthritis, the two most common forms are osteoarthritis and rheumatoid arthritis.

Osteoarthritis

According to the American College of Rheumatology, osteoarthritis (OA) is the most common form of arthritis (affecting more than 21 million Americans). It most often affects middle-aged and older people, involving the neck, lower back, knees, hips and fingers. Nearly 70 percent of people over the age of 70 have x-ray evidence of the disease, but only half of these people ever develop symptoms. It may also occur in joints that have suffered previous injury, been subjected to prolonged heavy use, or damaged by prior infection or inflammatory arthritis. Patients with OA experience pain and loss of function. OA results from degeneration of the joint cartilage. The causes of cartilage loss are multiple. Some kinds of OA are known to be hereditary,

including the common form that causes enlargement of the knuckles. In most people, cartilage breakdown is due to both mechanical ("wear and tear") effects and biochemical effects.

Rheumatoid arthritis

The American College of Rheumatology reports that rheumatoid arthritis (RA) is a chronic disease that causes pain, stiffness, swelling and loss of function in the joints and inflammation in other body organs. Unlike OA, RA is an autoimmune disease where the body's immune system attacks its own joint tissue. While the cause of RA remains unknown, recent studies show that certain people inherit a tendency to develop RA. RA affects more than two million Americans.

In either the case of OA or RA, supplementation with certain natural ingredients may help the situation—often significantly. Following is a discussion of key natural ingredients which may be used as dietary supplements to support joint health, and reduce some of the symptoms associated with OA and RA.

Glucosamine sulfate

According to the book, *The Arthritis Cure*, there are three requirements to keep cartilage healthy: water for lubrication and nourishment, proteoglycans to attract and hold the water, and collagen to keep the proteoglycans in place. Proteoglycans are large molecules made of protein and sugar.

They trap water like a sponge and make cartilage resilient.¹ Glucosamine sulfate figures into healthy cartilage since it is a major building block of the water-loving proteoglycans. In addition, glucosamine sulfate's very presence stimulates the production of more proteoglycans. The fact that glucosamine sulfate increases the synthesis of these key elements of cartilage means that it actually helps repair damaged or eroded cartilage²—a real benefit to OA sufferers. In fact, for many years glucosamine sulfate has been successfully used in the therapy of osteoarthritis, and has met all standards of an efficient and well tolerated drug (albeit a natural drug). This has been demonstrated by experimental as well as clinical studies, in which glucosamine sulfate led to long-lasting pain reduction and functional improvement.³ In addition, several studies have shown that besides stimulating the production of cartilage, glucosamine sulfate helps to reduce the pain and improve joint function by more than 50% in those with osteoarthritis.^{4 5} In one large-scale study of 1,208 patients supplemented with glucosamine sulfate, pain improved steadily throughout the treatment, and 95% of the patients enjoyed a positive response. Glucosamine sulfate even continued to work 6-12 weeks *after* the treatment had stopped.⁶ Other studies have shown that glucosamine sulfate is even more effective at treating arthritic pain than ibuprofen (also known by the brand names Advil, Motrin, Nuprin, etc.).⁷

Chondroitin sulfate

Chondroitin sulfate is the perfect complement to glucosamine sulfate since chondroitin acts like a liquid magnet, attracting fluid into the proteoglycans. This fluid acts as a shock absorber and also brings nutrients with it into the cartilage. Perhaps of greater significance than its fluid-enhancing properties, chondroitin sulfate protects existing cartilage from premature breakdown by inhibiting certain cartilage-chewing enzymes. Furthermore, like

glucosamine, chondroitin stimulates the production of proteoglycans and collagen that are needed for healthy new cartilage. As a matter of fact, chondroitin works synergistically with glucosamine.⁸ Research on chondroitin sulfate has demonstrated that it too is effective in the treatment of osteoarthritis. Studies were conducted in several different countries, but the results were always the same: patients treated with chondroitin sulfate experienced significant relief of pain, and enjoyed increased mobility.^{9 10 11 12}

Antioxidants

Free radicals can perpetuate the degeneration of the joint in OA, and low levels of some antioxidant nutrients are characteristic of RA sufferers. Furthermore, research suggests that it may be wise for both OA and RA sufferers to supplement their diet with antioxidants. For example, research with vitamin E has demonstrated that this antioxidant was able to reduce the free radical activity and joint degradation in OA.¹³ Other studies have shown that vitamin E provided pain relief, and other improvements in both OA^{14 15 16} and RA.^{17 18 19}

Research also indicates that vitamin C levels are lower in RA patients than in normal subjects.^{20 21} The same is true in juvenile rheumatoid arthritis.²² Furthermore, vitamin C helps to maintain the integrity of connective tissue.

Likewise, multiple studies have demonstrated that RA sufferers have significantly lower levels of the antioxidant trace mineral, selenium.^{23 24 25 26} When RA sufferers were supplemented with selenium, there were less tender and swollen joints, less morning stiffness, a reduction in the need cortisone and non-steroidal anti-inflammatory drugs, and a decrease in inflammation.^{27 28} Selenium may also be beneficial for osteoarthritis sufferers since research conducted on a similar degenerative cartilage disorder found that

selenium helped to block the degeneration process caused by free radicals.²⁹

Finally, research indicates that there is an inadequate intake of zinc among RA sufferers.^{30 31 32} Furthermore, when oral zinc supplements were administered to RA patients, they fared better than the control group (who did not receive zinc) with regard to joint swelling, morning stiffness, walking time, and the patients own impression of overall disease activity.³³ Please note, however, that zinc may inhibit the effects of penicillamine (a drug used to treat RA), and so should not be used with it.³⁴

Cetyl Myristoleate (CMO)

Did you know that Swiss albino mice don't get arthritis? At least that's what Dr. Harry W. Diehl, a researcher for the National Institutes for Health, found out when he tried to create arthritis in these mice. Even after injecting a toxin into them which virtually always results in arthritis, these Swiss albino mice did not develop it. Naturally, Dr. Diehl wondered what it was that was unique to these mice that prevented the development of arthritis. After two years of research, he found the answer: cetyl myristoleate (CMO).

CMO is a natural esterified fatty acid. One of the mechanisms of CMO is as a super lubricant (surfactant), a kind of WD-40 for the joints. A surfactant also makes other products easier to absorb.³⁵

Next, Dr. Diehl injected CMO into other animals, and found that by doing so he was able to prevent arthritis even when they were injected with the aforementioned toxin.³⁶ In 1985, Dr. Diehl completed his own research, and determined that CMO was safe and effective for humans. In 1996, a multi-center clinical research study involving 431 patients with various forms of arthritis was performed. The results showed significant improvement in 63.3% of those using CMO by itself and 88.6% improvement in those given cetyl

myristoleate combined with glucosamine, sea cucumber and hydrolyzed cartilage. In comparison, only 16.6% of the placebo group showed improvement.³⁷

What is most impressive is Dr. Diehl's research which indicates that the administration of CMO does not have to take place indefinitely. In his 1996 CMO patent, Dr. Diehl states, "Generally, also, individuals respond within 3 to 6 weeks time to the cetyl myristoleate so that prolonged dosage with the compound has not proven to be necessary."³⁸ According to Dr. Diehl's research, a minimum of 17 grams total of cetyl myristoleate is required to prevent arthritis in an average (175 lb.) Individual,³⁹ although 21 grams is best.

Collagen

Research has shown that "type II" chicken collagen (CII) is effective in the treatment of RA. In one study involving 38 RA patients treated with CII, a statistically significant improvement in the number of swollen and tender joints occurred.⁴⁰ A similar double-blind study with 60 RA patients also found a decrease in the number of swollen and tender joints when CII was given.⁴¹ In a pilot study of 10 juvenile RA patients, 8 had reductions in both swollen and tender joints after 3 months of CII.⁴²

Pantothenic acid

Research has found that RA sufferers have lower blood levels of pantothenic acid than normal subjects—and that the lower the level of pantothenic acid, the greater the symptom severity.⁴³ The logical question then was, would supplemental pantothenic acid help reduce symptoms? This question was examined in two different studies. In the first study, 50 mg of pantothenic acid was given by intramuscular injection to RA patients, which increased their blood levels of pantothenic acid, and helped temporarily alleviate their symptoms.⁴⁴ In another study, 2000 mg of pantothenic acid was given orally to RA patients (starting with 500 mg daily, and gradually increasing to 500 mg,

four times daily by the tenth day). After two months, patients showed a significant subjective reduction in the duration of morning stiffness, degree of disability and severity of pain.⁴⁵

Conclusion

The research on some of the aforementioned dietary supplement ingredients has often been significant. In addition to these, there are a variety of additional nutrients, herbs, and other natural ingredients which may have application to OA and RA. Perhaps the “shotgun” approach is best: use a combination of these natural ingredients to hit the greatest number of biochemical targets, and potentially improve the health of OA and RA joints.

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