

***Information to Optimize Your Health & Fitness, Naturally***

**Glucosamine....**

Glucosamine seems to be more effective than chondroitin, and there's no reliable evidence that the combination of glucosamine and chondroitin is more effective than glucosamine alone. Stick with single ingredient glucosamine sulfate products.

Several clinical studies lasting up to three years show that glucosamine significantly reduces pain and joint tenderness, and increases joint range of motion and overall mobility. For chronic pain relief, glucosamine is as effective as ibuprofen and piroxicam (*Feldene*). NSAIDs provide a faster reduction in pain, but glucosamine's effects last longer and symptoms do not recur soon after discontinuation, as they do with NSAIDs. Glucosamine also seems to be better tolerated than NSAIDs.

Researchers have speculated for years that glucosamine could modify joint structure and possibly reverse or slow disease progression. In 2001, a new study showed that it might actually have this effect. Researchers measured joint space narrowing in patients taking glucosamine. After three years of treatment patients taking glucosamine did not have further joint space narrowing, indicating that glucosamine may have slowed or stopped disease progression.

There are limited treatment choices for patients with OA (osteoarthritis). Recent developments such as new research on glucosamine are making experts re-evaluate the standard treatment for OA. Some experts now consider glucosamine a first-line treatment for OA. Still many others are skeptical. But the evidence now supports using glucosamine for pain and possibly slowing disease progression.

**MSM**

There's been a lot of hype surrounding MSM. Lots of patients are interested in trying it because of the fantastic claims made by supplement marketers. MSM stands for methylsulfonylmethane and is a metabolite of DMSO (dimethyl sulfoxide). MSM is promoted as having anti-inflammatory and analgesic effects like DMSO, but without the fishy odor. Studies are equivocal surrounding this supplement.

**Capsicum**

**Capsicum** (also known as Cayenne pepper) is effective for temporary symptom relief of osteoarthritis and other causes of joint or muscle pain. It is a powerful irritant that when applied topically can produce the feeling of warmth or burning. The constituent, capsaicin, depletes and prevents the reaccumulation of substance P in local sensory nerve terminals when capsicum is repeatedly applied topically. Investigators think substance P is associated with the process of pain transmission in a variety of diseases –

arthritis, psoriasis, and inflammatory bowel disease. Allow three full days of capsaicin use to achieve the full effect

### **Antioxidants**

There is some evidence that increasing DIETARY intake might slow progression of OA. Athletes should boost consumption of vegetables and fruits that provide lots of vitamin C, vitamin E, and beta-carotene. High dietary intake of foods that contain these antioxidants might slow progression of OA.

### **Carbohydrate supplementation during intense exercise and the immune response of cyclists.**

**Bacurau RF, Bassit RA, Sawada L, Navarro F, Martins E Jr, Costa Rosa LF.**  
Clin Nutr. 2002 Oct;21(5):423-9.

OBJECTIVE: To evaluate the effect of carbohydrate supplementation upon some aspects of the immune function in athletes during intense indoor cycling. METHODS: Twelve male athletes cycled for 20 min at a velocity corresponding to 90% of that obtained at the anaerobic threshold and rested for 20 min. This protocol was repeated six times. The athletes received, during the trial, water ad libitum, or a solution of carbohydrate (95% glucose polymers and 5% fructose. RESULTS: Exercise induced a reduction in peripheral blood mononuclear cell proliferation (37%) as well as in the production of cytokines by cultured cells (interleukin-1 (IL-1), interleukin-2 (IL-2), tumor necrosis factor-alpha (TNF-alpha) and interferon-gamma (IFN-gamma), by 37%, 35%, 26% and 16%, respectively). All of these changes were prevented by the ingestion of a carbohydrate drink by the athletes. The concentration of plasma glutamine, an important fuel for immune cells, was decreased in the placebo group but maintained in the group that received carbohydrate. **CONCLUSION: Carbohydrate supplementation affects positively the immune response of cyclists by avoiding or minimizing changes in plasma glutamine concentration.**

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