



Procosa® • My

### Ground-breaking formula that supports optimal joint health\*

Nearly one in three adults in the United States suffers from some form of joint problem. The situation is worse for athletes and those who are subject to high amounts of physical stress at work and at home. To help support healthy joints, USANA created **Procosa** supplement, a product with a blend of glucosamine, manganese, vitamin C, and silicon—building blocks for healthy cartilage.\*



ITEM #131

#### Cartilage

Cartilage is the protective layer that cushions and lubricates the joints. Over the years, the cartilage in our joints is gradually worn down due to normal physical activity. The body rebuilds the cartilage as it is worn and replaces shock-absorbing synovial fluid, so the joints are always protected. For various reasons, however, the production of new cartilage and synovial fluid can fall behind demand. Because of poor blood supply, lesions to articular cartilage do not heal at the same rate as in other tissue in the body; cartilage is rebuilt slowly. If components of the substances used for cartilage repair are in short supply, the recovery from damage can be slowed even more.

#### Glucosamine

Glucosamine, an amino sugar, is an important precursor in the biosynthesis of cartilage. Specifically, it is a building block of proteoglycans—protein molecules with a high content of bound carbohydrate. Proteoglycans and collagen compose the majority of the cartilage matrix. Proteoglycans are essential for healthy cartilage because they bind the water that lubricates and cushions the joint.\*

In addition to its role as a biochemical precursor, glucosamine is believed to play a role in regulating cartilage formation and normalizing cartilage metabolism by encouraging higher production of collagen and proteoglycans. Glucosamine also stimulates synovial production of hyaluronic acid, which is responsible for the lubricating and shock-absorbing properties of synovial fluid.\*

Numerous double-blind clinical studies have shown the efficacy of glucosamine supplements in maintaining healthy cartilage, healthy joints, and full range of motion in the short-term. More recently, a three-year study was published showing that joint space increased in the glucosamine-treated group, while it continued to decrease in the placebo group, indicating that the protective cartilage was better maintained in those who used glucosamine. Additional studies have demonstrated that glucosamine, taken orally, is well-absorbed and diffuses into tissues, including the articular cartilage.\*

#### A Powerful Blend

The combination of glucosamine with Meriva® bioavailable curcumin complex, manganese, vitamin C, and silicon represents a more comprehensive approach to joint health. Over the long term, these ingredients help retain healthy cartilage. Clinical studies have shown Meriva bioavailable curcumin complex to provide significant benefits for joint function as well as support for a healthy inflammatory response. Manganese is required for enzymes involved in the biosynthesis of proteoglycans. Vitamin C is essential for the reactions necessary to collagen formation. And silicon is required for proper collagen formation and ultimately cartilage composition.\*

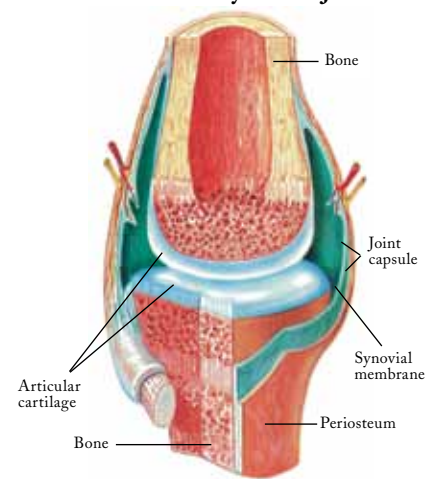
#### Why Procosa®?

**Procosa** is USANA's formula for joint health. We combine 1500 mg of high-quality, vegetarian glucosamine HCl—a dose shown to be effective—with a blend of important vitamins and minerals, including Meriva bioavailable curcumin complex. Meriva is an innovative phytosome that delivers water-soluble curcumin wrapped in fat-soluble soy lecithin, which more easily crosses cell membranes for dramatically improved stability and absorption. In addition, vitamin C and curcumin provide antioxidant defense against cell-damaging oxidative stress.\*

### From the Lab

A powerful antioxidant, curcumin from turmeric helps support joint health. Traditionally, curcumin has poor bioavailability, which means very high levels of this important compound must be included in supplements for effectiveness. Results of a recent study conducted, in part, by USANA scientists were published in the *Journal of Natural Products*, which revealed Meriva, the new curcumin phytosome used in Procosa, dramatically increases human absorption of curcumin, delivering the same effectiveness at a much lower dose.

### Structure of a synovial joint



#### References

- Barnes MJ, Kodicek E. Biological hydroxylations and ascorbic acid with special regard to collagen metabolism. 1972. *Vitam Horm* 30:1-43.
- Bisse E, Epting T, Beil A, Lindinger G, Lang H, Wieland H. Reference values for serum silicon in adults. 2005. *Anal Biochem* 337(1):130-5.
- Braham R, Dawson B, Goodman C. The effect of glucosamine supplementation on people experiencing regular knee pain. 2003. *Br J Sports Med* 37:45-9.
- Cuomo J, Appendino G, Dern AS, Schneider E, McKinnon TP, Brown MJ, Togni S, Dixon BM. Comparative absorption of a standardized curcuminoid mixture and its lecithin formulation. *J Nat Prod*. 2011 Apr 25;74(4):664-9. Epub 2011 Mar 17.
- Matheson AJ, Perry CM. Glucosamine: a review of its use in the management of osteoarthritis. 2003. *Drugs Aging* 20(14):1041-60.
- Nakamura H, Shibakawa A, Tanaka M, Kato T, Nishioka K. Effects of glucosamine hydrochloride on the production of prostaglandin E2, nitric oxide and metalloproteinases by chondrocytes and synoviocytes in osteoarthritis. *Clin Exp Rheumatol*. 2004 May-Jun;22(3):293-9.
- Pavelka K, Gatterova J, Olejarova M, Machacek S, Giacovelli G, Rovati LC. Glucosamine sulfate use and delay of progression of knee osteoarthritis: a 3-year, randomized, placebo-controlled, double-blind study. 2002. *Arch Intern Med* 162(18):2113-23.
- Poolsup N, Suthisang C, Channark P, Kittikuluth W. Glucosamine Long-Term Treatment and the Progression of Knee Osteoarthritis: Systematic Review of Randomized Controlled Trials. 2005. *Ann Pharmacotherapy* 39(6):1080-7.
- Reginster JY, Deroisy R, Rovati LC, Lee RL, Lejeune E, Bruyere O, Giacovelli G, Henrotin Y, Dacre JE, Gossett C. Long-Term effects of glucosamine sulphate on osteoarthritis progression: a randomized, placebo-controlled clinical trial. 2001. *Lancet* 357(9252):251-6.
- Richy F, Bruyere O, Ethgen O, Cuherat M, Henrotin Y, Reginster JY. Structural and symptomatic efficacy of glucosamine and chondroitin in knee osteoarthritis: a comprehensive meta-analysis. 2003. *Arch Intern Med* 163(13):1514-22.
- Thie NM, Prasad NG, Major PW. Evaluation of glucosamine sulfate compared to ibuprofen for the treatment of temporomandibular joint osteoarthritis: a randomized double blind controlled 3 month clinical trial. 2001. *J Rheumatology* 28(6):1347-1355.
- Tinker D, Rucker RB. Role of selected nutrients in synthesis, accumulation, and chemical modification of connective tissue proteins. 1985. *Physiol Rev* 65(3):607-57.

\*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

- Cardiovascular Health
- Cellular Metabolic Health
- Skeleton/Structural Health
- Endocrine Health
- Brain/Nervous Health
- Digestion/Detox Health
- Immune Health

HP In HealthPak™

My Available for MyHealthPak™

Hybrid

