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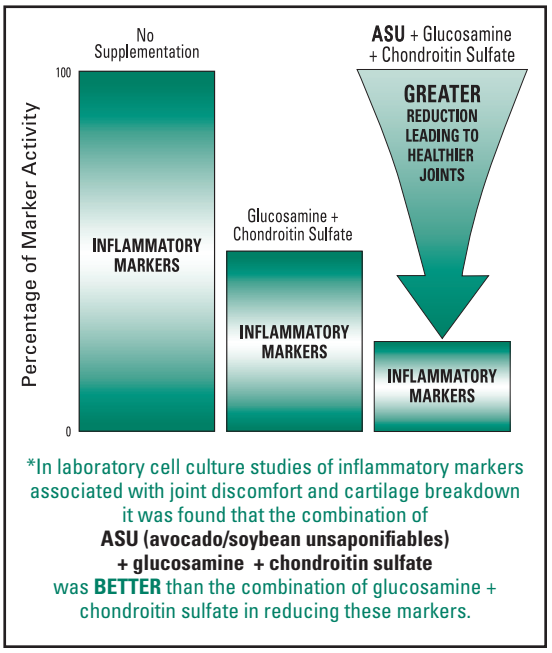
LEARN ABOUT THE NEWEST ADVANCEMENT IN JOINT CARE . . . BEFORE YOUR PATIENTS ASK!

Avocado/Soybean Unsaponifiables (ASU)

Nutramax Laboratories, Inc., the trusted name in glucosamine/chondroitin sulfate research and the manufacturer of **Cosamin®DS,** the #1 Orthopedic Surgeon and Rheumatologist recommended glucosamine/chondroitin sulfate brand,† now combines NMX 1000® Avocado/Soybean Unsaponifiables with its researched FCHG49® Glucosamine HCl and TRH122® Chondroitin Sulfate to offer **Cosamin®ASU.** Cosamin ASU also contains green tea for additional health benefit. Recent laboratory research indicates that EGCG, a component in green tea, further potentiates the anti-inflammatory properties of ASU.[1] Cosamin ASU is the most complete and comprehensive joint support formula available for your patients.



*In laboratory cell culture studies of inflammatory markers associated with joint discomfort and cartilage breakdown it was found that the combination of **ASU (avocado/soybean unsaponifiables) + glucosamine + chondroitin sulfate** was **BETTER** than the combination of glucosamine + chondroitin sulfate in reducing these markers.

Avocado/Soybean Unsaponifiables, commonly referred to as ASU, are derived from avocados and soybeans and have been used for years in Europe in the management of joint pain. ASU are the fraction of avocado and soybean oil which, after hydrolysis, does not produce soap. Studies using cartilage cells have shown that ASU lowers the expression of several compounds involved in the process of cartilage breakdown in the joints. Only recently has ASU been available in the US marketplace.

Independent Articles Have Evaluated ASU, Which Show Promise As An Effective Agent

Ameye and Chee reported in *Arthritis Research & Therapy,* "ASUs display anabolic, anti-catabolic, and anti-inflammatory effects on chondrocytes."[2] In a recent cell culture study on ASU, Au, *et al.,* showed that ASU suppress agents involved in cartilage deterioration and pain. The authors stated that these observations provide a scientific rationale for the pain-reducing and anti-inflammatory effects of ASU in patients.[3]

Joint pain on the rise

An estimated 21 million Americans suffer from joint pain due to the breakdown and eventual loss of cartilage and changes to structures around the joint. Current management options can neither cure nor reverse the degenerative process.[3] Several pharmacologic agents currently used to manage joint pain include non-steroidal anti-inflammatory drugs (NSAIDS), corticosteroids and hyaluronan viscosupplementation therapies.[4] NSAIDs in particular are frequently prescribed; however, extended use of these medications has been linked with serious adverse side effects, such as gastrointestinal ulcerations.[4] To reduce the risk of unpleasant side effects, patients with joint discomfort are seeking complementary modalities in an effort to control pain, improve function, and enhance their quality of life.[3] Joint health supplements have become some of the most popular nutritional supplements on the market, with one out of five patients using an alternative product.[2] An informed physician can educate his or her patients on what to use.

Cosamin®ASU

Not only is ASU a potent ingredient alone, but recent research has shown it to make the commonly used agents, glucosamine/chondroitin sulfate, work better in reducing inflammatory mediators.[5] The combined benefits of FCHG49® Glucosamine HCl and TRH122® Chondroitin Sulfate have been well documented through published *in vitro, in vivo,* and human clinical studies.[6-12] These specific trademarked ingredients have been shown in laboratory research to

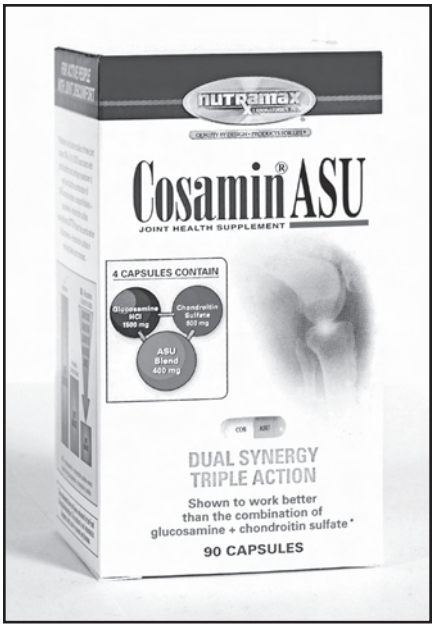
inhibit expression of degradative enzymes and mediators involved in the process of cartilage breakdown. They also stimulate production of the cartilage matrix components which are comprised primarily of proteoglycans and type II collagen. US published randomized, double-blinded, placebo-controlled clinical trials have concluded that the specific combination of glucosamine and chondroitin sulfate that constitutes Cosamin®DS is effective in improving joint function and reducing joint pain.[10,11]

Carmelita G. Frondoza, Ph.D., the Director of Research and Development at Nutramax Laboratories, Inc., notes that ASU complement the positive effects of the other active ingredients in Cosamin ASU. "Having ASU in the formula is beneficial, as ASU, glucosamine hydrochloride, and chondroitin sulfate were shown in cell culture studies to work better together than glucosamine and chondroitin sulfate alone." Dr. Frondoza explains further, "The combination as found in Cosamin ASU has been shown to inhibit expression of degradative enzymes and mediators involved in the process of cartilage breakdown. The combination of these ingredients also stimulates proteoglycan and collagen production while being effective at suppressing inflammatory markers."

Dr. Frondoza points out that the beneficial effects of avocado/soybean unsaponifiables, glucosamine hydrochloride and chondroitin sulfate, as found in Cosamin ASU, have been shown *in vitro* to extend across multiple cell types in the joint by inhibiting the expression of mediators which contribute to the destruction of cartilage. "In contrast to the inhibitory effect of some pharmaceutical agents, the combination product does not block expression of mediators completely. This is beneficial, as low levels of the mediators are necessary for normal organ and tissue function and repair."

Composition and Availability of Cosamin®ASU

Cosamin ASU is manufactured following standards practiced by the pharmaceutical industry. Nutramax Laboratories, Inc. is an industry leader in setting and adhering to high standards in manufacturing and quality control. Nutramax Laboratories, Inc. also supports *in vitro* laboratory research and clinical studies on its products.



*Cosamin®ASU, from Nutramax Laboratories, Inc., has been shown to work better than the combination of glucosamine + chondroitin sulfate.**

Cosamin ASU is available in an easy to swallow capsule that when taken as directed provides a daily dosage of 800 mg Chondroitin Sulfate, 1500 mg Glucosamine HCl, and 400 mg Avocado/Soybean Unsaponifiables Blend.**

As an over-the-counter dietary supplement, Cosamin ASU is available nationally at CVS and Rite Aid pharmacies. For a full list of regional and online retailers, visit www.cosaminasu.com.

To Learn More

Nutramax Laboratories, Inc. researches, develops, and markets products to support the active lifestyles of people. For more information about Cosamin ASU, visit www.cosaminasu.com, or call 1-888-886-6442.

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

†Source: SLACK Incorporated Market Research Survey, June 2005 and February 2006. Survey conducted of orthopedic surgeons and rheumatologists relating to glucosamine/chondroitin sulfate brands.

Cosamin®DS contains Nutramax Laboratories® exclusive researched FCHG49® Glucosamine and TRH122® Sodium Chondroitin Sulfate which exceed the standards and specifications set forth in the U.S. Pharmacopeia (USP).

Cosamin®ASU contains FCHG49® Glucosamine, TRH122® Sodium Chondroitin Sulfate and NMX1000® Avocado/Soybean Unsaponifiables, Nutramax Laboratories® exclusive proprietary researched specifications.

**Containing a minimum of 300 mg of ASU powder standardized to contain a minimum of 30% avocado/soybean unsaponifiables.

References:

1. Au AY, Au RY, Kramer E, *et al. Experimental Biology 2007. The FASEB Journal;* Abstracts Part II; Apr 21(6):736; Abstract # 702.6. Washington, D.C.; April 28-30, 2007.
2. Ameye LG, Chee WS. Osteoarthritis and nutrition. From nutraceuticals to functional foods: a systematic review of the scientific evidence. *Arthritis Res Ther* 2006;8:R127. The researchers and publishers do not endorse Nutramax Laboratories, Inc. or its products.
3. Au RY, Al-Talib TK, Au AY, *et al.* Avocado soybean unsaponifiables (ASU) suppress TNF-alpha, IL-1beta, COX-2, iNOS gene expression, and prostaglandin E2 and nitric oxide production in articular chondrocytes and monocyte/macrophages. *Osteoarthritis Cartilage* 2007; 15:1249-55.
4. Barnes EV, Edwards NL.Treatment of osteoarthritis. *South Med J* 2005;98:205-9.
5. Au RY, Au AY, Rashmir-Raven AM, Frondoza CG. Inhibition of pro-inflammatory gene expression in chondrocytes, monocytes, and fibroblasts by the combination of avocado soybean unsaponifiables, glucosamine, and chondroitin sulfate. *Experimental Biology 2007. The FASEB Journal;* Abstracts Part II; Apr 21(6): 736; Abstract # 702.7. Washington, D.C.; April 28-30, 2007.
6. Homandberg GA, Guo D, Ray LM, *et al.* Mixtures of glucosamine and chondroitin sulfate reverse fibronectin fragment mediated damage to cartilage more effectively than either agent alone. *Osteoarthritis Cartilage* 2006;14:793-806.
7. Chan PS, Caron JP, Orth MW. Effect of glucosamine and chondroitin sulfate on regulation of gene expression of proteolytic enzymes and their inhibitors in interleukin-1-challenged bovine articular cartilage explants. *Am J Vet Res* 2005;66:1870-1876.
8. Chan PS, Caron JP, Rosa GJM, *et al.* Glucosamine and chondroitin sulfate regulate gene expression and synthesis of nitric oxide and prostaglandin E(2) in articular cartilage explants. *Osteoarthritis Cartilage* 2005;13:387-394.
9. Lippiello L, Woodward J, Karpman R, *et al. In vivo* Chondroprotection and metabolic synergy of glucosamine and chondroitin sulfate. *Clin Orthop Relat Res* 2000;381:229-240.
10. Das AK, Hammad TA. Efficacy of a combination of FCHG49® glucosamine hydrochloride, TRH122® low molecular weight sodium chondroitin sulfate and manganese ascorbate in the management of knee osteoarthritis. *Osteoarthritis Cartilage* 2000;8:343-350.
11. Leffler CT, Philippi AF, Leffler SG, *et al.* Glucosamine, chondroitin and manganese ascorbate for degenerative joint disease of the knee or low back: a randomized, double-blind, placebo-controlled pilot study. *Mil Med* 1999;164:85-91.
12. Williams A, Gillis A, McKenzie C, *et al.* Glycosaminoglycan distribution in cartilage as determined by delayed gadolinium-enhanced MRI of cartilage (dGEMRIC): potential clinical applications. *AJR* 2004;182:167-172.