

Glucosamine/Chondroitin Sulfate

BRAND NAMES: COSEQUIN, GLYCOFLEX, CARTIFLEX, ARTHRI-NU, CANIFLEX, SYNOVI-CRE, MANY MORE...

Available in tablets, capsules or chewables

History and Background

Degenerative joint diseases (commonly called arthritis, although this is technically incorrect) are painful conditions frequently treated with over-the-counter anti-inflammatory agents. It has been of interest to seek a medication that might actually strengthen damaged joints rather than simply blocking pain as the non-steroidal anti-inflammatory agents do. Glucosamine and chondroitin sulfates theoretically represent a solution to this issue.

In a normal joint, cartilage breakdown is balanced by cartilage production. In the diseased joint, there is more breakdown than production. Glucosamine and chondroitin sulfates are precursors of cartilage and the theory is that by taking these precursors orally, one's body can address cartilage breakdown with the ability to rebuild. It has further been suggested that glucosamine and chondroitin may have anti-inflammatory properties of its own and/or may act by stimulating the synthesis of joint lubricants and collagen within the damaged joint.

Glucosamines and chondroitin sulfates are extracted from sea molluscs (such as *Perna canaliculus*), shark skeleton, and cattle. They are nutritional supplements.

Uses of this Medication

Glucosamine and chondroitin sulfates might be used in any joint condition involving the classical joint structure (two bones with cartilage covered ends articulating, a fibrous capsule with ligaments connecting the bones, and lubricating fluid assisting the smooth motion of the joint). Glucosamines and chondroitins are also used for other diseases of cartilage and mucous linings, which are covered by GAGs (glycosaminoglycans) which are very similar to cartilage. These disease include chronic urinary tract infection, chronic sterile cystitis, collapsing trachea and intravertebral disc disease.

Side Effects

There are very few side effects of these supplements. The only side effect reported has been a clinically insignificant decrease in platelet (blood clotting cell) function. Glucosamine does have the potential ability to alter insulin requirements for diabetics, as digestion of glucosamine can release sugars into the bloodstream.

Interactions with other Drugs

While the aforementioned decrease in platelet function has not been significant, it could become significant should glucosamines/chondroitin sulfates be used in conjunction with other medications that influence platelet function (aspirin, phenylbutazone, or Plavix).

Special Cautions

Nutraceuticals are not regulated by the FDA, as they are not considered drugs. This means that they can be sold without scientific proof of efficacy. There are numerous anecdotal reports of these medications helping numerous individuals, and there are some studies in dogs that show benefits of using

glucosamine along with chondroitin and the mineral manganese does support joint health. There are also studies that show that Perna (green lipped mussel extract) is effective for managing going pain in dogs. To date, there are no studies evaluating the use of glucosamine and chondroitin in cats. There are a number of supportive studies in people.

Here is a list of brand names which are recommended and not recommended, based on testing by independent party ConsumerLabs.com, as well as other sources of clinical information. Consumerlabs.com is an independent laboratory that tests commercially available food supplements for potency, purity, and adherence to ingredient claims on the label.

Recommended Glucosamine Products:

1. **Avon VitAdvance Joint Formula With Glucosamine** - Glucosamine Sulfate - 500 mg.
2. **Bronson Shellfish Free Glucosamine Fetering Regensure Glucosamine HCl** – 500 mg glucosamine HCl.
3. **Country Life Biochem Glucosamine Chewable 500 mg Orange Flavor** – 500 mg Glucosamine HCl.
4. **DONA Crystalline Glucosamine Sulfate** - 1500 mg Glucosamine Sulfate per powder packet.
5. **Glucosamine Complex Syn-flex Liquid Formula for Maximum Absorption** - 1250 mg Glucosamine HCl and Sulfate per 1/4 oz.
6. **Maxi-Health Maxi GS 500 Glucosamine Sulfate, Sodium Free, Enzymax Base** – 500 mg glucosamine sulfate.
7. **Nature Made Glucosamine** - 500 mg Glucosamine Sulfate and HCl
8. **NOW Glucosamine Sulfate, Superior Joint Support** - 750 mg Glucosamine Potassium Sulfate Complex.
9. **Nutrilite Glucosamine HCl with Boswellia** - 375 mg Glucosamine HCl.
10. **Pharmanex Cartilage Formula** – 375 mg glucosamine sulfate and HCl.
11. **Puritan's Pride Glucosamine 1500 mg** – 1500 mg glucosamine HCl.
12. **Rottapharm Maximum Strength Dona** – 1500 mg glucosamine sulfate.
13. **Schiff Joint Care Supplement Glucosamine HCl** – 1000 mg glucosamine HCl.
14. **Spring Valley Glucosamine Sulfate** - 1000 mg Glucosamine Sulfate Potassium Chloride.
15. **Vitamin World Glucosamine 1500 mg** – 1500 mg glucosamine HCl.
16. **Vitamin World Glucosamine Sulfate** - 500 mg Glucosamine Sulfate Potassium Chloride.
17. **Vita Smart Triple Strength Glucosamine Sulfate for Pets** - 500 mg Glucosamine HCl.
18. **SynoviCre for Medium and Large Dogs 600mg** – 600 mg glucosamine, 500 mg creatine, Perna,
19. **SynoviCre for Small and Medium Dogs 300mg** – 300 mg glucosamine, 250 mg creatine,, Perna.
20. **VetriScience Glycoflex I** - Perna Canaliculus 600 mg, Glucosamine HCL 500 mg.
21. **VetriScience Glycoflex I Softchews** - Perna Canaliculus 300 mg, Glucosamine HCL 250 mg.
22. **VetriScience Multi-Source Glucosamine** – D-Glucosamine HCl 250 mg, D-Glucosamine Sulfate 175 mg, N-Acetyl Glucosamine 75 mg
23. **VetriScience Single Source Glucosamine** – 500 mg glucosamine sulfate.

Recommended Chondroitin Products:

1. **AARP Chondroitin Sulfate** - 600 mg Chondroitin Sulfate.
2. **NOW Chondroitin Sulfate, Joint Support** - 600 mg Sodium Chondroitin Sulfate.

Recommended Glucosamine and Chondroitin Combination Products

1. **Berkley & Jensen Triple Strength Glucosamine 750 & Chondroitin 600 Dietary Supplement** - 750 mg Glucosamine HCl and 600 mg Chondroitin Sulfate.
2. **Fields of Nature Chewable Orange Flavor Glucosamine HCl Chondroitin Sulfate** - 250 mg Glucosamine HCl and 200 mg Calcium Chondroitin Sulfate.
3. **Martingale GLC 1000 Glucosamine + Chondroitin Maximum Bioavailable Canine Pure Powder Concentrate** - 2280 mg Glucosamine Complexes, 760 mg Chondroitin Sulfate.
4. **Martingale GLC 5500 Glucosamine + Chondroitin Complex Equine Powder Concentrate** - 3600 mg Glucosamine Complexes, 1200 mg Chondroitin Sulfate.
5. **NOW Extra Strength Glucosamine & Chondroitin, Joint Support Factors** - 750 mg Glucosamine Potassium-Sulfate Complex and 600 mg Sodium Chondroitin Sulfate.
6. **Nutramax Cosamin DS Chondroitin Sulfate** - 500 mg Glucosamine HCl and 400 mg Sodium Chondroitin Sulfate.
7. **Nutramax Cosequin** – 250 mg glucosamine HCl, 200 mg chondroitin sulfate.
8. **Nutramax Cosequin DS** - 500 mg Glucosamine HCl, 400 mg Sodium Chondroitin Sulfate.
9. **Puritan's Pride Double Strength Glucosamine Chondroitin** - 500 mg Glucosamine HCl and 400 mg Chondroitin Sulfate.
10. **Puritan's Pride Triple Strength Glucosamine 750 mg Chondroitin 600 mg** – 750 mg glucosamine HCl, 600 mg chondroitin sulfate.
11. **Rexall Osteo Bi-Flex Glucosamine Chondroitin Complex, Double Strength** - 500 mg Glucosamine HCl and 400 mg Chondroitin Sulfate.
12. **Rexall Osteo Bi-Flex Glucosamine Chondroitin Complex, Triple Strength** - 750 mg Glucosamine HCl and 600 mg Chondroitin Sulfate. \
13. **TwinLab MaxiLife Glucosamine & Chondroitin Sulfate Formula** – 500 mg glucosamine sulfate, 400 mg chondroitin sulfate.
14. **Vitamin World Triple Strength Glucosamine 750 mg Chondroitin 600 mg** - 750 mg Glucosamine HCl and 600 mg Chondroitin Sodium Sulfate.
15. **Walgreens Glucosamine 500 mg Chondroitin 400 mg Double Strength** – 500 mg glucosamine HCl, 400 mg chondroitin sulfate.
16. **YourLife Double Strength OsteoJoint Glucosamine Chondroitin** - 500 mg Glucosamine HCl and 400 mg Chondroitin Sulfate.

Recommended Glucosamine and MSM Combination Products

1. **Advocare Joint Promotion** – 500 mg glucosamine HCl, 33.3 mg MSM.
2. **DVM Synovi-MSM MSM, Glucosamine HCl, Perna Canaliculus and Vitamin C Support** - 500 mg Glucosamine HCl and 800 mg MSM.
3. **Leiner Kirkland Signature Extra Strength Glucosamine HCl 1500 mg with MSM 1500 mg, USP** – 750 mg glucosamine HCl, 750 mg MSM.
4. **Natrol MSM with Glucosamine** - 250 mg Glucosamine Sulfate and 250 mg Lignisul MSM®.
5. **Schiff Joint Care Supplement Glucosamine HCl 1500 mg Plus MSM 1500 mg** – 500 mg glucosamine HCl, 500 mg MSM.
6. **Spring Valley MSM with Glucosamine** - 250 mg Glucosamine Sulfate Potassium Chloride and 250 mg MSM.
7. **Vitamin World Glucosamine/MSM Complex** - 500 mg Glucosamine Sulfate Potassium Chloride and 333.3 mg MSM.
8. **VetriScience Glycoflex II** - Glucosamine HCl 750 mg, Perna Canaliculus 600 mg, MSM 500 mg.
9. **VetriScience Glycoflex II for cats and small dogs** - Perna Canaliculus 300 mg, MSM 250 mg, Glucosamine HCl 250 mg.
10. **VetriScience Glycoflex II for cats and small dogs Softchews** - Perna Canaliculus 150 mg, MSM 125 mg, Glucosamine HCl 125 mg.
11. **VetriScience Glycoflex II Softchews** - Glucosamine HCl 375.5 mg, Perna Canaliculus 300 mg, MSM 500 mg.
12. **VetriScience Glycoflex III** - Glucosamine HCl 1000 mg, MSM 1000 mg, Perna Canaliculus 600 mg.

13. **VetriScience Glycoflex III Softchews** - Glucosamine HCl 500 mg, MSM 500 mg, Perna Canaliculus 300 mg.

Recommended Glucosamine, Chondroitin and MSM Products

1. **Doctor's Best Science-Based Nutrition Glucosamine Chondroitin MSM** – 375 mg glucosamine sulfate, 300 mg chondroitin sulfate, 250 mg MSM.
2. **Drinkables Liquid JointCare, Maximum Strength Citrus Flavor** – 2000 mg glucosamine HCl, 1200 mg chondroitin, 500 mg MSM.
3. **HydraJoint Glucosamine & Chondroitin with MSM & Vitamin C, Citrus Flavor** – 1200 mg glucosamine HCl, 1200 mg chondroitin sulfate 500 mg MSM.
4. **Maximum Strength Flex-a-min Glucosamine, Chondroitin, MSM Dietary Supplement** - 500 mg Glucosamine Sulfate Potassium Chloride, 400 mg Chondroitin Sulfate and 166.7 mg MSM.
5. **Nature Made Triple Flex Comfort Mobility Flexibility Glucosamine 1500 mg Chondroitin 1500 mg MSM 750 mg** - 750 mg Glucosamine HCl, 400 mg Chondroitin Sulfate, and 375 mg MSM.
6. **Nature Made Triple Flex Triple Strength Supplement** - 750 mg Glucosamine HCl, 600 mg Chondroitin Sulfate, and 125 mg MSM.
7. **Puritan's Pride Glucosamine Chondroitin & MSM Dietary Supplement** - 500 mg Glucosamine Sulfate Potassium Chloride, 400 mg Chondroitin Sulfate, and 125 mg MSM.
8. **Puritan's Pride Joint Soother Glucosamine Chondroitin MSM** – 500 mg glucosamine, 400 mg chondroitin sulfate, 166.7 mg MSM.
9. **Schiff Move Free Joint Strengthener plus MSM** - 375 mg Glucosamine Complex (Glucosamine Hydrochloride, N-Acetyl-D-Glucosamine, and Glucosamine Sulfate), 300 mg Chondroitin Sulfate, and 375 mg MSM.
10. **Vitamin World Joint Soother Glucosamine Chondroitin MSM** - 500 mg Glucosamine Sulfate Potassium Chloride, 400 mg Chondroitin Sulfate and 166.7 mg MSM.
11. **VetriScience Jointagen** – MSM 1000 mg, Glucosamine HCl 500 mg, Chondroitin sulfate 60 mg.

Products NOT RECOMMENDED:

1. **Andrew Weil MD Glucosamine & Chondroitin** – 500 mg glucosamine sulfate, 400 mg chondroitin sulfate.
-- **NOT APPROVED** by *ConsumerLab* – failed to disintegrate in 70 minutes,
2. (Doctor's Best Glucosamine/Chondroitin/MSM Dietary Supplement – failed due to 85% labeled chondroitin several years ago, but passed most recent ConsumerLabs study in 4-07).
3. **Glucoflex 24 Patented 24-Hour Release Glucosamine & Chondroitin Sulfate with Cox II Inhibitors & MSM** - 375 mg Glucosamine HCl, 250 mg Chondroitin sulfate complex (hydrolyzed collagen, chondroitin sulfate, and shark cartilage), and 125 mg MSM.
-- **NOT APPROVED** by *Consumerlabs* - Only 18% of the labeled chondroitin.
4. **Karuna Chondroitin Sulfate, Purified Chondroitin Sulfate** – 400 mg chondroitin sulfate.
-- **NOT APPROVED** by *ConsumerLabs* - Only 51.3% of the labeled chondroitin.
5. **Nature's Plus Ultra Maximum Strength Chondroitin 600 100% Pure Chondroitin Sulfate A Supplement Maximized with Bioperine Hypo-allergenic** – 600 mg chondroitin sulfate.
-- **NOT APPROVED** by *ConsumerLabs* - No chondroitin sulfate found.
6. **NutriVet Nutritionals Hip & Joint Soft Chews, Contains Glucosamine & Chondroitin** – 250 mg glucosamine HCl and 200 mg chondroitin sulfate.
-- **NOT APPROVED** by *Consumerlabs* - Only 47.2% of the labeled glucosamine and 0.7% of the labeled chondroitin.
7. **PHS JointMax Regular Strength, Now with Manganese** – 265 mg glucosamine HCl, 210 mg chondroitin sulfate
-- **NOT APPROVED** by *ConsumerLabs* - Only 2.1% of the labeled chondroitin.
8. **Swanson Health Products Premium Brand Glucosamine & Chondroitin** – 500 mg glucosamine sulfate, 250 mg chondroitin sulfate.

- NOT APPROVED** by ConsumerLabs - Only 8% of the labeled chondroitin.
9. **Symtec Joint Movement Glucosamine with Chondroitin + MSM Mixed Berry Flavor** – 2000 mg glucosamine HCl, 1200 mg chondroitin sulfate, 500 mg MSM.
--**NOT APPROVED** by ConsumerLabs - Only 75% of the labeled chondroitin.
10. **Vital Nutrition The Superior Supplement For Dogs Hip & Joint Formula, Glucosamine & Chondroitin for Optimal Performance, PLUS Vitamins, L-carnitine & Proline** - 250 mg Glucosamine HCl and 175 mg Chondroitin Sulfate.
--**NOT APPROVED** by ConsumerLabs - No chondroitin sulfate found.
11. **VetPlus Ltd Synoquin** – chondroitin, glucosamine HCL, N-Acetyl-D glucosamine, ascorbic acid and zinc.
--*Study by Moreau et al (2003) showed no clinical benefit.*