



## THE SPINAL COLUMN: JOINT PAIN KILLERS: Glucosamine Sulphate

June 2003: Dr. Alfin Mitha

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### Special points of interest:

- **Did you know Glucosamine Sulphate is more effective after 4 weeks of use at 1500mg/day.**
- **The absorption of Glucosamine Sulfate into your body is approximately 98% whereas Chondroitin sulfate is less than 13%.**
- **Independent testing has been shown that one third of glucosamine products do not contain the amount of glucosamine that it says it does on the label (Nutrition News Focus, Feb 13, 2001).**
- **Aspirin, Celebrex, Advil, Motrin, or Naproxen does not stop the cartilage destroying enzymes from destroying the joint space. NSAIDS also deplete vitamin C and sulphur, both of which are necessary for cartilage development.**
- **NSAIDS can accelerate joint damage**

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Glucosamine is a natural compound found in connective tissue and cartilage of the body forming nails, tendons, skin, eyes, bones, ligaments, heart valves, and mucous secretions of the digestive, respiratory and urinary tracts. It has been used widely to treat damage to the tissues, ligaments and muscles, inflamed discs, sciatic nerve symptoms, inflamed joints, and loss of elasticity to the intervertebral discs. Results are stronger after 4 weeks of use.

Its most important function is in the formation of joint structures and synovial fluid. Glucosamine sulfate helps to make the synovial fluid surrounding joints and vertebrae very thick and elastic- almost gelatinous thus protecting the joints from wear and tear. Simply speaking, if the thick cushioning between joints anywhere in the body is lost; the bones will rub or will have friction against each other and erode causing problems with movement and flexibility. These problems can also occur in the spinal column where the individual vertebrae are stacked on top of one another separated by a disk. This is very important since many nerves leave the spinal cord at that level and if the cushioning is reduced, the nerves could be affected. A 10% disruption whether it be a compression or a stretch in the nerve can cause a 50-60% loss of function in that same nerve.

Glucosamine sulfate (GS) is a slower acting supplement compared to NSAIDS but over time it can be more effective. A study in the LANCET showed radiographic imaging evidence of restoration of cartilage and joint space and the direct effects Glucosamine sulphate has on slowing and preventing deteriorating joint structures. Only Glucosamine sulfate has been shown to have proven clinical benefits. Glucosamine sulfate is the only form studied in over 300 scientific

investigations and over 20 double blind studies. It is registered as a drug for Osteoarthritis in over 70 countries.

Free of any side effects and no known contraindications, Glucosamine sulphate has no drug interactions with antibiotics, antidepressants or treatment of lung disease. It is readily absorbed from the intestine and stays in the blood with very little excreted out of your body. A landmark study on glucosamine and OA(Osteoarthritis) released Jan 27, 2001 in the LANCET showed that 212 patients with OA received 1500mg / day for 3 years showed no side effects and no blood sugar rises. (Thus the "glucose" component of the supplement does not impact blood sugar.)

Glucosamine sulphate also stops the inflammatory response to non-specific agents like acetic acid (vinegar) but not active against vital enzymes and hormones such as serotonin and histamine. Thus it is anti-reactive, rather than anti-inflammatory due to the fact that it does not stop the key inflammatory reaction (cyclooxygenase) but does not allow the chain of reactions to get to the reaction that causes inflammation.

Sulfur is an extremely important component in the therapeutic effect of glucosamine sulfate. Individuals with arthritis are known to be deficient in sulfur which stops many enzymes from breaking down cartilage in patients with Osteoarthritis. Sulfur is used in the formation of cross linkages providing cartilage with its strength structure, and shock absorbing properties. Sulphur is a key component in GS's joint aiding capabilities. So what is the problem with this miracle drug.

There are three major aspects to look at when asking this question. First there are many different forms of Glucosamine sulphate on the market with controversial success in doing what Glucosamine sulphate is known to do. The addition of chondroitin sulfate to glucosamine has been shown to add

further cost to the product. However, the more expensive a product is does not make it a more superior product. The absorption of Glucosamine Sulfate into your body is approximately 98% whereas Chondroitin sulfate is less than 13%. Which one would you choose. It is difficult to choose a form of Glucosamine unless you know the amount that is actually contained in a product based on form. For example 500 mg glucosamine HCL has approximately 415 mg of glucosamine in it or 83.1 %. 500 mg of glucosamine sulfate has 50.7%-65.1% of Glucosamine in it. Consult a Naturopath before buying any form of GS.

The Second issue surrounding GS is the accountability of products that say they have GS in them. Independent testing has been shown that one third of glucosamine products do not contain the amount of glucosamine that it says it does on the label (Nutrition News Focus, Feb 13, 2001). Again consult a Naturopath before purchasing a product.

The addition of Sodium and sodium free only has to do with cost. There is very little sodium added to the product to begin with. Sodium-free Glucosamine is only available for the sake of advancing sales. Again be careful about the product you buy and the price you pay.

In summary, Glucosamine Sulphate has been proven to be extremely effective in the treatment of Osteoarthritis but like any other product available publicly, you may not be getting what you are paying for. Be educated, consult a Naturopathic Doctor to see if this supplement would be the best choice for you at this time. Have an overall look at your lifestyle and health history. This will ensure successful use of this product.

## NOT ALL PROTEIN IS CREATED EQUAL

There are two major types of protein that are bought in North America; fast-absorbed (whey) and slow-absorbed (casein). If you were to eat a large protein meal you would get a very large increase in protein levels in the blood which would drop very quickly as your body removed it to remain in balance. Now, if you were to eat the same protein slowly through the day you keep a lower level of protein in the blood all the time. **So which is better?** The answer is both.

**Whey protein** is rapidly emptied from the stomach and thus causes the spike to protein blood levels. Scientific research shows that ingestion of whey protein does not stop your own body's breakdown of protein from muscle, it does however increase protein building in your body by approximately 68%.

**Casein protein** clots in the stomach and is therefore slower digested and remains in the blood for up to 7 hours. Casein protein prevents your body from breaking down its own protein by about 34% and also increases protein building in your body by 31%.

To determine which type of protein is best depends on your circumstances. If you lead a busy lifestyle and get only two or three meals a day and workout intensely, the combination of these two will work very well for you. However, if you have the time and are able to eat 4-6 meals a day whey protein is a better choice if taken at the right time. If you do not drink this protein at an optimum time it is better not to take it at all (*Please side panel on page 1 for best times to take*). Both of these types individually or in combination are easily dissolved in liquids but also contain lactose even if the label states that it does not.

**Soy protein** is another alternative if you are lactose sensitive. Women are especially benefited by Soy protein because soy contains isoflavone compounds (phytoestrogens) that are believed to protect against certain types of Cancers. It is important to note that this form of protein is only absorbed at about 2/3rds of what whey protein is by your body, it tends to clump in liquids unless a blender is utilized, and unless the label states standardized isoflavones don't buy it in my opinion.

**Pea and rice** proteins can also be used as supplements. Rice protein is a complex carbohydrate containing all 8 essential amino acids. Pea protein is a vegetable protein. Both of these forms are easily digested, good for people with dietary restrictions and allergies.

**Is a vegetarian diet better or worse for building muscle?** A vegetarian diet produces much lower testosterone levels than does a meat rich diet. A vegetarian diet also lacks Vitamin B12 which should be supplemented in the diet (please consult your Naturopathic Doctor or Nutritionist). However, a diet high in red meats is also an abundant source of saturated fats. Therefore fish is probably the best source as it carries high amounts of protein, and fats.

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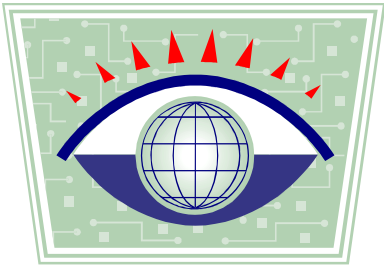
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