

## WHAT IS GLUCOSAMINE SULFATE?

It is one of the hottest natural supplements on the market today. That's saying a lot considering all the latest advances in the field of nutrition. What makes this supplement so popular is that it has provided a new hope for long term sufferers of joint and connective tissue disorders. These include degenerative and inflammatory arthritis, tendonitis, bursitis, osteoporosis and various skin disorders. Glucosamine has also been used for repair of traumatic injuries such as intervertebral disc herniations, tendon and ligament tears, and wound treatment. Damage to connective tissue structures was once believed to be irreparable, due to the fact that there is little to no blood supply to these structures. Since the blood supply carries all the healing nutrients and cells, it was assumed that damaged joint structures such as cartilage, bone, tendon and ligament once damaged were beyond repair. These beliefs were supported by the fact that arthritis has crippled man for as long as recorded time, and we still do not have a cure for it. That is, until now!

Glucosamine is classified as an amino sugar. Unlike other forms of sugar in the body, amino sugars are components of carbohydrates that are incorporated into the structure of body tissues, rather than being used as a source of energy. It is naturally abundant in healthy joints and is a primary constituent of connective tissue. It helps in the formation of joint factors like proteoglycans, glycoproteins, mucopolysaccharides, and glycosaminoglycans. These joint factors make up the "ground substance" and the actual cellular components of cartilage and connective tissue. As a matter of fact, it has been shown that with joint degeneration and aging the amount of glucosamine in the body decreases, thereby facilitating joint destruction. The sulfate portion has been added since sulfur has been known to be an important mineral in cartilage repair, and sulfur baths have a long history in the treatment of arthritis.

There is one catch to the effectiveness of glucosamine. The only way that it can get into the joint cartilage to aid in repair is by a process called facilitated diffusion. Since connective tissue is basically avascular, supportive nutrients cannot be provided into the joint by the blood supply. The blood supply does play a role in carrying the nutrients into the joint capsule and synovial fluid, but not into the cartilage itself. Nutrients must be absorbed into the cartilage much like water is absorbed into a sponge. The process begins with an adequate supply of nutrients surrounding, or "bathing" the collagen in the synovial fluid. Alternating compression and decompression of the cartilage tissue is what facilitates the delivery of the glucosamine and other nutrients from the surrounding fluid into the actual cartilage tissue. In other words, just taking glucosamine sulfate alone might not do the trick. Blending glucosamine supplementation with proper joint motion and weight bearing exercise is necessary for the delivery of the nutrients to the cartilage and the repair of connective tissue.

Glucosamine sulfate has been compared with other mucopolysaccharides such as chondroitin sulfate and shark cartilage. In head to head studies, glucosamine appears to be the supplement of choice because of one major reason- it is a much smaller molecule. In fact, the backbone of chondroitin sulfate is made up of many units of the tiny glucosamine. The small size of glucosamine enables it to enter through the

gastrointestinal tract as well as the cartilage cells much easier. Chondrotin sulfate is approx. 250 times larger than glucosamine sulfate which makes it virtually impossible for the body to absorb it intact. Glucosamine is such a small molecule it is absorbed very easily orally. Once absorbed, it is preferentially taken up by cartilage and other joint structures where it stimulates the body to manufacture and build larger mucopolysaccharides including chondrotin sulfate.

Studies have backed the effectiveness of this supplement including a study by Lopes et. Al. This study compared two groups of forty patients with unilateral degeneration and arthritis of the knee joint. In the eight week study, one group was given 1500 mg. of glucosamine sulfate daily, while a second group received 1200 mg. of ibuprofen daily. During the first two weeks, pain seemed to decrease faster in the ibuprofen group. As the studies progressed, however, the glucosamine group showed more improvement. *By the end of the eight week, glucosamine sulfate proved to be much more effective than ibuprofen in pain reduction.* This pain reduction occurred not because the glucosamine blocks the pain signal like ibuprofen, but because it actually helps in the repair of the damaged joint. Ibuprofen and other NSAIDs such as aspirin treat only the symptoms of arthritis, they do not slow down the progression of the disease. In fact, there is evidence that long term use of NSAIDs can cause further joint damage and accelerate the progression of arthritis. Ironically, the medical treatment of NSAIDs for arthritis actually makes the arthritis problem worse.

The more advances that come in the field of holistic and medical treatments, the more the basic principles of health shine through. Trying to control arthritis with symptom based treatments such as NSAIDs and cortisone injections only provide short term relief with long term consequences. In order to ensure healthy joints and cartilage, you must supply the body with the proper nutrients and building blocks to form healthy tissue. You must also mobilize and use the joint and connective tissue to allow these nutrients to enter the cartilage cells and begin the rebuilding process. And you must be patient enough to let the rebuilding process to take place. Research has shown that an anti-arthritis regimen should consist of 1500mg. of glucosamine sulfate a day for a minimum of eight weeks. This program must include range of motion and weight bearing exercises in order for the supplements to achieve the maximum results. If you are suffering from arthritis, stop looking for the easy way out and begin your joint repair program today.

Dr. Bernie Sengstock is a licensed Chiropractor working towards his diplomat in Chiropractic Rehabilitation. For further information please feel free to contact him at Spinecare/ American Comprehensive Medical office in East Islip, NY. (277-0060) The office combines Chiropractic, Medical, and Physical Therapy treatment all under one roof. Look for the upcoming FREE LECTURES in the September New Living.

9/10 at 7:00pm & 9/20 at 12:00pm- FREE Lecture- Modern techniques in the treatment of Arthritis and connective tissue disorders. Please call Spinecare/ American Comprehensive Medical Office at 277-0060 to make your reservation. Limited seating is available.

