



## ***Nutritional Requirements for Spinal Disc***

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**Glucosamine Sulfate (GS)** is one of the most important nutritional supplements for joint, cartilage and disc repair and health. What makes Glucosamine so special for joint health? Glucosamine is a modified sugar molecule manufactured by the chondrocytes of the cartilage in our bodies from blood sugar glucose and an amino acid called glutamine. Unfortunately, the chondrocytes can not simply make more Glucosamine any time they need to repair cartilage. During joint degeneration and arthritis, chondrocytes have been “reprogrammed” to destroy cartilage. Manufacture of new cartilage cannot keep pace with the destruction. In some severe joint damage, chondrocytes have been told to stop making Glucosamine. Supplemental Glucosamine can actually reverse the breakdown of cartilage and rebuild it. Glucosamine can do this because it is almost completely absorbed from the gut into the blood stream. Like other nutrients, some Glucosamine finds its way to the synovial fluid and blood vessels surrounding the cartilage, where it diffuses into the cartilage. There, chondrocytes eagerly take up Glucosamine, so the manufacture of new collagen & cartilage can take place.

Once inside the chondrocyte, Glucosamine is known as a rate-limiting chemical. This means that the chondrocytes determine whether or not they can make more cartilage by how much Glucosamine is present. The more Glucosamine, the more cartilage repair. Less Glucosamine, less repair. The quality and purity of the GS is extremely important for absorption through the intestines into the blood stream and absorption into the cells to obtain beneficial results. Recommended therapeutic dose is 1200 – 1500 mg per day in divided doses. Glucosamine Sulfate has been shown to be more effective than Glucosamine HCL. Read the labels, cheaper is not better. Cheaper retail store brands have fillers and binders which can prevent complete absorption. These fillers can cause allergic and inflammatory reactions within the intestinal lining further decreasing the effectiveness of the product, which means the need for larger dosages to achieve desired results.

The Glucosamine you ingest in tablet form can convince your chondrocyte cells to rebuild, repair, and maintain healthy joints. Think of the chondrocytes as microscopic biochemical factories combining Glucosamine and other nutrients to produce cartilage. Chemical and physical stress, age, poor diet, drugs and other pollutants mean that chondrocytes cannot always produce enough Glucosamine, and degeneration occurs. Remember, chondrocytes have a major disadvantage when it comes to their metabolism; they have a very poor blood supply. Glucosamine Sulfate is extremely safe, with no side effects, toxicity or drug interactions. Recommended Product: **ArthroGenX**

Water in the form of purified water, not coffee or soda, is required for life. The human body is composed of approximately 60% - 70% water. The average person has a total body water content of about 10 gallons. Each day the body requires an intake of over 2 quarts of water to function optimally. About 1 quart each day is provided in the foods we eat. Which means we must drink *at least* one quart of water per day to maintain good water balance. We need to replace the water that is lost through urination, sweat, and expired through our lungs. More liquids are needed in warmer climates or for physically active people, and the elderly, especially with prescription medications. Drink *at least* **6 – 8** large glasses of purified water each day.

**Minerals** are required for all enzymatic reaction in the body. Since the soil is deficient, the diet is deficient in minerals. Heart disease, diabetes, osteoporosis and muscle spasms are due to lack of minerals. A Comprehensive Multi-Vitamin / Multi-Mineral taken with each meal is required to supply the numerous nutrients which are necessary to maintain health. Look for a multi-vitamin/multi-mineral which contains amino acid chelated minerals for more complete absorption.

### **Essential Fatty**

**Acids** (EFA's) from Fish Oil in a purified form, are needed for repair of all damaged cell walls and to control inflammation naturally. Over 1 trillion cells in our body, each cell has a membrane made up of specialized fats. Without proper fatty acid balance, the body can not heal, and chronic disease develops. EFA are also an effective anti-inflammatory at therapeutic doses. Recommended daily therapeutic dose is 1 – 3 grams daily in divided doses.

Recommended Products: **ArthroGenX, UltraGenesis Multi-Vitamin/Multi-Mineral, EPA/DHA Concentrate**

More Info at: [www.Bio-Genesis.com](http://www.Bio-Genesis.com)