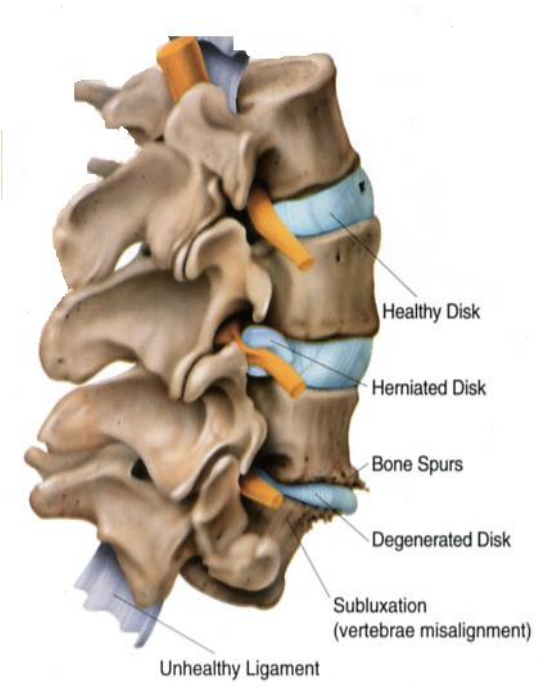
Understanding Osteoarthritis

The percentage of people with osteoarthritis (OA) increases dramatically with age. Over 40 million Americans have clinically evident symptoms of OA, including 80% of persons over the age of 50. This number does not reflect millions who have the early signs and symptoms of OA, which they ignore.

The weight-bearing joints such as the spine, knees, hips, as well as the hands, are the joints most often affected with degenerative osteoarthritis. These joints are under greater stress because of weight, gravity, overuse and poor nutrition due to the American diet.

The onset of OA can be subtle. Morning stiffness or minor aches are often the first symptoms. As the disease progresses, there is pain during motion of the involved joint, which is made worse by prolonged activity and relieved by rest.



Osteoarthritis is divided into 2 categories, primary and secondary. In primary OA, the degenerative "wear and tear" process occurs due to the cumulative effects of years of use that leads to degenerative changes in the collagen matrix of the cartilage. Damage to the cartilage results in the release of enzymes that destroy the cartilage components.

Secondary osteoarthritis is associated with some predisposing factors, which is responsible for the degeneration. These predisposing factors include: inherited abnormalities in joint structure or function, trauma to the joint area (sports injuries, whiplash (even a minor fender bender), surgeries, and previous inflammatory disease of the joint.

Your body remembers every major injury that has occurred over the years in the form of scar tissue. Old injuries later resurface as a variety of symptoms such as muscle stiffness, joint pain, reduced range of motion, muscle spasms and later arthritis. Just like every deep cut to the skin leaves a scar, every injury or form of trauma to the "soft tissues" (muscles, tendons, ligaments, discs and connective tissue) leaves a scar which can permanently effect the function of that area.

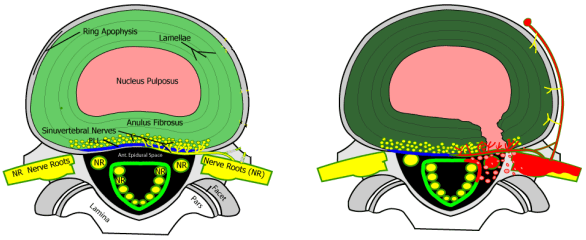
Over the years, the altered function of the injured area often leads to more permanent changes to the structural supporting tissues; the bones, discs. This altered function is osteoarthritis (OA), which is a defect in the bone and/or cartilage size, shape, function and cellular make-up. In OA/Joint Injuries, there is a switch from tissue building to tissue destruction. This makes OA both a *structural disorder* as well as a *metabolic disorder*, meaning treatment must consist of *both* correction of biomechanical alteration of the joints and supplementation of nutritional defects and deficiencies. The cells which make and repair cartilage (chondrocytes) no longer do their job efficiently. In healthy joints, cartilage is manufactured and maintained without incident. But in OA and Joint Injuries, there is a disruption in this process and the cartilage that is produced is weaker and becomes soft. Then it becomes pitted and frayed. Finally, it wears away altogether. Proper nutritional supplements for OA/Joint Injuries are called chondroprotective nutrients. These nutrients help restore the healthy tissue building process to normal and repair and reverse the years of tissue damage, which is OA.

Its important to look at the injuries that can lead to OA, particularly in regard to what happens to joints after they have been damaged. That way, by intervening early with nutritional weapons, you can further protect yourself from later consequences. Injuries can be either acute or chronic. A sudden blow to the joint is an example of an acute injury. There's usually a rapid change in the joint structure, including damage to the cartilage.

Chronic joint injuries happen over time, as a result of repetitive motion, nutritional deficiencies, overuse and joint mal-position. Chronic injuries to the spine result in joint mal-position and disc degeneration. Chiropractic is extremely effective here.

Healthy cartilage when seen under a microscope should be very smooth like glass or ice. But when damage has occurred such a physical assault or inflammation, the cartilage surface becomes pitted, cracked and brittle. The intervertebral discs between the spinal vertebra are doughnut shaped pieces of cartilage, which are one fourth to a half an inch thick. At the center of discs is the nucleus pulposus, a stiff gel-like material that helps to dissipate the compressive forces of spinal movement and the downward effects of gravity and body weight.

Normal, Healthy Disc *Disc Herniation*



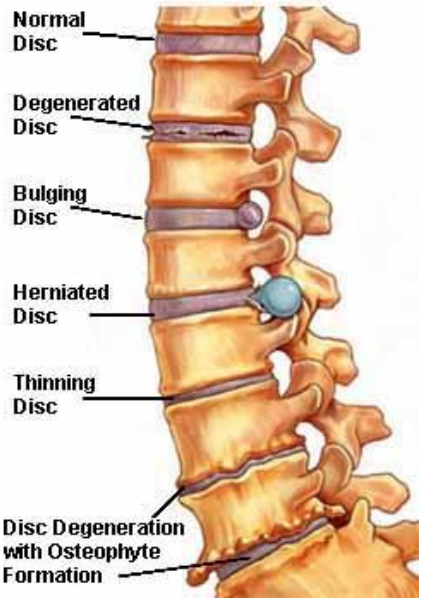
Bio-mechanically, the fluid nature of the nucleus allows it to be deformed under pressure, but as a fluid, its volume cannot be compressed. When subjected to pressure from any given direction, the nucleus will attempt to deform and transmit the applied pressure in all directions. Water makes up about 70-90% of the nucleus pulposus although the exact fraction varies with age. The next major components of the discs are proteoglycans; which are groups of proteins linked together to form cartilage material. The nucleus is circled by a series of tough, concentric rings and layers of cartilage. This structure enables the disc to withstand continuous compressive forces. The physical characteristic of the discs permit them to serve as shock absorbers when the load on the vertebral column is increased with daily activities.

The spinal discs have a very poor blood supply, with only blood vessels around the outer edge of the disc. When there is an increase in downward compressive forces due to mal-position and postural changes and as we age, the blood supply to the disc is reduced. Smoking, many drugs, posture and lack of proper spinal motion greatly reduces this blood supply. Remember that the blood brings vital nutrients to all the tissues of our body. When there is decreased blood flow, there is decreased nutrition to the disc. Loss of motion restricts blood flow, while proper joint motion increases the blood flow to the discs and other areas of cartilage. Undernourished disc cells set the stage for a lot of aches and pains. The cartilage cells (chondrocytes) can be stimulated to repair damaged cartilage with proper motion and nutrition.

Chiropractic is the most specific and effective movement for the spinal joints. Without proper motion, even the best nutrition alone can not repair the damage. 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.

Examples of Disc Problems



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. Cheaper brands have fillers and binders which 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 poor blood supply.

Numerous scientific studies show very good results from taking oral Glucosamine for joint health, without any side effects. The research also shows that Glucosamine can do something no drug can do*: Glucosamine can actually slow and possibly reverse osteoarthritis!* Arthritis drugs may initially help to control joint pain and inflammation, but they will actually accelerate the breakdown of cartilage and hinder the formation of new cartilage. Since it is a natural part of our body, Glucosamine Sulfate is extremely safe, with no side effects, toxicity or drug interactions.

Glucosamine Sulfate (GS) is the best form of Glucosamine based on scientific research throughout the world. Other forms are available; however, none have the research to back it up. Another product called Chondroitin sulfate (CS) is available. CS is a larger molecule, which may make it more difficult for the body to absorb. Combinations of GS and CS have been very effective. Purified supplements are far superior and I recommend

DOSAGE: Its best to take Glucosamine sulfate in the morning and in the evening (2-3 divided dosed), with meals. At first, take 1500 milligrams daily for 6-8 weeks. Your symptoms should have decreased greatly. Then reduce your dosage to 1000 milligrams daily for 2 – 4 weeks. As your symptoms continue to improve, reduce the dosage to 500 milligrams a day. Your goal is to manage your symptoms with the lowest dosage. If your symptoms reappear, increase your dosage as needed. With Glucosamine sulfate supplementation, most people will experience significant improvement in 6 to 8 weeks. However, the longer it is used, the better the results, the effects are cumulative. Some patient may need to use GS for years to prevent further joint decay. If you do obtain noticeable results, you most likely have additional nutritional needs.

***** Please follow all my recommendations for the best possible results, and schedule a personal Nutritional Consultation.

ADDITIONAL NECESSARY NUTRIENTS :

Comprehensive Multi-Vitamin / Multi-Mineral taken 2 to 3 times per day is required to supply the numerous nutrients which are necessary to maintain health, prevent disease, and repair injured joints. The American diet is dangerously deficient in many nutrients. Good nutrition begins with an excellent multi-vitamin/multi-mineral. Everybody should take a multi-vitamin 2-3 times per day.

Essential Fatty Acids (EFA's) in a purified form, are needed for repair of 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. Good fats (EFA's) make good, healthy cell membranes, bad fats which are in excess in the American diet make weak, unhealthy cell membranes. Daily EFA intake will improve your overall health, reduce the risk of many diseases, especially Heart Disease and Cancer.

Proteolytic Enzymes are natural way of controlling pain, inflammation and stiffness when used correctly. When used in combination, EFA's, Enzymes and Glucosamine / Chondroitin, the benefits of natural therapies are almost always assured. Drug use for arthritis is a quick fix only for the pain.

Look for Natural Pain & Inflammatory products, which are very effective and much safer than the dangerous prescriptions and over-the-counter medications.

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