GLUCOSAMINE SULFATE SUPPLEMENTATION AFTER 40

- Dr. James Meschino, DC, MS, ROHP
### TABLE OF CONTENTS

- Glucosamine, Joint Cartilage, and Osteoarthritis
- The Glucosamine Story
- Absorption and Metabolism of Oral Glucosamine Sulfate
- Clinical Studies with Glucosamine Sulfate
- Glucosamine Supplementation Also Strengthens Blood Vessels and Provides Other Anti-aging Benefits
- Side Effects, Toxicity, and Contra-Indications to the Use of Glucosamine
- Other Considerations for Individuals with Osteoarthritis
- The Problems Associated with Conventional Anti-Inflammatory Drugs
- Reducing Inflammation Naturally
- Effective Anti-inflammatory Herbs and Supplements
- MSM (Methyl Sulfonyl Methane)
- Using Natural Anti-inflammatory Agents to Manage Arthritis and Other Joint and Muscle Conditions
Another age-related problem that is engineered, to varying degrees, into our genetic blueprints after the age of 40, is the development of osteoarthritis. Osteoarthritis, also known as degenerative arthritis is the most common joint disease in humans and vertebrate animals. Virtually everyone who lives past age 75 will develop it to some degree and nearly 50% of the population suffers from osteoarthritis by age 65. Essentially, osteoarthritis is considered to be an age-related affliction in that it becomes much more prevalent after the age of 45. The development of osteoarthritis has traditionally been associated with a wear and tear effect on the joints of the body, but recent evidence suggests that it is caused by a complex pattern of changes in the repair mechanisms that keep joints functioning normally. A major underlying factor in this disturbance of repair mechanisms involves an age-related decline in the ability of cartilage cells (chondrocytes), within our joints, to manufacture sufficient amounts of a substance called glucosamine sulfate. Under normal conditions our cartilage cells (chondrocytes) continually synthesize glucosamine sulfate, which is required as a raw material from which cartilage cells make an important component of cartilage known as chondroitin sulfate. The cartilage in our joints consists mostly of a tough protein material called collagen, which provides the structural backbone of joint cartilage. Chondroitin sulfate fills in the space between the collagen fibers, just as mortar fills in the spaces between the bricks of a house. Thus, cartilage formation, and its on-going maintenance, requires the continuous synthesis of both collagen and chondroitin sulfate because old collagen fibers and old chondroitin sulfate are broken down by the body and replaced by new collagen fibers and new chondroitin sulfate on a continual basis throughout our lifetime.
The chondroitin sulfate, that is interspersed between the collagen fibers, not only increases the shock absorbing action of joint cartilage, but it also acts like a water magnet to hold moisture within cartilage, further increasing the shock absorbing capabilities of joint cartilage. In fact, healthy cartilage that contains youthful amounts of chondroitin sulfate is 75-80 percent water by weight. However, by age 40 the body starts to slow down its rate of synthesis of glucosamine sulfate and thus, the production of chondroitin sulfate is greatly impaired. This results in the soft, rubbery, shock absorbing joint cartilage at the ends of our bones to become eroded and thinner. When this occurs our bones move closer together (loss of normal joint space), and may rub against each other, producing pain and inflammation. Erosion of the joint cartilage also contributes joints that become stiff, disfigured, less flexible, and show a loss of normal range of motion. All of this adds up to the symptoms and signs of osteoarthritis, which often produces chronic pain, inflammation, morning stiffness, and often restricts afflicted individuals from participating in many different activities that they were once able to enjoy. As such, osteoarthritis doesn’t only cause physical pain and suffering, but it also contributes to compromised quality of life by frequently restricting an individual’s ability to perform work-related tasks and participate in many of life’s fun and joyful activities.