Proven Natural Remedies for Joint Pain, Arthritis & Inflammation

Dr. James Meschino, DC, MS, ND

About Dr. James Meschino, DC, MS, ND

A recognized expert in the use of nutritional supplements in the prevention and management of degenerative diseases and anti-aging, Dr. James Meschino, DC, MS, ND, was appointed to the advisory board of the Academy of Anti-Aging Research in 2001. He is a doctor of naturopathy, an associate professor at the Canadian Memorial Chiropractic College and has been a Faculty Member of the American Council of Exercise (ACE). He is also a faculty member of the Integrative Cancer Therapy Fellowship Program for physicians, sanctioned by the American Academy of Anti-Aging Medicine.

Dr. Meschino has appeared as a health and anti-aging expert on many television and radio programs in Canada and the United States.

The published author of five nutrition, supplementation and wellness books, he has also had over 50 research review papers on nutritional supplementation published by America -Online and is the regular anti-aging and natural therapies columnist for *Dynamic Chiropractic*. Dr. Meschino's continuing education seminars for health practitioners are authorized for continuing education credits in many states and provinces throughout North America.

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Introduction

Many clinical studies show that natural supplements can preserve our joints as we age, preventing age-related arthritic change. At more therapeutic doses the same nutrients can help stabilize, and sometimes rebuild, cartilage in patients who already have arthritis, resulting in a reduction of pain and suffering **and** improvement in joint function and quality of life. In fact, some supplements ***can actually replace anti-inflammatory and pain-killing medications***.

This is important because recent studies have shown that drugs like aspirin, acetaminophen and other non-steroidal anti-inflammatories (indomethacin, diclofenac, ibuprofen) have become a common cause of intestinal ulceration and bleeding, liver damage and liver failure, kidney damage (sometimes requiring dialysis), increased blood pressure, chronic heart failure and premature death from cardiovascular disease.

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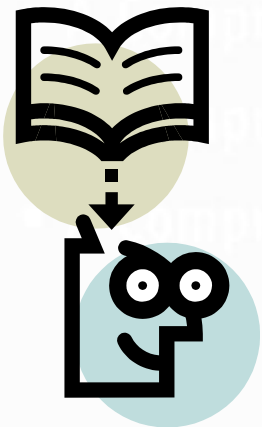
*(Reference - **Cause for Concern in the Use of Non-steroidal Anti-inflammatory Medications in the Community A Population-Based Study** Robert J Adams; Sarah L Appleton; Tiffany K Gill; Anne W Taylor; David Wilson; Catherine L Hill Authors and Disclosures Posted: 09/27/2011; BMC Family Practice. 2011;12 (70) © 2011 BioMed Central, Ltd)*



This eBook summarizes everything you need to know about diet and supplementation relative to helping prevent and better manage age-related arthritis, joint pain, and joint, muscle, tendon, bursa-and fascia-related inflammatory conditions (e.g. tennis elbow, plantar fascitis, bursitis, muscle strain injuries, etc.)

Part 1: Preventing and Managing Osteoarthritis

The Aging Clock and Arthritic Changes

A major time bomb is set off by the body's aging clock around age 40, which sets the stage for osteoarthritis, in all of us. At this time in our lives the aging clock triggers a decline in synthesis of a substance called glucosamine. Most people think of glucosamine as a supplement for osteoarthritis treatment, but the truth is that your body actually makes glucosamine. In fact, in most cases your body makes all the glucosamine necessary to keep your joints healthy and functional up to age 40. The problem is that after age 40 the body stops making optimal amounts of glucosamine, and this allows the slow erosion of your joint cartilage to begin, eventually leading to degenerative arthritis (also known osteoarthritis). This is a primary reason why osteoarthritis develops in everyone (to varying degrees) as we age, unless you take a glucosamine supplement to provide your body with the glucosamine it can no longer make for itself.

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The glucosamine story is very important to your long-term quality of life because osteoarthritis is the most common joint disease that develops in humans and vertebrate animals. Virtually everyone who lives past age 75 suffers from it to varying degrees and nearly 50% of the population is affected by osteoarthritis by the age of 65. Although osteoarthritis is not a life-threatening disease, the pain, swelling and stiffness of osteoarthritic joints can make your life quite miserable, and severely compromise your quality of life.

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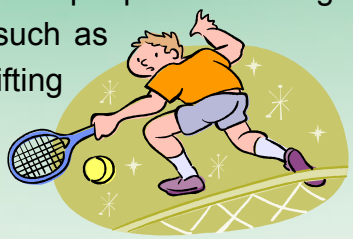
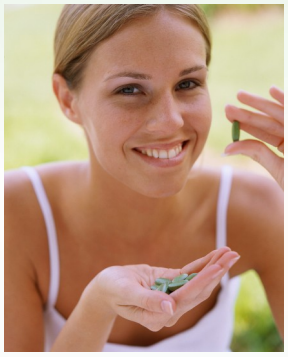
If left unchecked, osteoarthritis usually progresses to a degree that will prevent you from doing many of the things you may love to do, such as playing tennis or any racquet sport, down-hill or cross-country skiing, jogging or running sports (e.g. soccer, basketball), playing hockey, cycling, rollerblading, as well as many other sports and recreational activities. It quite often prevents people from being able to perform even the most basic everyday tasks such as bending over to remove items from the trunk of a car, lifting a suitcase, carrying grocery bags, vacuuming, sewing, knitting, writing, or even having sex.





Of course, if you allow joint cartilage erosion to progress to an extensive degree, then you will likely wind up requiring knee replacement and/or hip replacement surgery — things most of us would like to avoid. So, rather than just hoping and praying that osteoarthritis doesn't affect you in a serious way as you age, simply start putting the glucosamine sulfate back into your body that it no longer makes for itself after age 40, by supplementing with a well-designed glucosamine supplement each day.

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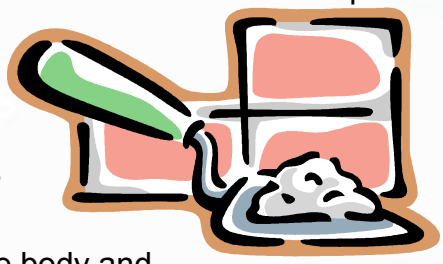
How Does Glucosamine Prevent Joint Erosion and Osteoarthritis?

The cartilage in our joints is designed to be the body's natural shock-absorbers. It consists largely of a tough protein material called collagen as well as chondroitin sulfate. Collagen provides the structural backbone of joint cartilage, whereas chondroitin sulfate fills in the space between the collagen fibers, just as mortar fills in the space between the bricks of a house. The raw material from which the body makes chondroitin sulfate is glucosamine. 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. Thus, when glucosamine synthesis declines after age 40, your body can no longer make the necessary amount of chondroitin sulfate it needs, thereby leading to joint cartilage erosion, osteoarthritis and a reduction in the shock-absorbing capacity of your joints.



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. As such, the inability to make optimal amounts of chondroitin sulfate leads to thinner cartilage pads. As such, our bones move closer together (loss of normal joint space), and may even rub against each other in more severe cases of osteoarthritic degeneration . In most cases even mild to moderate osteoarthritic changes produce some level of pain and inflammation.

Erosion of the joint cartilage also contributes to 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 frequently restricts afflicted individuals from participating in many different activities that they were once able to enjoy, as mentioned previously. 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 and home-related tasks and participate in many of life's fun and joyful activities.

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Thus, the age-related decline in glucosamine sulfate synthesis has been shown to contribute to degeneration of joint cartilage, promoting the development of osteoarthritis as we age. The good news is that there is sufficient clinical evidence that a well-designed glucosamine supplement can provide cartilage cells with the glucosamine sulfate they can no longer make, in adequate quantities, for themselves, thereby preventing cartilage thinning and erosion and, hence, preserving the integrity of our joint cartilage. Enabling cartilage cells to make more youthful levels of chondroitin sulfate is the key to preventing cartilage degeneration and osteoarthritis; this can be accomplished by using a glucosamine supplement beginning at age 40.

Taking Action to Prevent Osteoarthritis

- ✓ Supplement each day with 500 or 1,000 mg of glucosamine sulfate, beginning at age 40
- ✓ Glucosamine sulfate supplementation can compensate for the impaired glucosamine synthesis that occurs after age 40
- ✓ Supplementation with glucosamine sulfate provides cartilage cells with the ability to make more optimal levels of chondroitin sulfate and slow and/or reverse the aging effect on our joints that leads to osteoarthritis
- ✓ Glucosamine sulfate is an effective natural treatment for individuals who already suffer from osteoarthritis and other joint cartilage injuries

My advice, which I follow myself, is to supplement each day with 500 or 1,000 mg of glucosamine sulfate, beginning at age 40. Many studies have demonstrated that glucosamine sulfate supplementation can compensate for the impaired glucosamine synthesis that occurs after age 40, providing cartilage cells with the ability to make more optimal levels of chondroitin sulfate and thereby, slow and/or reverse the aging effect on our joints that leads to osteoarthritis. In fact, many studies have shown that glucosamine sulfate is an effective natural treatment for individuals who already suffer from osteoarthritis and other joint cartilage injuries.

GLUCOSAMINE RESEARCH STUDIES

Since the early 1980's, researchers have conducted a large number of clinical and experimental investigations to determine if oral glucosamine sulfate supplementation can compensate for the age-related decline in glucosamine synthesis and thereby, block the progression of osteoarthritis and/or reverse or repair any existing joint cartilage damage. In the past thirty years glucosamine sulfate has been the subject of more than 300 scientific investigations and over 20 double-blind clinical studies. In a recent review, which appeared in the journal, Rheumatology Disease Clinics Of North America, researchers indicated that glucosamine supplementation has been shown to be highly effective in the treatment of osteoarthritis in all 13 double-blind clinical trials reviewed by these investigators.

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Glucosamine is a small and simple molecule that is readily absorbed from the gastrointestinal tract. In fact, studies demonstrate that 90-98% of glucosamine sulfate is absorbed intact from the intestinal tract. By contrast, somewhere between 0% and 13% of chondroitin sulfate is absorbed from the intestinal tract when you take it in a supplement, making it significantly less effective than glucosamine sulfate as an intervention in the prevention and management of osteoarthritis.

This is why I don't recommend supplements containing chondroitin sulfate. If you purchase them, you are really wasting your money to a significant degree. Some companies manufacture glucosamine supplements that also contain chondroitin sulfate. These, too, are very inferior to supplements that contain glucosamine and natural anti-inflammatory herbs (MSM, Quercetin, Bromelain) as you will see shortly.

> ***"This is why I don't recommend supplements containing chondroitin sulfate….very inferior to supplements that contain glucosamine and natural anti-inflammatory herbs…"***

Glucosamine Supplementation

- ✓Prevents
- ✓Reverses
- ✓Stabilizes

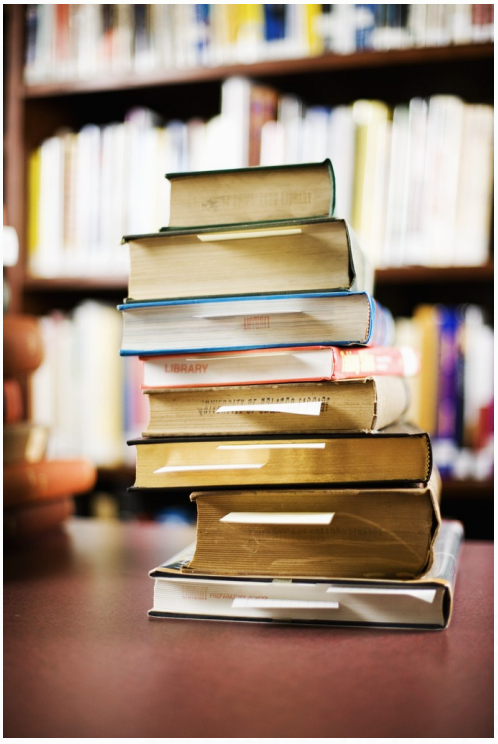
Once absorbed from the gut, glucosamine circulates through the bloodstream, where it can be taken up by cartilage cells (chondrocytes), providing them with the ability to make more optimal levels of chondroitin sulfate which fills in the gaps between the collagen fibers of our joint cartilage. As well, glucosamine sulfate is required for the synthesis of hyaluronic acid by the synovial membrane of the joint. Hyaluronic acid increases the viscosity of the synovial fluid and thus, serves to reduce the wear and tear stress on the articular cartilage and related joint structures. Glucosamine supplementation has also been shown to increase the synthesis of collagen by chondrocytes (cartilage cells). Thus, glucosamine supplementation has been shown to prevent, reverse and stabilize the major events in the osteoarthritic process by providing the raw material for the synthesis of chondroitin sulfate and hyaluronic acid, and stimulating the synthesis of collagen.

What Form of Glucosamine is Best?

Essentially all of the valid research on glucosamine has employed the use of glucosamine sulfate. Only glucosamine sulfate is approved as a treatment for osteoarthritis in more than 70 countries around the world and has been used by millions of people for this purpose for more than 30 years.

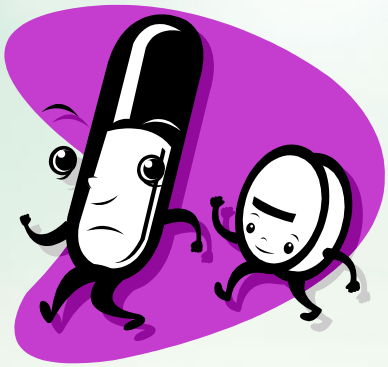
Glucosamine sulfate also delivers the mineral sulfur (hence the name glucosamine *sulfate*) to the joint cartilage. It has been recognized for many years that sulfur is a vital nutrient for the maintenance of joint cartilage. Sulfur is required to stabilize the connective tissue matrix of cartilage, tendons, and ligaments. Sulfur hot springs and the recent popularity and use of MSM (methlyl sulfonyl methane) by arthritis patients have provided strong anecdotal evidence that increasing the delivery of sulfur to the joints can help to alleviate arthritic symptoms to an appreciable degree. Experimental evidence indicates that sulfur has an anti-inflammatory effect and directly helps to maintain the structure and the integrity of joint cartilage. As such, the use of glucosamine ***sulfate*** provides the joint structures with the mineral sulfur as well as glucosamine - a double benefit in the prevention and management of osteoarthritis.

Other forms of glucosamine are present in the commercial market place such as N-acetyl-glucosamine and glucosamine hydrochloride. There is presently insufficient evidence to support their use and neither one of these forms provides the addition of the mineral sulfur, which has shown to be of value in osteoarthritis cases.



Clinical Studies with Glucosamine Sulfate

Glucosamine sulfate has been the subject of more than 300 scientific investigations and over 20 double –blind clinical studies. In a recent meta-analysis of glucosamine clinical trials in the treatment of osteoarthritis, McAlindon and colleagues indicated that all 13 studies that met the used accepted research methods showed that glucosamine supplementation improved signs and symptoms of osteoarthritis. This meta-analysis revealed that glucosamine supplementation reduced the symptoms and signs of osteoarthritis by 40.2% on average, compared with the placebo.



Glucosamine sulfate supplementation has also been investigated in head-to-head studies against non-steroidal anti-inflammatory drugs (NSAIDs), in the treatment of osteoarthritis. In a number of these trials, glucosamine supplementation was shown to produce better results in the long-term than ibuprofen and other NSAIDs in relieving the pain and inflammation of osteoarthritis. Unlike many NSAIDs, glucosamine has not been shown to produce any of the adverse side effects that are frequently encountered with the use of NSAIDs (gastritis, peptic ulcer, GI bleeding and erosion of the intestinal lining, liver and kidney toxicity, tinnitis).

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In one study (Qiu, G.X., et al. 1998), involving 178 Chinese patients suffering from osteoarthritis of the knee, the group given a daily dose of 1500mg of glucosamine sulfate demonstrated better results than did the group given ibuprofen at 1200mg per day (NSAID) with respect to reduction in symptoms of osteoarthritis. In this study, glucosamine sulfate was shown to be better tolerated than ibuprofen. Sixteen percent of the ibuprofen group dropped out due to adverse side effects from the drug. A six percent drop-out rate occurred in the glucosamine group. The authors of the study conclude that glucosamine sulfate is a selective intervention for osteoarthritis, as effective on the symptoms of the disease as NSAIDs but significantly better tolerated. As such, glucosamine sulfate seems particularly indicated in the long-term treatment needed in osteoarthritis.

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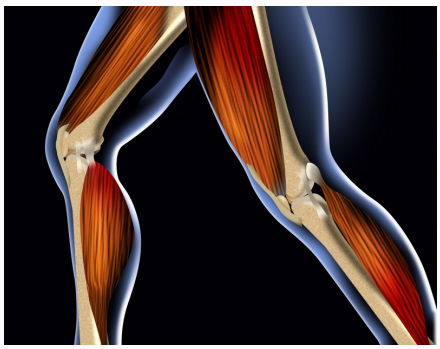
In North America, the medical profession has taken a skeptical view of the original research on glucosamine that has largely been performed in Europe and Asia. Acknowledging that oral glucosamine has been shown to be highly bioavailable and demonstrates impressive results in clinical trials with osteoarthritis patients, some researchers have criticized the research methodology of some of these trials, suggesting that North American trials are required before glucosamine can be recommended as a treatment for arthritis.

In 1999 and 2001, this request was answered when Reginster, et al, published their findings in the journals, *Arthritis and Rheumatology* and *Lancet*. The three-year randomized study by Dr. Reginster was a large randomized controlled analysis that was placebo-controlled, double-blind, and prospective in nature. It involved 212 patients with knee osteoarthritis. Weight-bearing and standard medical X-Rays of each knee were done at 1 and 3 years. Joint space width was also measured. Symptom and functional status were scored every 4 months using the Western Ontario and McMaster University Osteoarthritis index (WOMAC). The two groups had comparable baseline status, but after 3 years, there was no further joint space narrowing in the glucosamine group. The placebo group had further joint space narrowing and objective evidence of disease progression. As well, subject symptoms worsened in the placebo group, but the group taking glucosamine sulfate realized a marked reduction in symptoms of osteoarthritis over the three-year period. The authors concluded that glucosamine sulfate supplementation significantly reduced progression of knee osteoarthritis. Patients in the glucosamine group did not experience any untoward side effects. In the Lancet editorial, medical practitioners were encouraged to begin embracing certain aspects of the alternative movement, including the use of glucosamine as an effective lifelong intervention for osteoarthritis. As stated in the article, *"It is time for (medical doctors) to accommodate the possibility that many nutritional products may have valuable therapeutic effects and to regain the credibility of the public at large*".

The authors concluded that glucosamine sulfate supplementation significantly reduced progression of knee osteoarthritis



A recent study published in 2010 in the journal, *Arthritis Research and Therapy*, by Norman Ng and fellow researchers, once again showed that glucosamine sulfate supplementation improves signs and symptoms of osteoarthritis. These researches showed that 1500 mg per day of glucosamine sulfate supplementation significantly reduced pain, swelling, stiffness and improved joint function within 6 weeks, in a group of inactive patients with osteoarthritis of the hip and knee. They also showed that arthritic patients who began walking 30 minutes per day (5 days per week), in conjunction with 1500 mg of daily glucosamine sulfate supplementation realized even greater overall improvement in their arthritic symptoms.

Safety of Glucosamine Sulfate

Reported short-term adverse side effects from the use of glucosamine are generally mild and infrequent. These include mild gastrointestinal upset, drowsiness, skin reactions, and headache. Glucosamine sulfate has been shown to be non-toxic at prescribed doses. Patients allergic or sensitive to sulfa drugs or sulfate-containing food additives can safely take glucosamine sulfate. The word sulfate in this instance indicates the presence of the mineral sulfur, not the sulfa compounds used in sulfa drugs and sulfate-containing food additives. All cells of the body contain the mineral sulfur and thus, it is not possible to be allergic to this mineral. However, glucosamine sulfate is manufactured from the chitin exoskeleton of shellfish, such as lobster crab and shrimp. Therefore, it is conceivable that a person with a severe allergy to shellfish may be sensitive to the use of glucosamine, although the pharmaceutical grade of glucosamine is generally devoid of shellfish contaminants. Nevertheless, caution should be exercised in these cases. Some preliminary animal experiments and human trials on healthy individuals reveals that glucosamine supplementation may increase insulin resistance in some individuals by decreasing the synthesis of insulin receptors. In large clinical trials, this has not surfaced as a concern and no indication of pronounced glucose intolerance (blood sugar imbalance) has been demonstrated in the many well-documented glucosamine studies, including the study in *Lancet* and the glucosamine meta-analysis appearing in *The Journal of the American Medical Association*.

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Some doctors have told their patients not to take glucosamine if they are diabetic, but this is unwarranted, as many diabetic patients have benefited from the use of glucosamine without any adverse effects on their blood sugar. In fact, if the pain and disability of osteoarthritis is preventing a diabetic from being able to perform endurance exercise and the use of glucosamine can remedy this problem, as it has been shown to do in many cases, then the use of glucosamine can actually help in the management of diabetes because endurance exercise improves glucose tolerance, stabilizing blood sugar. Thus, it is advisable for diabetic patients and pre-diabetic patients with osteoarthritis to use glucosamine sulfate supplementation to manage their condition, and to simply have their blood glucose monitored during the first few weeks of glucosamine sulfate supplementation to identify any blood sugar irregularities that may occur.

Glucosamine Supplements Should Also Contain Natural Anti-inflammatory Agents

As good as glucosamine sulfate is at maintaining and repairing joint cartilage, the truth is that a well-designed glucosamine supplement should also provide natural anti-inflammatory agents. In this regard I suggest a formula containing glucosamine sulfate with bromelain enzymes, MSM and quercetin. I have seen this combination provide tremendous value to patients suffering from osteoarthritis in many different joints in the body (including the spine and degenerative disk disease). In addition, these anti-inflammatory agents also provide important anti-aging effects in that we all have a propensity for inflammatory processes to occur in our joints as we age. The natural anti-inflammatory agents, bromelain, MSM and quercetin can combat the inflammatory processes associated with aging, while the glucosamine sulfate is working to preserve our joint cartilage. This combination of glucosamine sulfate with bromelain, MSM and quercetin is the perfect anti-aging cocktail to help prevent joint cartilage erosion, suppress age-related joint inflammation, enabling your joints to maintain optimal function for many years longer than was believed possible by previous generations of people.

*This combination of glucosamine sulfate with **bromelain, MSM and quercetin** is the perfect anti-aging cocktail to help prevent joint cartilage erosion, suppress age-related joint inflammation, enabling your joints to maintain optimal function for many years longer than was believed possible...*

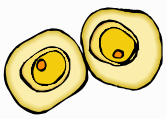
The simple fact is that, beginning at age 40, you have to take a supplement containing glucosamine sulfate, bromelain, MSM and quercetin to maintain healthy joints as you go through your forties, fifties, sixties, seventies, eighties and beyond. Having personally treated more than 10,000 patients I can tell you first-hand that being sidelined by osteoarthritic pain is no fun. Not only are you plagued by chronic pain, but it prohibits you from doing many of the activities you once loved. This problem is easy to prevent, so if you are 40 years or older, get started immediately with a daily supplement containing glucosamine sulfate, bromelain, MSM and quercetin at the following dosages:

- ✓ Glucosamine Sulfate: 500 mg
- ✓ Bromelain: 100 mg
- ✓ MSM: 133 mg
- ✓ Quercetin: 100 mg

Bromelain - Bromelain refers to enzymes that are derived from the stem of the pineapple. These enzymes have shown a remarkable ability to suppress the inflammation and pain of rheumatoid and osteoarthritis, sports injuries, and other joint inflammatory conditions. Like aspirin and many other anti-inflammatory drugs bromelain enzymes inhibits the cyclo-oxygenase enzyme, which in turn, blocks the synthesis of a hormone called prostaglandin series-2 (PG-2.) PG-2 is the primary local hormone that causes joint inflammation.

MSM (Methyl Sulfonyl Methane) -

MSM is a natural sulfur-containing compound that is produced by the human body and is found in limited quantities in certain foods, such as fruits, vegetables, and meats. MSM ingested in higher doses as a supplement has been shown to produce anti-inflammatory effects and to help support the integrity of joint cartilage, which has a high requirement for the mineral sulfur. It also has pain relieving properties and has been used to treat a wide variety of muscle and joint inflammatory conditions.



Cartilage cells

Quercetin - is a bioflavonoid compound that, like bromelain, has been shown to block the cyclo-oxygenase enzyme that produces PG-2. Blocking the synthesis of PG-2 suppresses joint inflammation in the prevention and management of osteoarthritis. Quercetin is also being studied intensively for its anti-cancer and anti-heart disease properties, which are most impressive.

Many medical doctors that I have met over the years, who treat cancer, often include quercetin supplementation in the nutritional management of their patients. Quercetin has been shown to enhance the effectiveness of some chemotherapy drugs and studies suggest it can help block the progression and recurrence of certain cancers when combined with other nutrients and medications. Getting some additional quercetin into your body each day to prevent and/or manage osteoarthritis may also help reduce your risk of cancer and heart disease – now that's a side effect you can live with.

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Dosage and Application

If you really want to remain free of arthritis or minimize its effects as you age, after age 40 you simply must take a joint supplement each day that contains the following:

Amounts per Capsule:	
Glucosamine Sulfate	**500 mg**
Bromelain	**100 mg**
MSM	**133 mg**
Quercetin	**100 mg**

- **To prevent osteoarthritis** simply take one capsule per day (after age 55, I suggest you take 2 capsules to be on the safe side).
- **If you already have osteoarthritis** then you will require 3 capsules per day. If you have osteoarthritis and you weigh more than 200 pounds or you are taking a diuretic drug for high blood pressure, then you will need 4 capsules per day for therapeutic purposes.