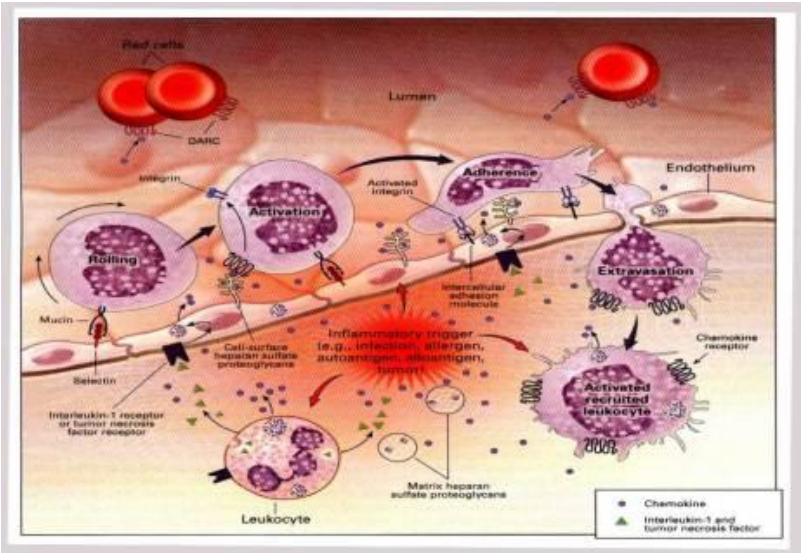
OSTEO-SPORT

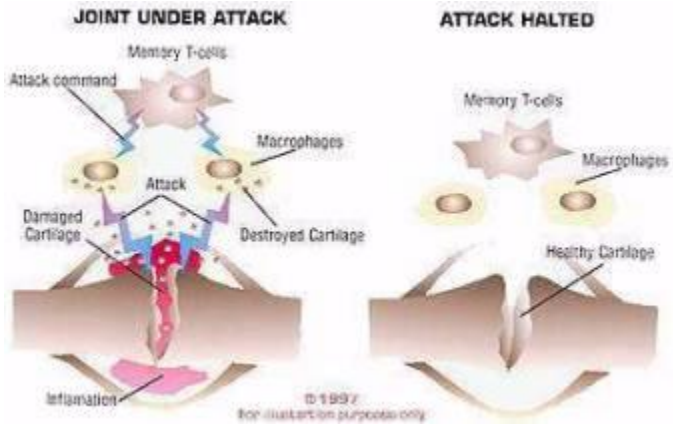
Osteo-Sport™ is a state-of-the-art, time-release joint replenishment formula that provides virtually immediate results that improve over time. Osteo-Sport™ combines a series of carefully selected and proportioned co-factors that provide dramatically superior joint mobility, lubrication, recuperation, and overall health to any other joint support available today.

The proprietary **Joint-Glide™ Mobility Complex** promotes more lubricated and well-cushioned joints, allowing them to function with significantly decreased pain and discomfort. The complex combines Cetylmyristoleate (CMO), Bromelain, Bioperine, and Hyaluronic Acid to form a matrix that allows for greater joint cushioning, flexibility, and mobility in all types of activities; whether it be running, contact sports, or simply for overall health.**Cetylmyristoleate (CMO)** was discovered in 1972 by Harry W. Diehl, Ph.D., a researcher at the National Institute of Health. It is a substance similar to fatty acids that has been shown to aid in joint lubrication and mobility, and has also been shown to have some marked anti-inflammatory properties.**Bromelain** is an enzyme derived from pineapples that works by blocking harmful metabolites such as leukotrienes and neutrophils that accelerate and worsen the inflammatory process. Bromelain has been successfully used to alleviate pain and inflammation resulting from sports injuries, trauma, arthritis, and other kinds of swelling. **Hyaluronic Acid** is naturally occurring substance found in many tissues of the body, such as skin and cartilage. Hyaluronic acid is used to treat pain and mobility issues in the joints, and is believed to increase the viscosity of joint fluid (synovial fluid); hence lubricating and cushioning the joint and producing an analgesic effect. It has also been suggested that hyaluronic acid has positive biochemical effects on cartilage cells. **Bioperine®** is a pure form of piperine that is derived from the black pepper that promotes nutrient absorption by interacting with the surface of the intestinal tract. The use of Bioperine greatly enhances the effectiveness of the other compounds in Osteo-Sport by slowing their absorption for more consistent, complete utilization.
The **CQC² Joint Regeneration Matrix™** of Osteo-Sport™ contains the blend of cutting-edge herbal components along with several different proven substances that augment joint health and longevity. The matrix utilizes**Cissus Quadrangularis**, a unique, versatile herb that has been used in Ayurvedic medicine for thousands of years. Native to the warmer climates of Ceylon and India, cissus is documented in Ayurvedic texts as a powerful analgesic that has the ability to inhibit stress-induced glucocorticoid activity. Cissus has been shown to accelerate healing in bone fractures, and taking cissus can also mitigate tendon, ligament, joint and cartilage damage; acting as an analgesic while at the same time inhibiting inflammation-related damage. The blend also utilizes **curcumin (turmeric)**; another Ayurvedic herb historically used as a remedy for joint pain and arthritis and has also been used to treat a variety of inflammation-based ailments. It is thought to work as a natural inhibitor of the cox-2 enzyme, and has been shown effective in animal models for neuropathic pain secondary to diabetes and other ailments. **Glucosamine Sulfate** is another important component of the blend. Glucosamine is commonly used for the treatment of osteoarthritis, and because it is a precursor for glycosaminoglycans. Glycosaminoglycans are important because they are a major active component of joint cartilage. By increasing glycosaminoglycans, users of supplemental glucosamine may help to rebuild cartilage and treat arthritis.

Inflammation



Chondroitin Sulfate is another beneficial substance found in Osteo-Sport™. Chondroitin has a number of positive characteristics including: acts as an anti-inflammatory; stimulations the synthesis of proteoglycans and hyaluronic acid (synergism w/ hyaluronic acid) to promote greater joint lubrication; and decreases the catabolic activity of chondrocytes, which helps minimize joint tissue degradation over time.



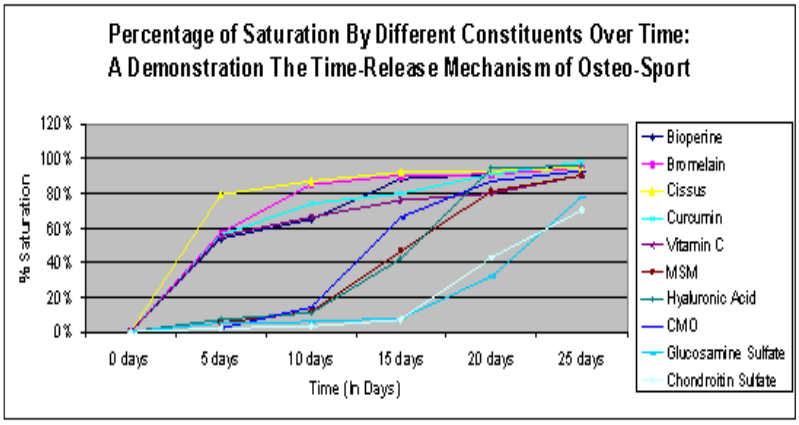
MSM (Methylsulfonylmethane) is also a contributing factor to the effectiveness of Osteo-Sport™. Individuals taking MSM have reported significantly reduced joint pain, increased mobility, and improved physical functioning by delivering sulfur to the body in a useable way. The sulfur found in MSM helps maintain the structure of connective tissue by forming cross-linkages through disulfide bonds, i.e., sulfur strengthens the tissues that make up the joint.

Ascorbic Acid (Vitamin C) is the final component of Osteo-Sport™. Vitamin C is an important compound in immune function and tissue repair. It is required for the synthesis of important neurotransmitters, amino acids, and the synthesis of connective tissues. Vitamin C also has strong antioxidant properties, enhances iron absorption, and is needed for the formation of cholesterol-based hormones.

Osteo-Sport™ is the ultimate product for joints because it addresses the problem from multiple angles. The unique blend of ingredients is unlike anything else on the supplement market today, and combines components that promote improved lubrication and mobility, speed healing and regeneration and support an environment conducive to overall joint health and longevity. plus in a sustained-release formulation. Osteo-Sport™ is a**TRUE** sustained-release formula that begins working immediately and continues to work better and better over time. The product contains three different release factor categories:

1. **Factor A** Rapid-Release (comprised of Cissus Quadrangularis, Curcumin, Bromelain, Vitamin C, and Bioperine)
2. **Factor B** Intermediate Release (CMO, Hyaluronic Acid, and MSM)
3. **Factor C** Extended Release (Glucosamine and Chondroitin Sulfate)

To get an even better understanding of why Osteo-Sport is so effective, we must explore the theory of Factor Interaction and how these three factors can produce a synergistic effect that increases over time, making Osteo-Sport something that can remedy short-term and chronic joint issues while helping to prevent new damage from occurring. The very design of Osteo-Sport is simple: It is a product that works right away, yet continues to work in an additive fashion that continues to be effective and even improve over long periods of time; therefore it is a staple product that can be taken indefinitely much like a multivitamin. The chart below demonstrates the flow of the time release:

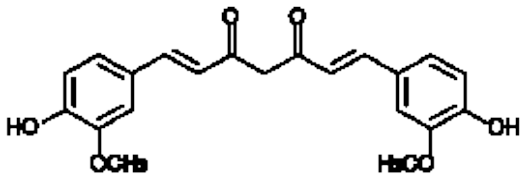


The effects of **Factor A** begin to manifest themselves within the first 3-10 days, generally reaching blood level saturation points after 10-15 days of usage. Users of Osteo-Sport will first notice less joint soreness during this time, which can be mostly attribute to Bromelain, Curcumin, and Cissus. Some increase in mobility and joint flexibility is also usually reported during this time period, as there will be some increased lubrication occurring during this period. Factor B begins to become more apparent around Day 15, reaching peak blood levels by Day 20. Users of the compound often report drastic reductions in joint pain by Day 15, and the vast majority of users report markedly increased mobility and joint flexibility during this time, as CMO and Hyaluronic Acid begin to manifest their effects more profoundly. By Day 25, the full scale effects of Factor C kick in, and usually by this time, users of Osteo-Sport report what one customer described as " a new body." People who take Osteo-Sport often remark that the reduction in pain and discomfort is so gradual, they usually don't even notice that it is gone, until they successfully complete some type of activity that was previously restricted by joint pain.

Let's review the compounds that work most quickly: Cissus, Curcumin, Bromelain, Vitamin C, and Bioperine. Cissus Quadrangularis works rapidly (within 3-5 days), limiting the inflammatory process and by minimizing the activity of harmful cytokines, macrophages, eosinophils, and neutrophils (substances that cause the breakdown of connective tissue) in the joints**.** This is important, because each of these substances have been implicated as the main factors behind arthritis and joint damage. Numerous published studies on cissus quadrangularis have demonstrated the ability of the herb to effectively suppress the harmful effects of these enzymes.

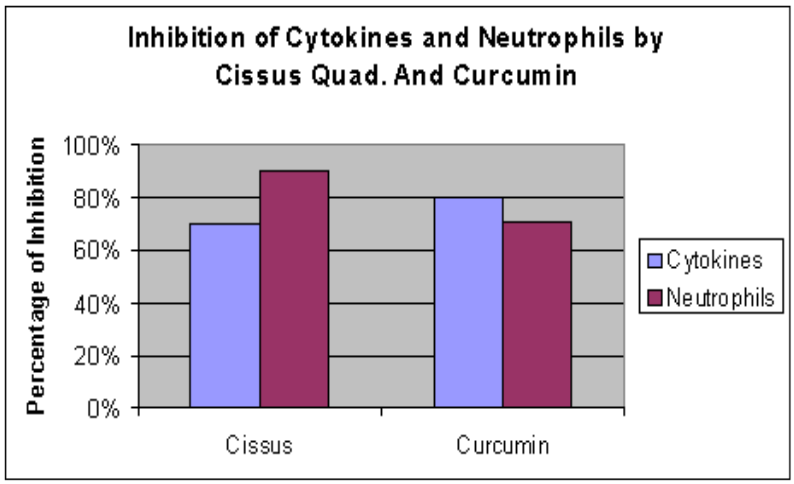
Curcumin also has the tendency to work very quickly (within 3-8 days), and limit neutrophils and cytokines as well, and also has some unique qualities that could allow the substance to be synergistic with cissus quadrangularis as far as maintaining healthy joints.

CURCUMIN



Both substances limit cytokines, but cissus seems to do better a slightly better job on limiting neutrophils than curcumin (at least according to some clinical studies) while curcumin has been shown to do a slightly better job in limiting cytokines than cissus. By combining cissus and curcumin, subjects taking both will realize better benefits concerning the alleviation of inflammatory processes than through the use of either product alone. Both entities also enable faster recovery from injury and trauma as cissus and curcumin both mobilize the building blocks of cartilage post-injury, and allow for the re-building of damaged tissue through the same mechanisms of action.

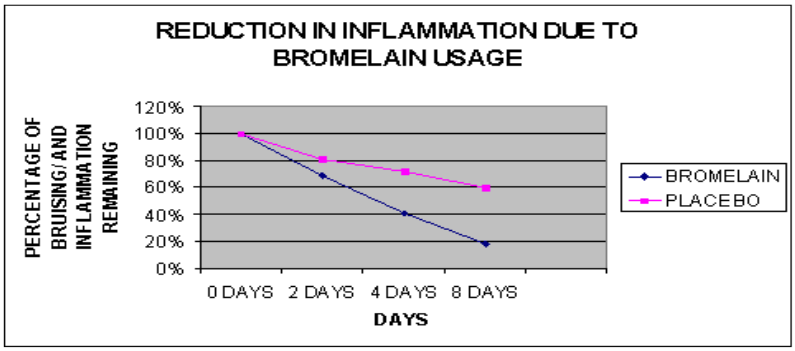
The Effect of Curcumin and Cissus on Cytokines and Neutrophils



Similarly, some recent studies with curcumin have shown that it is very effective for soft tissue repair and wound healing as well. Tissue repair and wound healing are complex processes that involve a series of structural changes in the tissue. These include inflammation, granulation, and remodeling of the tissue. Studies on the effects of curcumin on wound healing showed renewal of the epidermis and increased migration of various cells including myofibroblasts, fibroblasts, and macrophages in the wound bed. Several areas within the dermis showed extensive development of new blood vessels, and greater collagen deposition in curcumin-treated wounds.
Curcumin has also been shown to inhibit the secretion of different enzymes that can slow cartilage regeneration. Curcumin has a marked effect on slowing the expression/secretion of hyaluronidase, the main enzyme that breaks down hyaluronic acid in the skin and joints. This could also represent a potential synergistic effect between curcumin and hyaluronic acid.

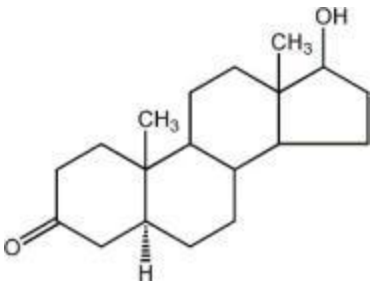
Bromelain also has some unique characteristics that allow it to be an effective anti-inflammatory and recovery agent. Bromelain is recognized as an effective treatment for pain and swelling caused by trauma such as sports injuries, surgery, and infections. Studies have demonstrated bromelain's ability to help the body recover from injury more quickly by preventing the accumulation of fibrin and potent inflammatory substances, such as leukotrienes, cytokines, and neutrophils. The German Expert Panel (Commission E) approved Bromelain for treatment of athletic injuries, recommending a dose of 80 to 120 milligrams two to three times daily.

BROMELAIN AND HEALING



Bromelain also has therapeutic effects in the treatment of inflammation and soft tissue injuries. A clinical trial on bromelain was conducted on boxers with bruises on the face and on the orbits, lips, ears, chest and arms. Bromelain was given to test subjects four times a day for 4 days or until all signs of bruising had disappeared, and a control group of 72 boxers were given a placebo. In 58 of the boxers taking bromelain, all signs of bruising cleared completely in four days, with the remaining 16 requiring 8-10 days for complete clearance. In the control group, only 10 had complete clearance within four days, with the remainder requiring seven to fourteen days for resolution.

Bromelain



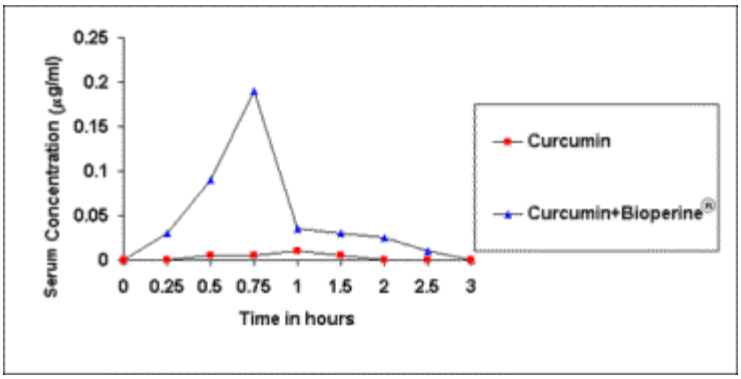
Several United States clinical studies also show evidence that taking 1,200 to 1,800 milligrams of bromelain each day can help relive painful inflammation in those that suffer with rheumatoid arthritis. Bromelain, along with cissus and curcumin, has also been shown to work almost right away, and can also increase the effectiveness of other supplements taken along with it.

Table 2. **Bromelain's Impact on Selected Mediators of Acute Inflammation**

Mediator	Action	Bromelain's Effect
Bradykinin	vascular leakage, pain	decrease
Thromboxane A_2	vasoconstriction, platelet aggregation	decrease
PGE_2	vasodilation	slight decrease
PGI_2	vasodilation	may increase
	inhibit platelet aggregation	may increase
IL-1	leukocyte adhesion,	increase
PGI_2 & PAF	synthesis	increase
	acute phase responses	induced
	fibroblast proliferation	increase
	collagenase synthesis	increase
	collagen formation	increase
TNF	leukocyte adhesion,	increase
PGI_2 & PAF	synthesis	increase
	acute phase responses	induced
	fibroblast proliferation	increase
	collagenase synthesis	increase
	collagen formation	increase

Bioperine® is also part of the Rapid Release Function of Factor A, mainly because it markedly increases the bioavailability of any substance taken along with it. The more bioavailiable a substance becomes, the faster it can exert its biological effects. A 10-20 mg daily dose of Bioperine® can increase the uptake of Osteo-Sport's components anywhere from 30-150% (depending on the specific ingredient affected), by allowing the stomach and small intestine to absorb a much greater proportions of the other active ingredients.

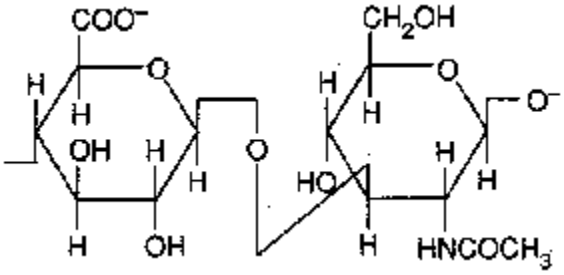
Increased Nutrient Uptake of Curcumin with Bioperine®



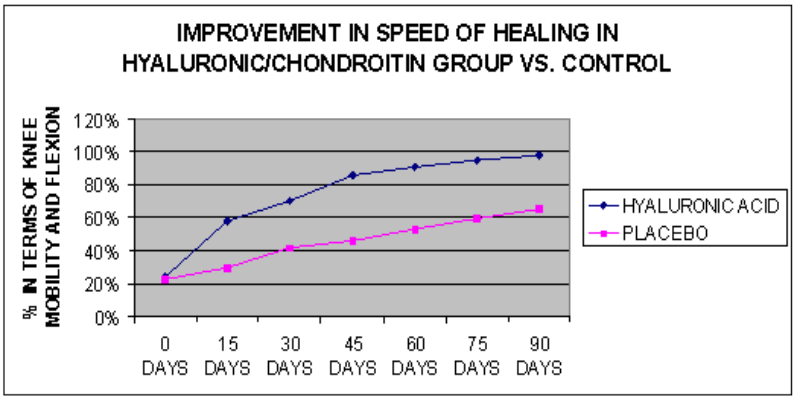
Vitamin C is important because it converts proline to hydroxyproline, which is the main substance needed for the formation of collagen. Collagen is the most abundant protein on your body, and is a very important structural element in connective tissue. Having the appropriate amount of vitamin C in your system ensures that users of Osteo-Sport™ will have the necessary amount of this important the building block for collagen production, allowing for the product to have maximum effectiveness in a time-efficient manner.

Factor B (Intermediate-Release Factor) contributes to the overall effectiveness of Osteo-Sport in a synergistic, timed manner that improves with continued use. Factor B is comprised of CMO, Hyaluronic Acid, and MSM, which generally take from 10-21 days to begin exerting their complementary effects.

HYALURONIC ACID



Hyaluronic acid is a unique compound, in that it cushions the joints, and promotes nutrient and waste circulation to and from existing cartilage. Hyaluronic acid is essential for the health of the synovial fluid which supports joints and lubricates tendons. Numerous small studies have shown excellent results from oral administration of hyaluronic acid:
1. In a human study, an oral mixture of sodium hyaluronate (10 mg) and chondroitin sulfate (100 mg) for three months accelerated healing from knee surgery in all 27 test subjects in comparison with 27 control subjects.

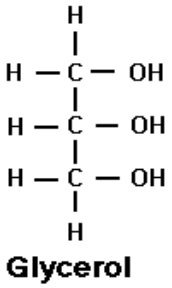


2. A daily oral dose of 40 mg hyaluronic acid in capsules was administered to 100 women for 45 days in a study conducted at Ohtsuma University in Tokyo. Skin texture was “remarkably” improved in 75%-81% of patients; eyesight was “remarkably” improved in 25; joint stiffness was "remarkably" improved in 48. The entire remainder of the study group was “better” in all result categories.

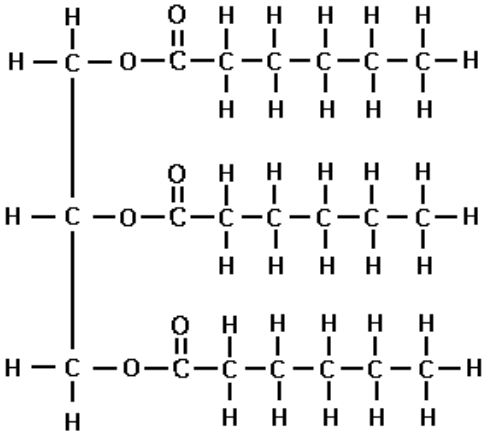
3. A similar study conducted on 28 patients taking 30 mg oral hyaluronic acid for 30 days found 93% improved their joint pain symptoms.
Hyaluronic acid also seems to be synergistic with curcumin, as dosing curcumin can actually de-activate the enzyme that breaks down hyaluronic acid, allowing for much greater levels of hyaluronic acid in the blood.

Chondrotin sulfate has also been shown to have some effect in boosting
hyaluronic acid production, therefore promoting even greater joint lubrication.
Another component of Factor B is cetylmyristoleate (CMO), an ester of a fatty acid that increases the lubrication, longevity, and resilience of cartilage and other tissues. Fatty acids are the individual components of oils in the same way that amino acids are the building blocks of proteins. CMO is a combination of cetyl alcohol, a long chain alcohol molecule, and myristoleic acid, a fatty acid. Cetylmyristoleate seems to function in three very different capacities. It lubricates not only the involved joints, but also lubricates the entire body, making muscles glide more smoothly over other muscles, bursas, and bones and at the same time softens these tissues, making them more pliable.

FATTY ACIDS



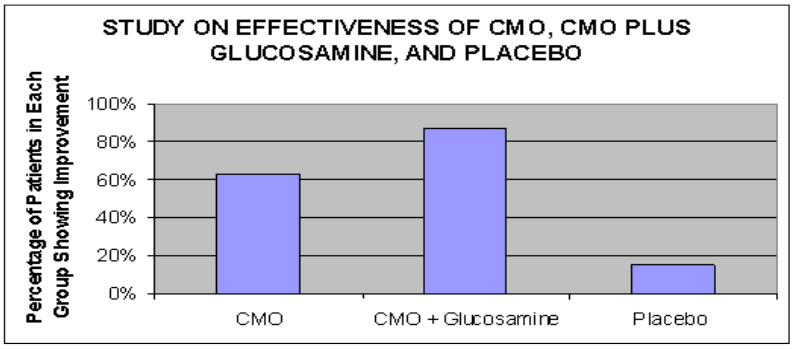
Glycerol



Triglyceride-Saturated

Secondly, it appears to function as an immune system modulator. This may be the reason it has been found to be effective in treating autoimmune diseases such as rheumatoid arthritis, systemic lupus erythematosis, and multiple sclerosis. Third, CMO also functions like a fatty acid in that it mediates inflammatory processes. CMO helps correct the imbalances created by chronic inflammation, and serves as a mediator for prostaglandin formation and metabolism by inhibiting the lipooxgenase pathway of leukotriene production from arachadonic acid. Prostaglandins and leukotrienes, if left unchecked, can cause a chronic inflammatory response that can result in permanent joint damage. CMO is usually recommended for at least a 15-21 day course to begin feeling the effects, which makes the compound an ideal component of the Factor B intermediate-release complex.

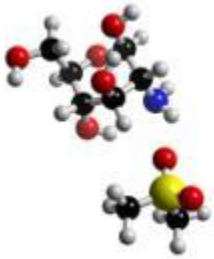
Several studies have taken place over the last few years regarding the effectiveness of CMO on increasing joint mobility, and decreasing joint pain:
Dr Len Sands conducted the first human study on the effectiveness of CMO in 1995. There were 48 arthritis patients in this study, and all but two patients showed significant improvement in joint mobility (80% or better) and reduction of pain (70% or better). In 1997, Siemandi conducted a double blind study at the Joint European Hospital Studies Program. 431 patients were involved in the study, 106 who received cetyl myristoleate, 99 who received cetyl myristoleate, and glucosamine, sea cucumber, and hydrolyzed cartilage and 226 who received a placebo. Results were 63% improvement for the cetyl myristoleate group, 87% for the cetyl myristoleate plus glucosamine group and 15% for the placebo group.



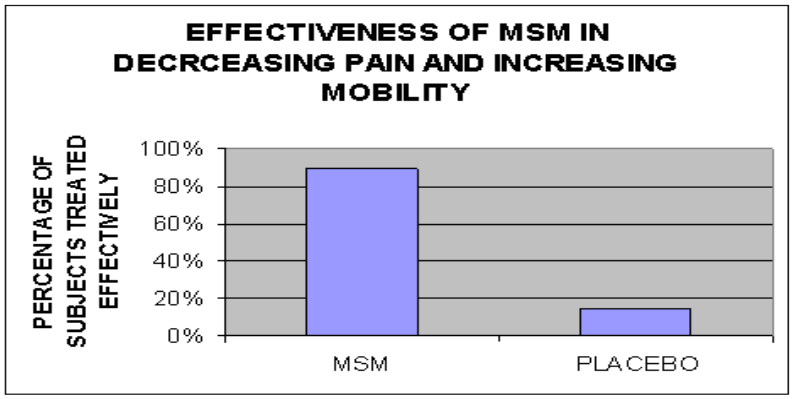
In August of 2002, a double blind study was published in the Journal or Rheumatology that consisted of sixty-four patients with chronic knee arthritis. Half of the patients received a cetylmyristoleate complex and half a placebo, and evaluations were based on physician assessment, knee range of motion with goniometry, and the Lequesne Algofunctional Index (LAI). The CMO group saw significant improvement while the placebo group saw little to none, and after the study, the doctors conclude that CMO "may be an alternative to the use of non-steroidal anti-inflammatory drugs for the treatment of OA".

The final component of the Factor B complex, MSM (Methylsulfonylmethane), is a natural source of sulfur. Some researchers have suggested that MSM has anti-inflammatory effects, and it has been hypothesized that MSM supports healthy connective tissues like tendons, ligaments, and muscle. Several human clinical studies on the usefulness of MSM have been published in the last several years, and these pilot studies of MSM have suggested some benefits, particularly for treatment of joint pain and limited mobility.

MSM (TOP) AND GLUCOSAMINE (BOTTOM)



A double-blind, placebo-controlled study found that 1500 mg per day MSM (solo, or in combination with glucosamine sulfate) helped relieve symptoms of knee osteoarthritis and loss of mobility. Another study by Kim looked at the use of MSM for treatment of patients with osteoarthritis of the knee. Twenty-five patients took MSM and 25 patients took a placebo for 12 weeks. Patients who took MSM had significantly reduced pain and improved physical functioning, without major adverse events. MSM definitely shows promise as a potentially useful weapon in the battle against joint pain, as it usually begins working within a 12-21 day time frame, making it a perfect choice for Factor B.

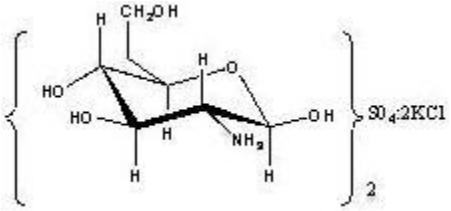


To summarize, the Intermediate-Release Factor B of Osteo-Sport™ allows for a secondary synergistic release of inflammation-reducing and joint-lubricating cofactors, giving added relief from inflammation and the

underlying damage from old injuries. The combination of Factors A and B are quite potent in reducing and/or eliminating joint pain, usually within 21 days.
The third factor, Factor C (Slow Saturation; 21-40 days), further contributes to the overall effectiveness of Osteo-Sport. Factor C contains glucosamine sulfate and chondroitin sulfate, two time-honored compounds that have been proven to alleviate joint pain and to reduce the discomfort associated with old injuries.

Glucosamine Sulfate is a natural compound that is found in healthy cartilage, and is a constituent of glycoaminoglycans. Glycoaminoglycans are important because they are a major structural component of cartilage and synovial fluid, and high glycoaminoglycan levels are associated with a healthy cartilaginous matrix.

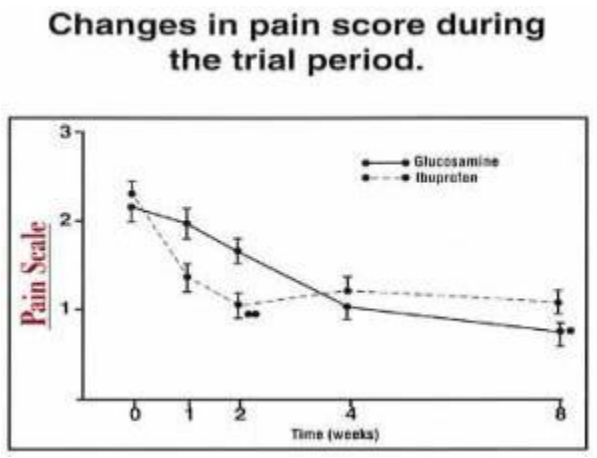
GLUCOSAMINE SULFATE



Past studies show that glucosamine sulfate has been able to mimic the effects of non-steroidal anti-inflammatory drugs (NSAIDS) on joint pain. Other research indicates that glucosamine might also slow cartilage damage and degradation that naturally occurs over time. Yet more evidence exists from a controlled clinical trial that supports the use of glucosamine sulfate in the treatment of osteoarthritis, particularly of the knee.

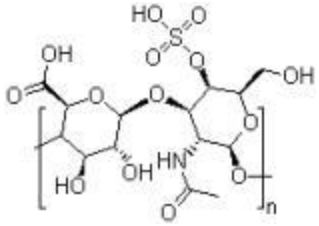
It has been further hypothesized that the addition of sulfate adds to improve the quality of synovial fluid by strengthening cartilage and aiding glycoaminoglycan synthesis. If this hypothesis is confirmed, it would mean that only the glucosamine sulfate form is proven effective as opposed to cheaper, non-sulfated glucosamine forms that are commonly marketed in inferior products.

Past studies show that Glucosamine Sulfate has been able to mimic the effects of non-steroidal anti-inflammatory drugs (NSAIDS) on joint pain.



Chondroitin Sulfate is the final compound in the Factor C matrix and is often combined with glucosamine sulfate. The positive benefits of chondroitin include anti-inflammatory activity; the stimulation of the synthesis of proteoglycans and hyaluronic acid; the decrease in catabolic activity of chondrocytes; and the inhibition of the synthesis of proteolytic enzymes, nitric oxide and other substances that contribute to damage cartilage matrix and cause death of articular chondrocytes.

CHONDROITIN SULFATE



Recent data from studies on chondroitin have shed new light on the compound, revealing the biochemical reasons behind its effectiveness on damaged joint tissues. It has been found that chondroitin inhibits cytokines and neutrophils in joint tissue. This is significant because these substances are known to cause damage and long-term deterioration to the joints and other connective tissue. Another long-term contributor to joint damage is the local deficiency of nutrients within the joint tissue. There is evidence that chondroitin may help replenish many of these lost nutrients within the joints, balancing the local deficiency and restoring joint health; although further research is needed to confirm this potential benefit.

In summary, Osteo-Sport™ is a state-of-the-art, time-release joint replenishment formula that provides virtually immediate results that improve over time. As demonstrated above, Osteo-Sport™ provides unique and powerful benefits unmatched by any other product available today. If you've been plagued by any joint, tendon discomfort, you owe it to yourself to give Osteo-Sport™ a try today.

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