

Serratiopeptidase

The Miracle Enzyme



by Mairi R. Ross, B.A., Health Writer
with Mark Cho, Ph.D.

Inflammation is nature's double-edged sword. Inflammation, characterized by pain and swelling, is triggered as a healing response in the body when it is injured or attacked by negative bacteria and viruses. Once the body recovers, the inflammation goes away. However, for tens of millions of Americans, with disorders such as arthritis, sinusitis, bronchitis, fibrocystic breast disease, and carpal tunnel syndrome, the inflammation does *not* go away. Over 50 million persons in the United States are affected by arthritis, defined as a joint disorder featuring inflammation. More than half of those with arthritis are under 65 years of age. Inflammation of the sinuses, known as sinusitis, is one of the most

common afflictions in the United States. Another form of inflammation is carpal tunnel syndrome which occurs when tendons in the wrist become inflamed after being aggravated and is experienced by millions of Americans. Obviously, the dark side of inflammation, inflammation that doesn't heal, that doesn't go away, is one of the most prevalent health problems today.

Dangers of Conventional Treatment for Inflammation

The conventional treatment for inflammation disorders also has a dark side – serious side effects. The two most common treatments for inflammation are steroids such as Prednisone and non-steroidal anti-inflammatory drugs, called NSAIDs, such as over-the-counter aspirin, ibuprofen (Advil, Motrin), ketoprofen (Orudis), naproxen sodium (Aleve), and over eleven prescription NSAIDs. According to the Mayo Clinic (www.mayoclinic.com), side effects of steroid treatment include weight gain due to disrupted metabolism, increased blood sugar, loss of bone, osteoporosis and joint damage, cataracts, thinning of skin, slow wound healing, high blood pressure, lowered immune system, emotional disorders, fluid retention, and suppression of normal adrenal function.

Many people know about the dangers of steroids and take NSAIDs to avoid the serious side effects associated with them. However, research studies published in the most prestigious medical journals point to the very serious side effects of NSAIDs as well. A statement from the July 1998 issue of *The American Journal of Medicine* states that "...approximately 107,000 patients are hospitalized annually for NSAID-related gastrointestinal complications and at least 16,500 NSAID-related deaths occur each year among arthritis patients alone."¹ They went on to say that if the NSAID-related deaths for everyone taking these medications were calculated the figures would be overwhelming. *The New England Journal of Medicine* (June 1999) estimated that the number of deaths due to NSAIDs is similar to the number of deaths due to AIDS in the United States. Unfortunately, people have no warning that these drugs are causing them ulcers and internal bleeding until it is too late.

In addition to the side effect of internal bleeding, studies in the *Archives of Internal Medicine* (March 27, 2000) indicate that taking NSAIDs can double the risk of congestive heart failure.

Even more troubling is the study that indicates NSAIDs such as Naproxen and ibuprofen had toxic effects on cartilage metabolism and inhibited matrix synthesis.² The medications people were taking for arthritis were actually contributing to the destruction of their joints! The problem with NSAIDs is not a small problem. There are approximately 33 million people taking NSAIDs in the United States today.

Drug companies introduced the Cox-2 inhibitors to replace NSAIDs and avoid their life-threatening side effects. At first glance, they looked like the answer to NSAID complications. However celecoxib (Celebrex) has its own list of side effects for osteoarthritis sufferers including headaches, changes in bowel habits, abdominal discomfort, dizziness,³ plus possible dangers to people with heart disorders, and the possibility of serious drug interactions.

Obviously, a safe, alternative treatment for people suffering from arthritis and other inflammatory disorders is needed.

Alternative Treatment for Inflammation - A Miracle Enzyme

Fortunately, there is a natural alternative to steroids and NSAIDs that is effective without serious side effects. Serratiopeptidase or serrapeptase is a protein (proteolytic) enzyme isolated from the non-pathogenic enterobacteria *Serratia* E15 found in silkworms. It has been used successfully for almost 40 years in Japan and Europe for pain and inflammation due to arthritis, trauma, surgery, sinusitis, bronchitis, carpal tunnel and painful swelling of the breasts. There is some preliminary indication that it may be useful for atherosclerosis. This enzyme is absorbed through the intestines and transported directly into the bloodstream.⁴ However, if the enzyme is consumed in unprotected capsules or tablets it is destroyed by the acid in the stomach before it gets to the small intestine. Therefore, to be effective, serratiopeptidase *must* be enterically coated.

History of Enzymes as Anti-Inflammatory Agents

Enzymes were first used as an anti-inflammatory in modern medicine in the 1950s when it was discovered in the United States that intravenous trypsin could relieve inflammation due to rheumatoid arthritis, ulcerative colitis, and atypical viral pneumonia as well as post-surgical swelling and bruises caused by sports injuries.⁵ Later, intramuscular injections were used. In 1957, the Japanese began using serratiopeptidase for inflammation. Then, in the 1960s, researchers in the United States successfully used enterically coated protein enzymes such as trypsin and chymotrypsin⁶ or bromelain⁷ to administer enzymes orally. In Japan, researchers continued to focus on serratiopeptidase for its anti-inflammatory activity.⁸ In the 1980s and early 1990s, Japanese and European research compared several of the protein enzymes and their study indicated that serratiopeptidase was the most effective of all of them in reducing the inflammation response.^{9 10} Serratiopeptidase became widely used in Japan and Europe as the anti-inflammatory and pain treatment of choice.

Serratiopeptidase for Inflammation

Soon serratiopeptidase became a standard treatment in Japan, Germany and other European countries for the treatment of post-operative inflammation and traumatic swelling.¹¹ It not only provided relief from pain and reduced swelling, but by the process of reducing the amount of fluid in the tissues, thinning the fluid, and helping the fluid drain out of the affected area, it helped speed tissue repair. In addition, its enzyme activity dissolved dead tissue surrounding the injured area so that healing was accelerated.

It also was used in the successful treatment of fibrocystic breast disease to help reduce swelling and pain with eighty-five percent of the patients receiving the enzyme reporting moderate to marked improvement with no adverse reactions.¹²

Its obvious success in reducing inflammation and pain made it a candidate for treatment of other types of inflammatory disorders including rheumatoid and osteoarthritis,¹³ as well as sprains and torn ligaments.

Serratiopeptidase for Sinusitis and Bronchitis

Research and clinical use of serratiopeptidase for sinusitis and bronchitis also proved successful. In both conditions, there is inflammation and swelling of the lining of the airways that prevent drainage of mucus. The airways then become even more obstructed. The mucus in these areas becomes thick and packed and thus is not easy to expel. This thick mucus pack also becomes a breeding ground for bacterial infections and more inflammation. Stuffy nasal passages and congested bronchial areas are often treated with antihistamines which dry up the mucus even more, making it even more difficult for the body to break up and expel. Antibiotics are also frequently prescribed for these conditions, often with little success. The thick mucus remains intact after antibiotic therapy and provides a breeding ground for more bacteria, and the patient begins an endless cycle of inflammation and antibiotics. Some of the drugs used to treat these problems deplete mucus, while serratiopeptidase alters the elasticity of mucus without depleting it.

Serratiopeptidase actually reduces the thickness and viscosity of the mucus and improves the elimination of it through bronchopulmonary secretions.¹⁴ Patients treated with serratiopeptidase for laryngitis and sinusitis experienced a significant reduction in severity of pain, rapid improvement of symptoms after 3-4 days, as well as reduction in nasal stuffiness, infected secretions, and fever.¹⁵

Serratiopeptidase, Infection and Atherosclerosis

Other studies have shown that this enzyme can actually team up with antibiotics and deliver increased concentrations of antibiotics to the site of the infection. Bacteria can go through a process of producing biofilm, which results in resistance to antibiotics. A study by a team of Italian researchers suggests that proteolytic enzymes such as serratiopeptidase could significantly enhance the effectiveness of antibiotics against biofilm and can inhibit biofilm formation. Serratiopeptidase has been shown to enhance the activity of several antibiotics including ampicillin, cefaclor, cephalixin, minocycline and cefotiam.¹⁶

Another promising area is the use of serratiopeptidase to break down atherosclerotic plaque. Hans A. Nieper, M.C. an internist from Hannover, Germany, studied the effects of serratiopeptidase on plaque accumulation in the arteries. Because the enzyme digests non-living tissue and leaves live tissue alone, it may be effective in removing the deposits of fatty substances, cholesterol, cellular waste products, calcium and fibrin on the inside of the arteries. The fibrinolytic (clot removal) activity of serratiopeptidase may also be able to help with thickened blood, increased risk of stroke, and phlebitis/thrombophlebitis.

Serratiopeptidase and Carpal Tunnel Syndrome

Carpal tunnel syndrome is an inflammatory disorder of the hand and wrist that is characterized by intense, long-lasting pain, inflammation and disability. The U.S. Dept. of Labor has stated that of all the occupational hazards, more days are needed to recover from this disorder than any other. Treatment has been by NSAIDs and surgery. In a promising small trial, serratiopeptidase improved the inflammation and pain of carpal tunnel syndrome. Sixty five percent of the patients showed clinical improvement. No significant side effect was observed.¹⁷

Serratiopeptidase Reduces Pain

Pain is one of the most troubling aspects of inflammation. Acute pain produced by cellular chemical reactions is part of the body's natural inflammatory healing response. Chronic pain, though, can be detrimental to healing. Swelling caused by inflammation can cause tissue to press against sensitive nerves and cause pain. Serratiopeptidase's ability to reduce and drain fluid from the inflamed area can reduce swelling and pain. However, serratiopeptidase also reduces pain through its ability to block the release of pain-inducing amines from inflamed tissues.¹⁸ Unlike NSAID pain medications, serratiopeptidase does not cause dangerous internal bleeding nor is it addictive like many pain medications.

How Does Serratiopeptidase Work?

When doctors first started using protein enzymes to reduce inflammation and pain they didn't know for sure how they worked. Now it is believed that serratiopeptidase acts upon inflammation by thinning the fluids in the body that collect around injured areas and increases fluid drainage. This also enhances tissue repair and reduces pain. Pain is also reduced by the protein enzyme's ability to block amines. Serratiopeptidase also has the unique ability to dissolve the dead and damaged tissue that is a by-product of the healing response without harming living tissue. It is used in this way by the silkworm to digest a hole in the dead tissue of the cocoon so the silkworm can emerge. Serratiopeptidase also works by modifying cell-surface adhesion molecules, which guide inflammatory cells to their targets. These adhesion molecules are known to play an important role in the development of arthritis and other autoimmune diseases.¹⁹

What Users of Serratiopeptidase Say

"I took other enzymes but I had to take 6-10 capsules a day... I took 3 serratiopeptidase a day and it worked right away. I started walking to work and back, about a mile each way with a backpack – and no pain! And it worked immediately! It was incredible. No pain."

Susan H., Glendale, CA

"When I took the serratiopeptidase, I walked all weekend with no pain. I could walk as long as I wanted. There was no pain!"

Lorraine C., Prescott Valley, AZ

"After taking three tablets of serratiopeptidase for two days I did something I hadn't done in 9 years – I ran across the room and did a broad jump! It is so wonderful to be free of pain."

Fred R., Long Beach, NY

Practical Points

The recommended dosage for serratiopeptidase is 10 mg to 30 mg a day. For arthritis, sinusitis, fibrocystic breast swelling, bronchitis, carpal tunnel syndrome, and cardiovascular problems, 20 mg a day. For pain, start with 10 mg daily and work up to 20 mg daily if needed. For injury, trauma or post surgery recovery, take 30 mg daily for two days, then take 20 mg daily until swelling and pain subsides. Use only enteric coated tablets or capsules. Take serratiopeptidase on an empty stomach, at least one half hour before eating or two hours after eating.

Serratiopeptidase has a remarkable record of safety from decades of use by millions of users in Japan and Europe, as well as documented use in over 40 clinical studies. There is some evidence of gastrointestinal irritation in elderly patients with use of the product over a long period of time, though this is rare. Because serratiopeptidase thins mucus secretions, there is the slight possibility of increased risk of infection of the lung. This has been reported in letters to medical journals, but the incidence is very rare. It also acts as a blood thinning and clot-dissolving agent so patients on blood thinning medications should consult their doctor before using.

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