
Shorten Recovery Time With Proteolytic Enzymes



used in six studies, bromelain in four, papain in two, streptokinase/streptodornase in one, and an unspecified mix of proteolytic enzymes in another.

“Favorable results were obtained in every study, with all reporting significant improvements in reduction of pain, swelling, edema, recovery time, period of disability, time of return to normal activities and leg-raise stiffness (for low back pain). The amount of time needed to resolve injuries was halved in most subjects with supplements.”

L. Bucci, J. Stiles, Sports Injuries and Proteolytic Enzymes, Today's Chiropractic, Mar/Apr 1987, 31-34

“Further research has shown that proteolytic enzyme use will: 1) speed up the inflammatory process and bring it to a conclusion; 2) help clean up the waste products in the area; 3) decrease pain and swelling; 4) dissolve any small blood clots floating nearby; 5) improve the supply of nutrients to the tissue, improving circulation; and 6) aid in easing blood flow.”

A. Cichoke, Enzymes and Enzyme Therapy, Keats Publishing, p. 182

Highlights Of Clinical Studies Using Proteolytic Enzymes

The following are highlights from just a few of the hundreds of studies and articles available on proteolytic enzymes.

This study involved 59 patients with blunt injuries to the musculoskeletal system. Treatment with bromelain resulted in a clear reduction in all four parameters tested; swelling, pain at rest and during movement, and tenderness.

Masson M. Bromelain in blunt injuries of the locomotor system. A study of observed applications in general practice. Fortschr Med 1995; 113:303-306

A double-blind placebo-controlled study of 44 individuals with sports-related ankle injuries found that treatment with proteolytic enzymes resulted in faster healing and reduced the time away from training by about 50%.

Baumuller M. The application of hydrolytic enzymes in blunt wounds to the soft tissue and distortion of the ankle joint: a double blind clinic al trial (Translated from German). Allgemeinmedizin. 1990;19:178-



Proteolytic enzymes are substances produced in animals and plants that are used to break down proteins. They are involved in digestion, cell turnover, blood clotting, cell division, immune functions, and inflammation reduction.

Unfortunately, if inflammation is severe enough, these naturally occurring enzymes are either inactivated or cannot get to their sites of action. Proteases can be supplied as nutritional supplements to correct local deficiencies.

Proteolytic enzymes have been documented in hundreds of medical literature reports to have effectiveness for the following conditions: bruising, sprains, strains, fractures, low back pain, dental surgery, digestive difficulties, arthritis, ...

L. Bucci, Proteolytic Enzymes and Acute Injuries, The Nutritional Supplement Advisor; Chiropractic Products; June 1988

In the article “Sports Injuries and Proteolytic Enzymes”, the authors summarized 14 studies on proteolytic enzymes. Over 1500 subjects were studied. The type of proteolytic enzymes used in the studies varied. Trypsin/ chymotrypsin tablets were

“..treatment with proteolytic enzymes resulted in faster healing and reduced the time away from training by about 50%.”

Injection of trypsin (a proteolytic enzyme) in the buttocks immediately after injury allowed black eyes and bruises in boxers to subside in one to three days, rather than the usual 10 to 14 days.

A. L. Lichtman, Traumatic Injury in Athletes, International Rec. Medicin e 170:322-325 (1957).

After oral application of bromelain a significant reduction of swelling was observed in traumatically induced hind-leg edema in rats.

Uhlig G, Seifert J. The effect of proteolytic enzymes (traumanase) on posttraumatic edema. Fortschr Med 198 1;99:554-556.

A double-blind placebo-controlled study of 44 individuals with sports-related ankle injuries found that treatment with proteolytic enzymes resulted in faster healing and reduced the time away from training by about 50%.

Baumuller M., The application of hydrolytic enzymes in blunt wounds to the soft tissue and distortion of the ankle joint: a double blind clinic al trial (Translated from German). Allgemeinmedizin. 1990;19:178-182.

A double-blind placebo-controlled trial of 71 individuals with finger fractures found that treatment with proteolytic enzymes significantly improved recovery.

Shaw PC. The use of a trypsin-chymotrypsin formulation in fractures of the hand. Br J Clin Pract. 1969;23:25-26.

Since orally administered enzymes have very few undesirable side effects, this treatment is suitable for all patients with sciatica due to intervertebral disc herniation. The clinical benefit is presumably due to decrease of inflammatory edema in the nerve root and, in suitable cases, clinical results have been spectacularly good.”

Treatment of Sciatica Due to Intervertebral Disc Herniation, Rheuma- tology and Physical Medicine, Vol. Xi, No. 1, 1971

“The results indicate that enzyme therapy minimizes the edema so frequently seen following hand surgery.” In the group treated with enzymes, 21 of 25 (84%) patients were considered symptom free on the 7th postoperative day. In the placebo treated group only 4 of 29 (14%) were symptom free. This was a randomized, double blind study.

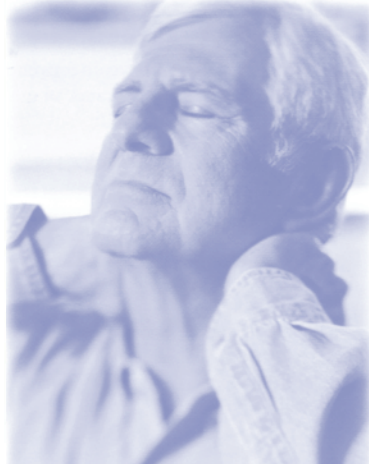
Therapeutic Value of Oral Proteolytic Enzymes Following Hand Surgery, Archives of Surgery, January, 1969.

Supplementation of bromelain prior to surgery reduced the average number of days for complete reduction of pain from 3.5 to 1.5, and disappearance of inflammation from 6.9 to 2.0 days, as compared with controls.

Tassman GC, Zafi-an JN, Zayon GM. Evaluation of a plant proteolytic enzyme for the control of inflammation and pain. J Dent Med 1964; 19:73-77.

A significant reduction of pain and swelling was observed in 81% of oral surgery patients after bromelain administration.

A Double Blind Crossover Study of a Plant Proteolytic Enzyme in Oral Surgery, Journal of Dental Medicine, 1965



This double-blind study investigated the use of enzymes in ankle joint injuries. The enzyme group experienced faster reduction of swelling, faster return to joint mobility, and decreased pain during resting or movement as compared to the placebo group. The time during which patients were unable to work or train was significantly shorter (reduced by some 50 %) with enzyme therapy.

Marcel Baumuller, “Therapy of Ankle joint Distortions with Hydrolytic Enzymes; Results of Double-Blind Clinical Trials,” Allgem-einmedizin 19:178-182 (1990).

An eight-week, double-blind study of 424 patients. Proteolytic enzymes proved particularly effective in alleviating pain, improving mobility, and reducing soft tissue swelling and muscle stiffness.

Klaus Uffelmann, “Enzyme treatment of soft tissue rheumatism,” from lecture, First International Conference on Systemic Enzyme Therapy. Univ. of Klagenfurt, Klagenfurt, Austria. September 12, 1990.

This study found that bromelain has been found to dramatically reduce postoperative swelling in controlled human research.

Seltzer AP. Minimizing post-operative edema and ecchymoses by the use of oral enzyme preparation (bromelain) EENT Monthly 1962;41:813-817.

Bromelain was the most potent of nine anti-inflammatory substances tested on experimentally-induced edemas in rats.

Uhlig G, Seifert J. The effect of proteolytic enzymes (traumanase) on posttraumatic edema. Fortschr Med 198 1;99:554-556.

A sixteen patient double-blind, placebo-controlled study of oral surgery patients showed bromelain concentrate significantly reduced the degree and duration of both swelling and pain.

“A Double-Blind Crossover Study of a Plant Proteolytic Enzyme in Oral Surgery”, Tassman, Gustav C., D.D.S., et al, Journal of Dental Medicine, April, 1956;20(2):51-53. (Address: Gustav C. Tassman, D.D.S., 715 Medical Arts Building, 15th and Walnut Streets, Philadelphia, PA 19102 U.S.A.)

This double blind study of patients sustaining sports injuries found considerably less bruising, reduced swelling, a quicker return to function and fitness to resume play in the proteolytic enzyme treated group.

The Use of Proteolytic Enzymes in Sporting Injuries, S.A. Medical Journa l, Feb., 1971

A preparation containing trypsin and chymotrypsin was tested on professional football players. “Two separately conducted double blind trials have confirmed the value of proteolytic enzyme therapy in resolving inflammation and associated edema and increasing recovery rates. The overall reduction in recovery time is 1. 3 days for hematoma and 2.4 days for sprains - an approximate 27% decrease in recovery time.”

The British Journal of Clinical Practice, September, 1970

3 Keys To Effective Supplementation

1. Start supplementation as soon as possible after trauma
2. Enteric coated tablets taken on empty stomach 3-4 times daily
3. Multiple proteases in purest forms preferred

L. Bucci, Proteolytic Enzymes and Acute Injuries, The Nutritional Supplement Advisor; Chiropractic Products; June 1988