



PRODUCT FACT SHEET

**PRO-ENZ™**

Formulated for extended nutritional support of inflammation management. The combination of bromelain (plant based proteolytic enzymes) and other key ingredients make it ideal for long term maintenance. Pro-Enz is recommended for follow up after the acute phase of injury is addressed, as support for patients with physically demanding lifestyles (heavy labor, athletes) as well as those subject to pro-inflammatory lifestyle factors (poor diet, stress, etc.)

#### KEY FEATURES

- Formulated to address minor pain - especially for returning to health from muscle tears, trauma and for minor joint complaints.
- Utilizes several ingredients that address the excessive function and over-expression of cyclooxygenases (COX) and lipoxygenases (LOX) and help return these enzymes to normal levels (responsible for nagging, continuing minor aches and pains).
- Curcumin, ginger extract and ursolic acid discourage the excesses from overactive enzymes by two independent mechanisms; (1) at the level of enzyme biosynthesis (2) at the level of enzymatic function.
- Contains a lemon bioflavonoid complex for long-lasting antioxidant support.
- Provides the active form of the enzyme bromelain; a well-characterized enzyme to help gently modulate central nervous system activity (1). Bromelain also helps reduce excessive fibrin deposition at injury sites and helps return hormone levels to a healthy, anti-inflammatory state and inhibits unnecessary platelet activation.
- Excellent follow-up product for resolution of tissue damage after prescribing Zymain® or Ultra Cal-M® to relieve acute symptoms.

**ANABOLIC  
LABORATORIES**

Pharmaceutical Made Nutritional Products Since 1924

PRO-ENZ™

ITEM #: 1360-0060-01  
ITEM #: 1360-0120-01

#### DESCRIPTION

A nutritional supplement combining a variety of herbal extracts for the maintenance phase of recovery, indicated for patients recovering from trauma, such as superficial and deep muscle bruises, blunt trauma, tendon/ligament complaints, mechanical-accidental trauma and strenuous work-outs by weekend athletes.

#### HOW SUPPLIED

Tan and white speckled tablets; 60 or 120 tablets per bottle. Suitable for vegetarians.

#### DIRECTIONS

For long-term use, take 2 or more tablets per day or as directed by your health care professional.

#### CONTRAINDICATIONS

Persons hypersensitive or allergic to pineapple, turmeric, ginger, boswellia, citrus products or rosemary or the byproducts or extracts of these should not take Pro-Enz.

Supplement Facts	
Serving Size 1 Tablet	Servings Per Container 60
Amount Per Serving	% Daily Value
Turmeric Extract ( <i>Curcuma longa</i> ) with potent curcuminoids	200 mg *
Ginger ( <i>Zingiber officinale</i> with naturally occurring gingerols)	100 mg *
Boswellia Extract ( <i>Boswellia serrata</i> ) high in boswellic acid	100 mg *
Rosemary Extract ( <i>Rosmarinus officinalis</i> ) with natural ursolic acid	100 mg *
Lemon Bioflavonoid Complex	100 mg *
Bromelain (Proteolytic Enzyme)	50 mg *

\* Daily Value not established.





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# BACKGROUND

**Inflammation** is a major cause of pain for many people<sup>2</sup>. Though progress can often be made using physical therapy and adjustments, diet can play a key role aiding the patient to quickly return to a healthy anti-inflammatory state. There are several different mechanisms by which various nutritional ingredients function to help control pain and speed the return to normalcy.

**Prostaglandins**, especially the E2 prostaglandins, are the hormone-like substances (rather like cytokines) responsible for local inflammation and systemic fever. The E2 family of signals are formed from arachidonic acid - the omega-6 fatty acids common to the modern, fast-food, western diet - which are immediately liberated from the cell walls of damaged tissues by the destructive forces of trauma. Trauma may either be mechanical, from the blunt force of impact or puncture, or from the twist and pulls of overexertion and overextension, all leading to damaged tissues. The nearly instantaneous formation of prostaglandins is catalyzed by enzymes called cyclooxygenases (COX) working on arachidonic acid from ruptured cell walls. Curcumin (the active ingredient from turmeric), ginger extract, ursolic acid (from rosemary) and boswellia extracts all discourage the biosyntheses of COX enzymes at the level of transcription<sup>3</sup>. Lowering the concentrations of cyclo-oxygenases depresses the tissue concentrations of inflammatory prostaglandins and greatly

aids the patient's return to healthy levels of these hormones. Curcumin, especially, has been shown to be a useful inhibitor of the COX4 and LOX5 enzymes and also functions to inhibit CNS stimulated, generalized pain<sup>6</sup>.

**Excessive tissue oxidation** almost always occurs at sites of tissue trauma and is exacerbated by the retardation of blood circulation within inflamed tissues. With retarded circulation greatly slowing the recovery process, a self-reinforcing cycle of inflammation-caused pain often arises. We have included the newly discovered ursolic acid which has been shown quite potent at encouraging a return to tissue normalcy from an inflamed, unhealthy state<sup>7</sup>. Ursolic acid and the classic lemon bioflavonoid complex - containing powerful antioxidants - help mitigate self, reinforced inflammation and help return the surrounding tissues to health.

**Bromelain** is an extract derived from pineapples. It contains an ensemble of closely related, vegetable proteases (protein cleaving catalysts) which exhibit gentle anti-edematous, antiinflammatory, antithrombotic, and some fibrinolytic-like activities. Having very few side effects, bromelain has been used clinically for many decades to aid recovery. The four most important bromelain enzymes are all "cysteine-active site" enzymes, and these all require antioxidants such as vitamin C or bioflavonoids, to maintain maximal activities.

## REFERENCES

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3. Aggarwal BB and Shishodia S (2004). Suppression of the NF-kB activation pathway by spice-derived phytochemicals: reasoning for seasoning. Ann. NY Acad. Sci. 1030: 434-441.
4. Cho JW et al. (2005). Curcumin inhibits the expression of COX-2 in UVB-irradiated human keratinocytes (HaCaT) by inhibiting activation of AP-1. Exp. Mol. Med. 37: 186-192.
5. Prasad NS et al. (2005). Spice phenolics inhibit human PMNL 5-lipoxygenase. Prostaglandins Leukot. Essent. Fatty Acids 70: 521-528.
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7. Novotny C, Vachalkova A and Biggs D (2001). Ursolic acid: Minireview. Neoplasma 48: 241-246.

## THE ANABOLIC DIFFERENCE

Anabolic Laboratories' nutritional products are made in a registered, licensed and inspected pharmaceutical facility. Our in-house laboratories and manufacturing facilities are routinely inspected by the United States Food and Drug Administration (FDA) and Drug Enforcement Administration (DEA). We also maintain a Good Manufacturing Practice (GMP) certification from the Natural Products Association.

As a pharmaceutical manufacturer, the standards used for raw materials, production and finished product testing exceed FDA requirements for the nutritional products industry. Our pharmaceutical requirements for manufacturing are the foundation for the guaranteed quality of our nutritional products. Anabolic Laboratories sets the nutritional supplement industry standard for label accuracy, potency and purity as dictated by the FDA for pharmaceutical and nutritional products.

