

# Turmero Plex

- Maintains Normal Inflammatory Balance
- Improves Musculoskeletal Health
- Boosts Joint Health, Movement and Physical Function
- Enhances Workout Recovery Time

This product is formulated specifically to maintain normal inflammatory balance and musculoskeletal health. This product includes the key ingredient turmeric, standardized to include 95% curcumin. This product also includes the pineapple enzyme, bromelain, as well as the synergistic blend of flavonoids quercetin and rutin, for full-spectrum, high-intensity support to maintain a balanced cycle of inflammation.

## Overview

Inflammation is a natural part of the body's immune response, a cascade triggered to protect the body and maintain normal tissue repair. This physiological response is part of the innate immune system, a first line of defense comprising the cells and mechanisms that defend against unwanted organisms in a non-specific manner. The inflammatory cascade is mediated by eicosanoids, which have been shown to balance inflammation and immune-modulating cytokines. This product provides a blend of nutrients that support a healthy inflammatory cycle by balancing eicosanoid and cytokine metabolism and inhibiting the activities and synthesis of a wide variety of compounds implicated in pain and inflammation.

## Turmeric Root Extract†

Turmeric is a bright orange-colored spice that has been in use for thousands of years in cooking and medicine. Through its antioxidant mechanisms, the active ingredient in turmeric, curcumin, supports gastrointestinal (GI) health, provides neuroprotective activity, and helps to maintain a healthy cardiovascular system. Curcumin has been shown to play a crucial role in maintaining proper inflammatory balance in a

variety of bodily systems due to its strong NFkB-modulating properties. Studies have shown curcumin supports the maintenance of balanced inflammation in the GI tract,<sup>1,2</sup> promoting GI mucosal health and helping to reduce stomach lining discomfort.<sup>3</sup> Curcumin has been found to provide antioxidant protection to the cardiovascular system,<sup>4</sup> and to help modulate low mood and fatigue by supporting a normal immune response, reducing oxidative stress and intestinal hyper-permeability.<sup>5</sup>

## Bromelain†

Bromelain is a proteolytic enzyme derived from the stem of the pineapple plant. Bromelain has been shown to support musculoskeletal health and healthy inflammatory balance by working on the kinin pathways and inhibiting arachidonic acid formation via phospholipase A.<sup>6</sup> Bromelain is often used to support joint health, specifically for athletes, and age-related musculoskeletal challenges. In a recent blinded study conducted in Germany on 90 subjects with joint challenges, half of the subjects received a bromelain-containing preparation for 6 weeks. The researchers found that bromelain significantly improved the subject's comfort level and physical function.<sup>7</sup> Research has also demonstrated bromelain's ability to promote a comfortable post-operative recovery.<sup>8</sup> Additional benefits of bromelain include supporting sinus health, as well as the health of the GI system.<sup>9,10</sup>

## Quercetin†

A flavonoid found in a variety of botanicals, vegetables and fruits, quercetin is a potent antioxidant which inhibits inducible ICAM-1 expression, an important pathway for maintaining

normal levels of inflammation.<sup>11</sup> Quercetin has also been shown to support barrier function in the intestines,<sup>12</sup> and to promote the balanced release of inflammatory mediators from mast cell.<sup>13</sup> Quercetin has been shown to support inflammatory balance by directly inhibiting tyrosine kinase and nitric oxide synthase, and modulating the activity of NFkB, similar to turmeric. By acting as a potent antioxidant, quercetin can inhibit hyaluronidase, an enzyme which catalyzes the break down of connective tissue in the body.<sup>14</sup>

## Rutin†

Rutin is a flavonoid that has been shown to help support a normal inflammatory process. Rutin helps maintain levels of the major antioxidant in the body, glutathione. Rutin also works in synergy with other flavonoids such as quercetin to support connective tissue health by inhibiting the enzymes that break down connective tissue: hyaluronidase, collagenase, LOX and COXs.<sup>14</sup>

## Directions

2 or more capsules per day or as recommended by your health care professional.

## Does Not Contain

Gluten, corn, yeast, artificial colors and flavors.

## Cautions

Do not consume this product if you are pregnant or nursing. Consult your physician for further information.

Supplement Facts <sup>v2</sup>		
Serving Size 2 Capsules		
Servings Per Container 15 & 45		
2 capsules contain	Amount Per Serving	% Daily Value
Vitamin C (as Ascorbic Acid USP)	30 mg	33%
Turmeric Root Extract (standardized to contain 95% Curcuminoids)	660 mg	*
Bromelain (2,400 GDU/g) (from Pineapple)	240 mg	*
Quercetin Dihydrate	240 mg	*
Rutin	50 mg	*
* Daily Value not established		

## References

1. Kumar S, Ahuja V, Sankar MJ, Kumar A, Moss AC. Curcumin for maintenance of remission in ulcerative colitis. *Cochrane Database Syst Rev* 2012 Oct 17;10:CD008424.

- Baliga MS, Joseph N, Venkataranganna MV, Saxena A, Ponemone V, Fayad R. Curcumin, an active component of turmeric in the prevention and treatment of ulcerative colitis: preclinical and clinical observations. *Food Funct* 2012 Nov;3(11):1109-17.
- Bengmark S, Mesa MD, Gil A. Plant-derived health: the effects of turmeric and curcuminoids. *Nutr Hosp* 2009 May-Jun;24(3):273-81.
- Kapakos G, Youreva V, Srivastava AK. Cardiovascular protection by curcumin: molecular aspects. *Indian J Biochem Biophys* 2012 Oct;49(5):306-15.
- Lopresti AL, Hood SD, Drummond PD. Multiple antidepressant potential modes of action of curcumin: a review of its anti-inflammatory, monoaminergic, antioxidant, immune-modulating and neuroprotective effects. *J Psychopharmacol* 2012 Dec;26(12):1512-24.
- Taussig, SJ. The mechanism of the physiological action of bromelain. *Medical Hypothesis* 1980;6:99-104.
- Brien S, Lewith G, Walker A, Hicks SM, Middleton D. Bromelain as a treatment for osteoarthritis: a review of clinical studies. *Evid Based Complement Alternat Med* 2004 Dec;1(3):251-7.
- Kameníček V, Holán P, Franěk P. Systemic enzyme therapy in the treatment and prevention of post-traumatic and postoperative swelling. *Acta Chir Orthop Traumatol Cech* 2001;68(1):45-9.
- Braun JM, Schneider B, Beuth HJ. Therapeutic use, efficiency and safety of the proteolytic pineapple enzyme Bromelain-POS in children with acute sinusitis in Germany. *In Vivo* 2005 Mar-Apr;19(2):417-21.
- Kane S, Goldberg MJ. Use of bromelain for mild ulcerative colitis. *Ann Intern Med* 2000 Apr 18;132(8):680.
- Bito T, Roy S, Sen CK, et al. Flavonoids differentially regulate IFN gamma induced ICAM-1 expression in human keratinocytes: molecular mechanisms of action. *FEBS Lett* 2002 Jun 5;520(1-3):145-52.
- Amasheh M, Schlichter S, Amasheh S, Mankertz J, Zeitz M, Fromm M, Schulzke JD. Quercetin enhances epithelial barrier function and increases claudin-4 expression in Caco-2 cells. *J Nutr* 2008 Jun;138(6):1067-73.
- Penissi AB, Rudolph MI, Piezzi RS. Role of mast cells in gastrointestinal mucosal defense. *Biocell* 2003 Aug;27(2):163-72.
- Lee JH, Kim GH. Evaluation of antioxidant and inhibitory activities for different subclasses flavonoids on enzymes for rheumatoid arthritis. *J Food Sci* 2010 Sep;75(7):H212-7.

†These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.