CHRONIC PAIN & INFLAMMATION SUPPORT PROTOCOL*



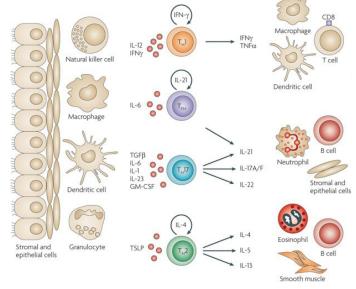
CLINICAL PROTOCOL TO SUPPORT A HEALTHY INFLAMMATORY RESPONSE AND SUPPORT LONG-TERM MANAGEMENT OF PAIN*

Interventions for Chronic Inflammatory Disorders

As a physiological driver associated with a range of chronic disease processes, unresolved inflammation is a primary target for clinicians. An unrelenting inflammatory response can lead to cell and tissue damage that results in pain and dysfunction. Chronic inflammation refers to an ongoing, long-term response to endogenous or exogenous stimuli and is characterized by the continued accumulation of macrophages, lymphocytes, cytokines, and cellular debris, accompanied by tissue injury due to the prolonged inflammatory response. Collectively, the products of this inflammatory cascade contribute to the pathogenesis of age-related diseases. In addition, constant, excess inflammation triggers nociceptors, resulting in pain across a host of tissues.

A variety of nutrients and botanicals exhibit strong evidence as mediators of chronic inflammation. Omega-3 fatty acids, proteolytic enzymes, and a variety of bioactive herbal extracts show proof of their ability to modulate and support a balanced inflammatory response.

This clinical protocol is designed to support a healthy inflammatory response and long-term management of pain.



Kopf, M., Bachmann, M. & Marsland, B. Averting inflammation by targeting the cytokine environment Nat Rev Drug Discov 9, 703-718 (2010)

Diagnostic Biomarkers / Clinical Indicators in Chronic Inflammation

- Hs-CRP¹
 - Low risk: less than 1.0 mg/L
 - Average risk: 1.0 to 3.0 mg/L
 - High risk: above 3.0 mg/L
- Homocysteine^{2,3}
 - 4-15 µml/L
- Uric acid4
 - 2.5 to 7.5 mg/dL (female)
 - 4.0 to 8.5 mg/dL (male)

- Neutrophil/Lymphocyte ratio 5,6
 - 0.37~2.87 (female)
 - 0.43~2.75 (male)
- Erythrocyte sedimentation rate (ESR)^{7,8}
 - 0 to 22 mm/hr (male)
 - 0 to 29 mm/hr (female)

Therapeutic Diet and Nutrition Considerations

- Diets high in polyphenols, fiber, and antioxidants are related to lower levels of inflammation and oxidative stress in adults.
 Recommend a whole-foods, anti-inflammatory or Mediterranean diet rich in the following nutrients:
 - Essential fatty acids from sources such as omega-3, coldwater fish (salmon, mackerel, sardines, cod, tuna, trout, herring) as well as plant-based sources including walnuts, flax, chia, and hemp.
 - Herbs and spices that contain anti-inflammatory agents, such as allspice, cinnamon, cloves, rosemary, turmeric, ginger, and oregano.
 - Fruits and vegetables such as blueberries, cherries, pineapples, oranges, strawberries and tomatoes, as well as Swiss chard, kale, spinach, collard greens, bok choy and celery.

- Support patient GI health and gut ecology, where chronic inflammation often begins, with cultured vegetables and fermented foods, including cabbage, sauerkraut, miso, tempeh, kefir, natto, pickles, and olives.
- Facilitate local GI and systemic short-chain fatty acid production through a high fiber diet to leverage their anti-inflammatory properties.
- Advise patients avoid overconsumption of hydrogenated oils particularly from corn, cottonseed, soybean, safflower and sunflowe.r

This information is provided as a medical and scientific educational resource for the use of physicians and other licensed health care practitioners ("Practitioners"). This information is intended for Practitioners to use as a basis for determining whether to recommend these products to their patients. All recommendations regarding protocols, dosing, prescribing and/or usage instructions should be tailored to the individual needs of the patient considering their medical history and concomitant therapies. This information is not intended for use by consumers.

Lifestyle Interventions

- Recommend patients incorporate a safe, appropriate exercise program. Research has demonstrated that moderate-intensity exercise mitigates metabolic abnormalities that may drive low-grade inflammation and results in significant reductions in Hs-CRP and uric acid.9 Additionally, stretching, yoga, and flexibility exercises may help reduce musculoskeletal pain.
- Disrupted sleep stimulates inflammatory gene expression and the production of pro-inflammatory cytokines.¹⁰ Optimize sleep hygiene and quality to reduce innate immune reactivity and adrenergic response.
- Psychosocial, pathophysiological, and environmental stressors induce chronic CNS and peripheral inflammation via HPA axis pathways.11 Guide patients to practice stress management techniques to reduce the potential for stress-mediated, lowgrade inflammation.

SUPPLEMENT PROTOCOL/REGIMEN

Primary Support:

Inflammatone™	
Dose	2 capsules twice per day in between meals
Duration	8-12 weeks; retest inflammatory markers
Formula Highlights	Inflammatone™ is a combination of herbs, nutrients and proteolytic enzymes for promoting a healthy inflammatory response, supporting the natural clearance of proteins like kinin and fibrin, and for supporting healthy lymphatic drainage.* The ingredients in Inflammatone™ provide natural support for a normal response to inflammation and help protect against oxidative stress.*

Curcum-Evail®		
Dose	1-2 softgels per day	
Duration	8-12 weeks; retest inflammatory markers	
	Curcum-Evail® is a highly bioavailable curcuminoid formulation. It contains a unique combination of three bioactive, health-promoting curcuminoids: curcumin, bisdemethoxy curcumin and demethoxy curcumin, along with turmeric oil. The three curcuminoids are the strongest, most protective and best researched constituents of the turmeric root. Curcum-Evail® is manufactured utilizing the Designs for Health Evail™ process, which helps to optimize the absorption rate of the curcuminoids while reducing their absorption time. This proprietary process uses all-natural ingredients, including turmeric oil, sunflower lecithin, and vitamin E, without the use of potentially harmful surfactants.	

OmegAvail™ TG1000	
Dose	1-2 softgels per day
Duration	8-12 weeks; retest inflammatory markers
Formula Highlights	OmegAvail™ TG1000 is a highly potent, non-GMO fish oil, containing an impressive 1,000 mg omega-3 oils per softgel, making it an ideal choice for clinically relevant dosing. Each softgel contains 662 mg EPA and 250 mg DHA, along with other omega-3 fatty acids. As with all Designs for Health fish oil products, OmegAvail™ TG1000 contains the triglyceride (TG) form for superior absorption and bioavailability.

References:

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Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Health care practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage. Any product containing botanical substances has the potential for causing individual sensitivities, appropriate monitoring, including liver function tests (LFT) is recommended.

For considerations around herb/nutrient-drug interactions, please refer to reliable, evidence-based resources such as Natural Medicine Database or Stargrove, M. B., Treasure, J., & McKee, D. L. (2008). Herb, nutrient, and drug interactions: Clinical implications and therapeutic strategies. St. Louis, Mo: Mosby Elsevier.

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