**Systemic Enzyme Support**

**Natural Immunomodulation with Systemic Enzyme Support (SES)**

**Inflammation**

Inflammation is a complex biological process in which the body’s white blood cells and chemicals provide protection against invasion of bacteria or viruses, damaged cells, or foreign substances such as pollen or dust. It is a protective attempt by the body to remove the injurious substance and to initiate the healing process for the tissue. As such, information is part of the regenerative process, wounds and infections will not heal and there would be progressive destruction of tissues. The goal not to stop inflammation, but to reduce normal inflammatory processes.

In some conditions, however, the body’s immune system inappropriate triggers an inflammatory response when there are no foreign substances to fight off. In these autoimmune situations the body’s normally protective immune system attacks its own tissues, the activity of the immune system can cause trouble. Inflammation is a natural protective response of the body.

**The Effects of Abnormal Inflammation**

The five characteristic signs of inflammation are redness (rubor), heat (calor), swelling (tumor), pain (dolor), and loss of function (functio laesa). Excessive or chronic inflammation also results in increased biomarkers of inflammation, which are also associated with increased mortality and morbidity.

**Biomarkers of inflammation**

- Increased C-reactive protein
- Increased circulating immune complexes
- Increased acute phase proteins
- Increased AST and ALT
- Increased uric acid

**Inflammation & Cytokines**

Cytokines such as interferon-gamma (INF-γ), tumor necrosis factor (TNF-α), interleukin-1 (IL-1) and IL-6, play a crucial role in the inflammatory response. Cytokines are signaling molecules that act in concert to direct the immune response and orchestrate the pathological sequelae of inflammation.

**Pro-inflammatory cytokines**

- INF-γ
- TNF-α
- IL-1
- IL-6
- IL-10

**Anti-inflammatory cytokines**

- IL-6
- IL-10

**Common cytokines**

- TNF-α
- IL-1
- IL-6

**Systemic Enzyme Support**

Systemic Enzyme Support (SES) uses clinically validated formulations of enzymes from both plants and animals to influence immune activity in such a manner as to reduce swelling, inflammation, edema, and lymphedema, and increase libido, and the clearance of harmful immune complexes that are a result of an overactive immune response. Systemic Enzyme Support also reduces enzymes which can cause swelling, immune activity, and normalization of the body’s various regulatory and communications systems and supports the function of tissues at a cellular level. SES has application for a wide range of conditions, as it is an adjuvant to improve management of infectious conditions, and to support endocrine & reproductive systems.

Systemic Enzyme Support is able to improve the management of conditions with auto-aggressive components by delivering systematic and allogenic enzymes that can reduce inflammation and edema while maintaining a healthy balance. Systemic Enzyme Support is suitable for those that are suffering from chronic or acute inflammatory conditions, where other management strategies are either ineffective or unwanted.

**Systemic Enzyme Support promotes normal health**

- Systemic Enzyme Support promotes normal health in men in 150 mg capsules.
- Systemic Enzyme Support promotes normal health in women in 150 mg capsules.

**The Benefits of Systemic Enzyme Support**

Systemic Enzyme Support attenuates the characteristics signs of inflammation (rubor, calor, tumor, dolus & functio laesa) in a broad range of tissues, and it is able to restore health levels of the body’s associated with inflammation. The progressive inflammation, autoimmune, or immune-deficient component of many conditions is ameliorated by the immunomodulatory actions of Systemic Enzyme Support, resulting in decreased risk of disease and improved quality of life.

**RESTORATION OF HEALTHY BIOMARKERS**

- Decreased C-Reactive Protein Levels**
- Decreased CRP levels in patients with chronic inflammatory conditions**
- Decreased Circulating immune Complex Levels**
- Normalization of Cytokine Levels**
- Normalization of Inflammatory mediators (IL-6, IL-1, TNF-α)**
- Normalization of biomarkers of disease**

**Systemic Enzyme Support promotes lymphatic health in both upper and lower extremities.**

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**Management of joint health in men can be significantly improved by the addition of Systemic Enzyme Support.**

**The Alpha 2-Macroglobulin Protein Complexes**

The alpha 2-macroglobulin protein complexes have been identified as a target for receptor mediated endocytosis and have been observed to aggregate in acute sepsis (45 minutes before meals or 1 ½ hour after meals). The animal enzyme, plant enzyme and rutosid combination is delivered to the stomach and enters the intestine for rapid absorption. Once the proteolytic enzymes (absorbed), protease molecules can bind with a 2-macroglobulin (α2M) complex. High molecular weight plasma glycoprotein, to create a 800K-1200K molecular mass complex.

**Immune System Balance Restored**

Once the proteolytic enzymes (absorbed), protease molecules can bind with a-2-macroglobulin complexes (α2M), and other proteins and glycoproteins. Pro tease activation of α2M complexes also facilitates its binding to, and elimination of pathogens. The proteolytic enzymes activate α2M complexes (α2M) facilitate the degradation of the αb-microglobulin beta (4-5 k), a major component of the plasma in degenerative brain conditions.

**Increased Erythrocyte Sedimentation Rate**

A balance between Th1 and Th2 responses is best for optimal health. Th1 cytokines tend to produce the pro-inflammatory cytokines (rheumatoid factor) which are involved in cellular immunity. They are produced by a wide variety of cell types and are typically subdivided into two categories, Th1 & Th2. A balance between Th1 and Th2 responses is best for optimal health.

**Increased Erythrocyte Sedimentation Rate**

Increased Erythrocyte Sedimentation Rate Inhibits Circulating Immune Complexes and Normalizes Cytokine Production with an Imbalance of Th1 & Th2 Cytokines. Normalizes Abnormal Levels of Cytokines/Polypeptides, and Can Help Provide Normalized Blood Pressure. Anti-inflammatory cytokines are produced to suppress cytokines that lead to fever and inflammation. Increased cortisol production and loss of function (functio laesa). A balance between Th1 and Th2 responses is best for optimal health.

**Common Cytokine Imbalances**

Th1 cytokine imbalance with a relative excess of Th1. The type of imbalance is often seen in autoimmune conditions.

- The uncontrolled and excessive Th1 cytokines may result in autoimmune tissue injury and consequent autoimmune disease.
- Th2 cytokine imbalance with relative excess of Th2. The type of imbalance is often seen in debilitating conditions.

**Immune System Balance Restored**

Since cytokines are involved in inflammatory processes, the binding to cytokines and the removal of cytokines by the activated 2-macroglobulin protein complex support a balanced and properly functioning immune system. Once cytokine levels are restored to their optimal physiologically balanced state the immune system is able to resume its function. The body and ensuing the healing process. With normalized of the normal process the appropriate inflammatory process of the immune system are again allowed to function.