Historical Perspectives: Immune System Support for Today’s Challenges

Presented by Greg Anderson, DC, ACN
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Dr. Anderson’s recommendations for Standard Process and MediHerb product dosages are sometimes different than the doses that appear on the product labels. Please refer to the product labels or to the product descriptions found in the product catalogs and at standardprocess.com for the Standard Process dosage recommendations.
Dr. Greg Anderson has been in practice for over 35 years. He maintains two offices on the central coast of California. Dr. Greg has served the profession academically, politically and through innovative product development and implementation.

He has been mentoring and coaching chiropractors throughout his career and began coaching professionally in 2006. Dr. Greg’s career-long aspiration has been to help fellow chiropractors discover what it is they truly want in their personal life and professional life and to teach them the skills, provide them with the resources, and assist them in developing a plan to create what it is they say they want.

Dr. Greg and his wife Elena have raised five children and are blessed with one grandson. Together they are active in their community with organic farming, permaculture and cattle ranching. He enjoys horseback riding, surfing, hiking, hunting and scuba with his wife and friends.
Historical Approaches to Health Maintenance

- Avoid those who are ill
- Quarantine
- Wearing shoes
- Burying human and other waste
- Upgrading drinking water and sewage to closed systems
- Spittoons
- Hand washing
Historical Approaches to Health Maintenance

James Lind (1754) found that if a sailor’s diet contained citrus fruits that scurvy was prevented.

Scurvy is a classical nutrient-deficiency disease.

Vitamin C was not discovered until 1928 by Albert Szent-Györgyi.

Limes were found to prevent scurvy at sea. First time shown that a nutrient-deficient diet can lead to disease.
The Nutrient Deficiency Discovery Era” 1918-1940

• In 1852, Adolphe Chatin, a French chemist, was the first to publish the hypothesis of population iodine deficiency associated with endemic goiter. He hypothesized that goiter (thyroid) could be prevented with iodine. Iodized salt introduced in the U.S. in 1924 by Morton Salt.

• In 1917 scientist Alfred Hess discovered that Cod Liver Oil contained something that prevented rickets. Nutritional pioneer Elmer McCollum named it vitamin D in the 1920s.

• Vitamins A, B, C, D, E and K and essential minerals and relationship to classic nutrient deficiency diseases. Rickets (Vit D), Beri beri (Vit B1), Pellegra (Vit B6) and Iron Deficiency Anemia (Iron).
A Dental Student Presents a Paper

• In December of 1923, a senior dental student, Royal Lee, reads a paper he authored before the senior class at Marquette relating nutrition to dental health.

• In his study he cites the works of other dental scientists in the nutrition world including Howe, Pollina, Sajous and Talbot.

• In his conclusion he noted 3 nutrients that seemed to correlate with good dental health, **good calcium metabolism, and the presence of vitamins B and C.**
Support for Dr. Lee’s Conclusions

- In 1947 Dr. Nungester of the University of Michigan discovered that \textbf{Vitamin C was needed by white blood cells for phagocytosis.}\footnote{Nungester, WJ, et al., The relationship between ascorbic acid and phagocytic activity. J Infect Dis. 1948 Jul-Aug;83(1):50-4.}

- It was not until 2013 that scientists discovered how challenged cells signal the immune system. Injury causes a \textbf{“calcium flash”} that activates the DUOX enzyme system releasing \textbf{hydrogen peroxide, the signal that attracts white blood cells.}\footnote{Razzell W, et al., Calcium flashes orchestrate the wound inflammatory response through DUOX activation and hydrogen peroxide release. CurrBiol. 2013 Mar 4;23(5):424-9.}
Brief History of Standard Process Immune System Support Products

- 1923: Royal Lee delivers first nutritional paper
- 1929: Catalyn®
- 1934: Trace Minerals-B₁₂™
- 1951: Calcium Lactate
- 1957: Congaplex®
- 1959: Cataplex® C, Cataplex® F, Thymex®
- 1984: Echinacea Premium Andrographis Complex
- 2001: Immuplex®
- 2008-12: Prebiotic Inulin ProSynbiotic Gut Flora Complex Garlic Forte

Whole Food Nutrient Solutions
The Immune System

Anatomy and Physiology
Tissues and Organs of the Immune System

- Bone marrow
- Thymus gland
- Liver
- Spleen
- Lymphatic tissue (adenoids, tonsils, lymph nodes)
- Large Intestine
Innate & Adaptive Immune Cells

Innate Immunity
- Neutrophils
- Natural killer cells
- Dendritic cells
- Macrophages

Adaptive Immunity
- T Lymphocytes
- B Lymphocytes
Immune System Nutrition

- Long chain PUFAs (Omega-3 and Omega-6) are required by the body to modulate production of eicosanoids.¹
- **Vitamin A** is essential to maintaining the mucosal barriers of the innate immune system.²

Immune System Nutrition

- **Vitamin D** receptors are found on many immune cells.\(^1\) Vitamin D has an effect on both innate\(^2\) and acquired\(^3\) immunity.

- **Vitamin C** may influence the production\(^4\) and function\(^5\) of neutrophils, lymphocytes and phagocytes. Vitamin C has been shown to stimulate the functions of cellular motility\(^6\), chemotaxis\(^7\), and phagocytosis.\(^8\)

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\(^6\) IBID


\(^8\) IBID
Immune System Nutrition

- **Vitamin B<sub>6</sub>** has been shown to affect the synthesis and metabolism of amino acids<sup>1</sup> (Think cytokines and antibodies) as well as lymphocyte proliferation<sup>2,3</sup>.

- **Vitamin B<sub>12</sub>** functions as a coenzyme and for several enzyme reactions.<sup>4</sup>

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<sup>4</sup>http://lpi.oregonstate.edu/mic/micronutrients-health/immunity#reference172
Immune System Nutrition

- **Zinc** is necessary for the normal development and function of immune cells.\(^1\) Zinc deficiency impairs the cytotoxicity of natural killer cells\(^2\) and phagocytic activity.\(^3\)

- **Selenium** appears to be needed for the body to mount an adequate immune response.\(^4\) Deficiency of selenium adversely affects antibody production.\(^5\)

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Immune System Nutrition

• **Iron** is required to mount effective immune responses. Sufficient iron is needed for the proliferation of T lymphocytes.¹

• The function of the immune system is also maintained by the mineral **Copper**.² A deficiency of copper can result in a low number of neutrophils.³

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³Ibid.
Cataplex® C supports the immune system, skin and connective tissue, and bone health.

- Supports and promotes normal immune system function
- Promotes vascular integrity through support of the body’s natural collagen synthesis processes
- Supports healthy bone tissue
- Provides ingredients with antioxidant activity
- Supports the adrenal glands
- High in antioxidant vitamin C*

*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
Calcium Lactate supports absorption of calcium and magnesium.

- Supports muscle contraction and nerve conduction
- Supports maintenance and function of cell membranes and membrane permeability
- Supports blood coagulation
- Supports proper functioning of enzyme systems
- Supports and helps maintain healthy bone density and remodeling
- Highly soluble form of calcium from a nondairy source
- Contains a 5:1 ratio of calcium and magnesium
- Provides additional support for the immune system response function
- Adequate calcium as part of a healthful diet, along with physical activity, may reduce the risk of osteoporosis in later life.*

*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
Cataplex® F Tablets

Cataplex F supports the body’s inflammatory response function as it relates to periodic challenges like consumption of high-fat foods or strenuous activity.

• Flaxseed is a natural source of omega-3 fatty acids from plants.
• Provides lipids for the formation of eicosanoids
• Promotes healthy skin and hair
• Contains iodine for thyroid support
• Supports the metabolism of fats*

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Trace Minerals-B₁₂™

Trace Minerals-B₁₂ combines important nutrients to support enzymatic reactions in the body.

- Spectrum of minerals that support a healthy body
- Provides essential cofactors for healthy cell functioning
- Provides iodine, which is required for healthy thyroid, spleen, and red blood cell functions
- Among other functions, these trace minerals support ligament, cartilage, and bone structure; immune system and thyroid function; fat metabolism; and calcium utilization.*

*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
Tissue Extracts

In the 1940s and 1950s Dr. Lee focused on tissue extracts. Cytosol™ extracts are derived from the cytoplasm of selected organs and glands. These extracts contain cellular factors such as hormone precursors and synergistic cofactors that are the biochemical building blocks essential to cellular metabolism. One of his important ones was Thymex® (1957, thymus Cytosol™ extract).
Thymex®

Thymex supports the thymus gland with bovine thymus Cytosol™ extract.

- Supports a healthy thymus gland, the master gland of the immune system
- Can be used in combination with other immune system support products
- Good source of antioxidant vitamin C*

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Tissue Extracts

- **Protomorphogen™ extracts (PMG™ extracts)** are specific material extracted from animal glands and organs through a complex, multi-step process to retain what Dr. Lee termed “cellular determinants.”

- Micro-ribonucleic acid (microRNA) is one example of a recently discovered class of molecules dedicated to cellular regulation. Protomorphogen™ extracts contain these microRNAs. This is an intriguing area of future study.¹

Immune System Support Products

• In 1959 Dr. Lee developed one of his first “combination” products, Congaplex®, as the premier product for short-term immune system support.

• 1984 brought the development of Immuplex®, a product created to provide long-term support for the immune system.*

Cytokine production increased in the cells supplemented with Congaplex.¹


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Congaplex®

Congaplex is used for short-term support of the immune system.
- Supports healthy immune system function
- Provides ingredients with antioxidant activity
- Supports the thymus gland
- Contains ribonucleic acid, which the body uses to build new cells
- Contains a combination of key ingredients from Cataplex A-C, Thymex, Calcium Lactate, and Ribonucleic Acid
- Good source of antioxidant vitamin C*

*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
Immuplex® GF

Immuplex blends essential micronutrients and minerals as well as Protomorphogen™ and Cytosol™ extracts to support the immune system.

- Taken daily, supports healthy immune system function
- Helps maintain normal white blood cell activity already within a normal range
- Supports the body’s normal inflammatory response function as it relates to periodic challenges like consumption of a high-fat meal or strenuous activity
- Provides antioxidant activity
- Provides broad mineral support for everyday immune system function
- High in antioxidant vitamin C and E*

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Congaplex® vs. Immuplex®

Congaplex
Contains a Combination of Key Ingredients From:
• Calcium Lactate
• Cataplex A-C
• Thymex
• Ribonucleic Acid

Immuplex
Proprietary Blend: Bovine liver PMG™ extract, veal bone PMG™ extract, nutritional yeast, bovine spleen PMG™ extract, bovine thymus PMG™ extract, bovine thymus Cytosol™ extract, bovine liver, bovine spleen, and ovine spleen.

Other Ingredients: Gelatin, zinc rice chelate, ascorbic acid, iron liver chelate, water, chromium yeast, selenium yeast, copper rice chelate, vitamin E (sunflower), tapioca starch, arabic gum, starch, sucrose (beets), vitamin A palmitate, pyridoxine hydrochloride, dicalcium phosphate, calcium stearate, cyanocobalamin, and folic acid.
Herbs and the Immune System

In 2001, U.S. nutritional practitioners were delighted when Standard Process joined forces with MediHerb. Now practitioners have the best dietary and herbal supplements available.
The alkylamides in Echinacea have been shown to have following effects on the immune system:

- “Echinacea did not activate the immune system in the absence of any immunological challenge (in vitro research).”
- “The alkylamides tended to modulate the immune response of macrophages and T cells in vitro.”

1Retrieved October 17, 2016, from https://www.standardprocess.com/Products/Literature/MediHerb-Echinacea-Research-(A-New-Understanding)
Significant Echinacea Studies-Provided by MediHerb

The alkylamides in Echinacea have been shown to have following effects on the immune system:

- “The immune modulating activity may be (at least in part) due to the interaction of alkylamides with cannabinoid receptors specifically CB2 (in vitro).”

Retrieved October 17, 2016, from https://www.standardprocess.com/Products/Literature/MediHerb-Echinacea-Research-
(A-New-Understanding)

Significant Echinacea Studies-Provided by MediHerb\(^1\)

The alkylamides in Echinacea have been shown to have following effects on the immune system:

- "Echinacea Premium increased heat shock proteins levels (hsp70) and increased white blood cell count in healthy volunteers.\(^2\)"

- "E. purpurea root boosted the number and function of natural killer (NK) cells in mice.\(^3\)"

\(^1\)Retrieved October 17, 2016, from https://www.standardprocess.com/Products/Literature/MediHerb-Echinacea-Research-(A-New-Understanding)


\(^3\)Miller SC. eCAM 2005; 2: 309-314
Echinacea Premium combines extracts of the roots of the *Echinacea angustifolia* and *Echinacea purpurea* to enlist properties unique to each. These substances and other unnamed phytochemicals work together to:

- enhance immune system function
- may support normal interferon production for healthy immune system response
- support and promote healthy white blood cells
- support healthy immune response following stress
- encourage healthy upper respiratory tissue
- support healthy throat tissue

*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.*
Andrographis Complex contains a blend of herbs to support normal immune system function. Andrographis, *Echinacea angustifolia* root and Holy Basil provide a unique range of phytochemicals. This herbal formulation works to:

• help maintain healthy immune system function
• support healthy respiratory system function
• support and maintain normal body temperature already within a normal range
• support healthy immune system response
• encourage adaptive response to occasional everyday stress
• promote healthy liver function*

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Support for Acute Immune System Challenges
Support for General Immune System Support

• Acute Immune System Challenge
  – Congaplex® (1-2 capsules per hour)
  – Cataplex® F (2-3 tablets per day)
  – Andrographis Complex (1 tablet per meal)

• General Everyday Immune System Support
  – Immuplex® (2 capsules per meal)
  – Echinacea Premium (2 tablets per day)

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The Gut Microbiome & Gut-Brain Axis

• Current preclinical studies on animals suggests a series of mechanisms may utilize both the neuroendocrine and endocrine pathways to perform a bi-directional communication between the microbes of the gut and the brain.¹

• This research has yet to be connected to healthy humans.

¹J Clin Invest. 2015;125(3):926-938. doi:10.1172/JCI76304
Healthy Gut Balance

• Healthy gut balance relates to the bacteria resident in the gut.

• In my practice, I feel that there are many challenges to gut balance.
  o Diets high in grains, sugar and genetically modified foods may contribute to gut imbalance, as well as the use of certain medications and exposure to environmental chemicals.
  o Emotional stress is also a big factor in the health of the gut.

• Maintenance of healthy gut balance is important to healthy gut function and mood.
Balancing Gut Flora

• **Gut Flora Complex:** Anise, oregano oil, Phellodendron stem bark stem bark and andrographis to encourage a healthy intestinal environment.*

• **Garlic Forte:** Garlic is used to support immune system health.*

• **Prebiotic Inulin:** The soluble, non-digestible carbohydrate inulin from chicory root is a favored food source for supporting beneficial bacteria in the gut.*

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Balancing Gut Flora

• **ProSynbiotic** is a synergistic blend of four research-supported probiotic strains and two prebiotic fibers to support gut flora and overall intestinal health.

• **ProSynbiotic** contains research-supported strains of lactic acid bacteria (*Lactobacillus* and *Bifidobacterium*), and *Saccharomyces cerevisiae var. boulardii*.

• **ProSynbiotic** contains inulin, a nondigestible soluble fiber from chicory root, and galactooligosaccharide (GOS), a nondigestible carbohydrate, both of which are used by probiotic bacteria as food.

*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.*
<table>
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<th>Gut Flora Protocol 6 Weeks</th>
<th>“Weed &amp; Feed” Method</th>
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<tr>
<td>Saturday-Sunday</td>
<td>Gut Flora Complex</td>
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<tr>
<td></td>
<td>1 capsule/ 3-6x day</td>
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<td></td>
<td>Garlic Forte</td>
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<td>1 tablet/2x day</td>
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<tr>
<td>Monday-Friday</td>
<td>Prebiotic Inulin</td>
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<td>1 tsp in a shake/2x day</td>
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<td>ProSynbiotic</td>
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<td>3 capsules/day</td>
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<td></td>
<td>Vitanox</td>
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<td>2 tablets/day</td>
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Gut Flora Complex

**Gut Flora Complex** contains Oregano essential oil, Anise (fruit) essential oil, Andrographis and Phellodendron. Together these herbs, essential oils and the substances within them combine to:

- encourage a healthy intestinal environment
- support healthy immune response
- relieve mild gastrointestinal upset*

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Garlic Forte

Garlic Forte contains sulfur compounds (particularly alliin) and other compounds. This product is standardized to contain 12 mg per tablet of stabilized alliin to ensure optimal strength and quality. The compounds in Garlic Forte, particularly the alliin and resultant metabolites which are formed on ingestion, work together to:

• help maintain normal cholesterol levels already within a normal range
• support cardiovascular system health
• support healthy upper respiratory tract
• support immune system health*

*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
ProSynbiotic • Contains research-supported strains of lactic acid bacteria (Lactobacillus and Bifidobacterium) and Saccharomyces cerevisiae var. boulardii • Contains inulin, a nondigestible soluble fiber from chicory root, and galactooligosaccharide (GOS), a nondigestible carbohydrate, both of which are used by probiotic bacteria as food

• Useful in maintaining a healthy gut microbial environment • Helps support the body’s natural absorption of calcium and magnesium • Improves nutrient digestion and absorption • Supports normal bowel regularity and consistency • Supports the body’s natural immune system function *

ProSynbiotic is a synergistic blend of four research-supported probiotic strains and two prebiotic fibers to support gut flora and overall intestinal health.

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Prebiotic Inulin

Prebiotic Inulin supports bone health, immune system function, and gut balance.

- Encourages a healthy intestinal environment to benefit probiotic intestinal flora
- Promotes normal development of epithelial tissue
- Supports absorption of calcium and magnesium
- Excellent source of fiber
- Supports immune system function in the gut
- Promotes a healthy pH in the lower gastrointestinal (GI) tract
- Promotes healthy elimination
- Can be mixed in a supplement shake or added to foods*

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