

Replenish+™- The supplement for a strong, healthy immune system, based upon robust scientific and clinical research.

MBi Nutraceuticals is working with Foster Health to actualize the ground-breaking work of Dr Harold Foster who focused on the consequences of nutritional deficiencies caused by infections and experienced in many health issues.

Research indicates that viruses and bacteria cause nutrient deficiencies in the body in two ways:

1. Directly, as they use up nutrients in the body for their own survival and;
2. Indirectly, by causing a combination of decreased food intake, gastrointestinal malabsorption, increased utilization and excretion.ⁱ

Replenish+™ has been specifically formulated to replenish nutritional deficiencies and provide the body with the key nutrients required for the optimal functioning and strength of the body's immune system. As soon as you feel the first signs of an infection, take **Replenish+™** to help boost your immune system.

High quality nutrients

Replenish+™ is comprised of a proprietary blend of 37 essential minerals, amino acids and vitamins, of very high quality and in absorbable form.

Replenish+™ helps with the production of immune system cells, including CD4 T-lymphocytes, antioxidants, enzymes, hormones and for tissue repair. It has been designed to naturally increase the production of antioxidant enzymes, including glutathione peroxidase, superoxide dismutase and others which have been shown to disrupt the spread of many viruses and infections.

Importance of antioxidant enzymes

Antioxidant enzymes also help block oxidative stress and free radicals which can cause cellular damage and even cell death in the body. Infections increase oxidative stress, therefore it is important to supplement the body's need for the building blocks of these antioxidant enzymes.

Robust scientific and clinical research

Dr Harold Foster's research uncovered how some pathogens interact with the body and utilize many nutrients as they spread and grow in number. He discussed how many common viruses and bacteria prevalent today compete with the body for the building blocks of the antioxidant enzyme glutathione peroxidase, namely selenium, cysteine, glutamine and tryptophan.ⁱⁱ Therefore, as these pathogens increase in number, the amounts of these nutrients decrease and subsequently the individual's health deteriorates. So in order to maintain health it is necessary to replenish the body's resources of key nutrients in the right amounts and forms.

The importance of maintaining appropriate nutrient levels in the body

The health implications associated with nutrient deficiencies vary in severity and symptoms depending on the nutrients lacking. For example, selenium deficiency can cause symptoms involving muscular weakness, stiffness and cramps; immune dysfunction and heart weakness,^{iii iv v vi} tryptophan deficiency can cause cognitive dysfunction and memory loss^{vii}; and glutamine deficiency can cause muscle wasting, malabsorption and immune malfunction.^{viii}

These nutrients have a number of critical roles in the body (see below) and so if they are depleted we begin to see deficiency symptoms:

- *Selenium has antioxidant properties and plays a role in the regulation of thyroid hormone production. It is also an anticancer agent.*^{ix}
- *Tryptophan is metabolised into 5-hydroxytryptophan which acts primarily by increasing levels of serotonin, other hormones and neurotransmitters within the central nervous system*^x
- *Glutamine is the most abundant amino acid in the blood and is important for the optimal functioning of the nervous system, learning, memory, body tissues and many enzymes*^{xi}
- *Cysteine is an important antioxidant which is useful for the treatment of chronic bronchitis and other lung diseases including those caused by influenza virus infection.*^{xii xiii} *It also stimulates white blood cell functioning in the immune system.*^{xiv}

Orthomolecular medicine – the right molecule at the right dose

Replenish+TM is designed to optimize the nutrients in the body which support the immune system and boost the levels of antioxidant enzymes. The quantities of nutrients in the blend have been carefully calculated using orthomolecular principles (the right nutrients at the right doses) to provide for safe and effective daily supplementation that our bodies require.

The principle of orthomolecular medicine is to optimize and help manage health by re-establishing the natural molecular environment of the body using naturally occurring substances including vitamins, minerals, fatty acids, amino acids, etc.

ⁱ Friis H. 2002. CRC Series in Modern Nutrition. Micronutrients and HIV Infection.

ⁱⁱ Taylor EW, BHat A, Nadimpalli RG, Zhang W, Kececioglu J. HIV-1 encodes a sequence of overlapping env. gp41 with highly significant similarity to selenium dependent glutathione peroxidases. *J AIDS Hum Retrovirol* 1997; 15(5):393-4.

ⁱⁱⁱ Rayman MP. The importance of selenium to human health. *Lancet*. 2000;356:233-241.

^{iv} Makela AL, Nanto V, Makela P, Wang W. The effect of nationwide selenium enrichment of fertilizers on selenium status of healthy Finnish medical students living in south western Finland. *Biol Trace Elem Res*. 1993;36:151-157.

^v Tan J, Zhu W, Wang W, et al. Selenium in soil and endemic diseases in China. *Sci Total Environ*. 2002;284:227-235.

^{vi} Van Lettow M, Harries AD, Kumwenda JJ, et al. Micronutrient malnutrition and wasting in adults with pulmonary tuberculosis with and without HIV co-infection in Malawi. *BMC Infect Dis*. 2004;4:61.

^{vii} Huengsborg M, Gompels M, Round RA, et al. Abnormalities in tryptophan metabolism in HIV infection: a retrospective and prospective study. *Int Conf AIDS*. 1996 Jul 7-12;11:106

^{viii} Sharbert JK, Wilmore DW. Glutamine deficiency as a cause of human immunodeficiency virus wasting. *Med Hypotheses* 1996;46:252-256.

^{ix} Aronson JK (Editor). Selenium. *Meyler's Side Effects of Drugs*. Elsevier, 2006; 3119-20.

^x 5-Hydroxytryptophan (Monograph). *Alt Med Rev*, 1998; **3(3)**: 224-6.

^{xi} Tapiero H, Mathé G, Couvreur P, Tew KD. Dossier: Free amino acids in human health and pathologies –II. Glutamine and glutamate. *Biomed Pharmacother*. 2002;56:446-457.

^{xii} Arfsten DP, Johnson EW, Wilfong ER, Jung AE, Bobb AJ. Distribution of Radio-Labelled N-Acetyl-L-Cysteine in Sprague-Dawley Rats and Its Effect on Glutathione Metabolism Following Single and Repeat Dosing by Oral Gavage. *Cutaneous and Ocular Toxicology*, 2007;26(2):113–34.

^{xiii} Holdiness MR. Clinical pharmacokinetics of N-acetylcysteine. *Clin Pharmacokinet*, Feb 1991;20(2):123-34.

^{xiv} Navarra, T. Cysteine. *The Encyclopedia of Vitamins, Minerals and Supplements*, 2nd ed. Facts on File Inc, 2004; 56.