MitoPerformancePlus

PUREPASSIONWELLNESS™

Clinical Applications

- Foundational Nutrition*
- Basic Formula for Wellness*
- Supports Antioxidant Activity*
- Supports Detoxification*
- Supports Health in Individuals with Inadequate Nutrient Intake*
- Supports Energy Production and Stress Response*

MitoPerformancePlus *is a premium multivitamin/mineral formula with metabolically active B vitamins and a bioavailable mineral complex for optimal nutrient utilization. In addition to foundational nutrition, this comprehensive formulation features targeted ingredients to support cellular energy production and promote mental and physical vitality.**

All Pure Passion Anti Aging Institute, LLC Formulas Meet or Exceed cGMP Quality Standards

Discussion

MitoPerformancePlus provides enhanced support for mental and physical energy production and detoxification. The mechanism of action of each of the ingredients unique to MitoPerformancePlus is described below, followed by a discussion of the multivitamin and mineral components that provide the foundation for all of the MitoPerformancePlus formulations.

- **N-Acetyl-L-Cysteine** is a derivative of the amino acid L-cysteine, which supports antioxidant activity in the body and enhances production of glutathione, a key component of antioxidant and detoxification enzymes.*[1]
- **Acetyl-L-Carnitine** is an amino acid derivative that plays an important role in fat and carbohydrate metabolism and energy production by transporting long-chain fatty acids into the mitochondria where beta-oxidation of the fatty acids produces energy in the form of ATP (adenosine-5'-triphosphate).*[2,3]
- **Alpha-Lipoic Acid (ALA)** is water- and fat-soluble and can be found inside and outside the cells, including inside the mitochondria where it functions naturally as a metabolic coenzyme. ALA also neutralizes free radicals, helps regenerate vitamins C and E, increases tissue levels of glutathione, and helps maintain the proper ratio of reduced-to-oxidized coenzyme Q10 in the mitochondria.*[4,5]
- **Milk Thistle Extract** has a broad history of use in promoting liver health. Silymarin is the active constituent in milk thistle. It supports antioxidant activity, neutralizes toxins, and may have hepatoprotective effects. Its actions in the liver include maintaining healthy levels of fat peroxidation and fibrous tissue formation, supporting a healthy immune and inflammatory response, and promoting protein synthesis and normal regeneration of liver tissue.*[6,7]
- **Theacrine** is a purine alkaloid that is similar in chemical structure to caffeine but with different physiological effects, including no habituation potential. Theacrine is a dopamine receptor agonist, and its actions help increase dopamine signaling, which is associated with enhanced mood, heightened mental focus, and increased energy.*[8]
- **Green Tea** leaves contain polyphenols called catechins, of which the most biologically active is epigallocatechin-3-gallate (EGCG). Its studied effects include powerful antioxidant activity that inhibits DNA damage; induction of detoxifying enzymes; support of gene signaling, which helps regulate cellular growth, development, and apoptosis; and a potential role for encouraging healthy gut bacteria.*[9,10]
- **Broccoli Seed Extract** contains a phytochemical called glucoraphanin that is metabolized to the biologically active sulforaphane. These two compounds have been widely studied for their positive effects on antioxidant activity, detoxification, cellular metabolism, and cell-life regulation. It has been suggested that they are the "missing links" that correlate a diet rich in cruciferous vegetables with good health.*[11,12]
- **Resveratrol** is a phenolic plant compound that has antioxidant activity, which protects the body from oxidative damage and provides protective support against the effects of cognitive decline. It is found in varying amounts in grape skin, some berries, plums, herbs, peanuts, and pine trees.*[13,14]
- **Huperzine A (HupA)** affects ion channels, an activity that has been linked to healthy learning and memory. HupA may influence levels of acetylcholine, one of the chemical messengers used to communicate within the nervous system. This effect has been shown to support healthy cognition in animal models and phase IV human clinical trials.*[15,16]
- **Shilajit** is a mineral-rich phytocomplex with many bioactive components, including fulvic acid. It comprises rock humus, rock minerals, and organic substances that have been compressed by layers of rock mixed with marine organisms and microbial metabolites. In traditional Indian ayurvedic and siddha medicine, shilajit is known as a *rasayana* because of its rejuvenating qualities, which include heightening physical performance and easing fatigue. Modern research suggests that shilajit exhibits antioxidant activity, and its humic substances may inhibit heavy metal distribution, metabolism, and absorption.*[17]
- ***Bacopa monnieri*** is an ayurvedic herb that has reported cognitive processing, cytokine-modulating, and anti-stress effects thought to be mediated through its free-radical scavenging capacity and its protective effect on DNA cleavage.*[18,19]

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*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.

MitoPerformancePlus—Foundation Formula Discussion Adequate nourishment is the foundation for overall health and wellness, and good nutrition typically translates into a stronger immune system and better health. The human body uses dietary proteins, fats, and carbohydrates, known as macronutrients, to provide the energy (calories) needed to fuel physiological functions. Vitamins and minerals, known as micronutrients, are needed in much smaller quantities. Unlike their macro counterparts, micronutrients don't give you energy, but they do participate in converting food to energy; building and repairing tissues and DNA; manufacturing neurotransmitters, hormones, and other modulators in the body; breaking down and detoxifying xenobiotics and medications; and maintaining growth, reproduction, and health.*[20-22]
According to the *Dietary Guidelines for Americans 2020-2025* (DGA) and additional data from the USDA and other agencies and organizations, the American diet lacks micronutrients.[23-25] Mass food production, storage techniques, poor food choices, and nutrient-depleting preparation methods may be contributing to this deficit. Furthermore, the percent daily values (%DV) for micronutrients are based on the minimum amount needed to meet the basic need of a healthy person of a specific age and gender group. The %DV is not always indicative of the amount needed for optimal functioning of all individuals, especially those who are chronically ill.*[22,24,26]

When considering where American diets fall short in nutrients, the DGA shows that low intakes of potassium, dietary fiber, calcium, and vitamin D are a public health concern.[23] Other nutrients that have notably low intakes or require increased intake subsequent to life stage include vitamins A, B6, B12, C, E, and folate; the minerals magnesium and iron; and choline.[23,27,28] Data from the National Health and Nutrition Examination Surveys (NHANES) suggest a pervasive deficiency in A, C, D, E, and zinc—nutrients linked to immune health.[25] Inadequate intake of most of these nutrients is attributable to an overall unhealthy eating pattern due to low intakes of nutrient-rich foods such as vegetables, fruits, whole grains, and dairy that contain these nutrients.[23] In cases when food is not enough for an individual to get adequate micronutrients, multivitamin/mineral supplements are recognized as being of value to help fill dietary nutritional shortfalls.*[21,25,26,29-31]

MitoPerformancePlus is designed to meet the foundational nutrition needs for a variety of protocols and life stages. This formula provides:

A Balanced Profile Vitamins and minerals work cooperatively when present in sufficient amounts. However, imbalances between micronutrients can disrupt this synergistic relationship, possibly leading to instances of competitive intestinal absorption or displacement at the metabolic/cellular level, which can produce relative excesses and insufficiencies. For this reason, MitoPerformancePlus features a balanced nutrient profile that includes calcium and magnesium, vitamins C and E, bioactive folate, bioactive vitamin B12, B vitamin complex, beta-carotene, and trace elements.*

Bioavailable Nutrient Forms The micronutrients are provided in bioactive forms so that they can be adequately absorbed and utilized. MitoPerformancePlus contains a full complement of Albion® patented mineral chelates and complexes. Albion is a recognized world leader in mineral amino acid chelate nutrition and manufactures highly bioavailable nutritional mineral forms that are validated by third-party research and clinical studies. MitoPerformancePlus also contains natural vitamin E, clinically shown to be more bioavailable than synthetic dl-alpha-tocopherol, as well as mixed tocopherols to more closely approximate how much vitamin E an individual might gain when consuming healthful foods.[32,33] The folate source in MitoPerformancePlus is methyltetrahydrofolate (5-MTHF)—the most bioactive form of folate[34]—in the form of Quatrefolic®, which has greater stability, solubility, and bioavailability over calcium salt forms of 5-MTHF. Supplementing with bioactive 5-MTHF facilitates the bypassing of steps in folate metabolism. This may be especially beneficial to individuals with genetic variations in folate metabolism.[35,36] Vitamins B2, B6, and B12 are provided in metabolically active forms.*

Support for Energy Production and Stress Response MitoPerformancePlus provides generous levels of B vitamins, which serve as prime coenzymes in glycolysis and oxidative phosphorylation and as cofactors in amino acid and lipid metabolism.[37-39] Sufficient levels of the B vitamins are critical for energy production and cell growth and division, and they have many other essential roles in the body, including support for nervous system function.[40] The balanced presence of B vitamins is essential to their cooperative functioning and are excellent for individuals with stressful lifestyles.*

Antioxidant Protection Vitamins E and C, selenium, zinc, beta-carotene, and trace elements provide broad-spectrum antioxidant activity.[41,42] Their combined presence supports their ability to regenerate each other and maintain consistent levels of antioxidant activity both intra- and extracellularly.*

Detoxification Support Xenobiotics, including environmental pollutants and medications, must undergo biotransformation into molecules that can be easily excreted from the body. Detoxification of xenobiotics is a complex process that requires micronutrients, phytonutrients, energy, and adequate antioxidant support for safe and effective completion.[42-44] There are significant levels of bioavailable riboflavin, niacin, folate, and B12 present in MitoPerformancePlus to support phase I detoxification. Beta-carotene, vitamin C, tocopherols, selenium, zinc, and manganese are present to support tissues when reactive intermediates are formed between phase I and phase II detoxification.*

MitoPerformancePlus offers foundational multivitamin and mineral support designed to compensate for dietary nutritional shortfalls and nourish optimal wellness. A select combination of ingredients has been added for enhanced support of mental and physical energy production and for detoxification.*

Supplement Facts

Serving Size: 4 Capsules
Servings Per Container: 30

	Amount Per Serving	%DV
Vitamin A (75% as natural beta-carotene and 25% as retinyl palmitate)	400 mcg	44%
Vitamin C (as sodium ascorbate, potassium ascorbate, zinc ascorbate, and calcium ascorbate)	45 mg	50%
Vitamin D3 (cholecalciferol)	12.5 mcg (500 IU)	63%
Vitamin E (as d-alpha tocopheryl succinate)	31 mg	207%
Thiamin (as thiamine mononitrate)	3.5 mg	292%
Riboflavin (as riboflavin 5'-phosphate sodium)	3.5 mg	269%
Niacin (as niacinamide and niacin)	11.5 mg	72%
Vitamin B6 (as pyridoxal 5'-phosphate)	3.5 mg	206%
Folate (as (6S)-5-methyltetrahydrofolic acid, glucosamine salt[S1] and as calcium folinate)	289 mcg DFE	72%
Vitamin B12 (as methylcobalamin)	89 mcg	3,708%
Biotin	179 mcg	597%
Pantothenic Acid (as d-calcium pantothenate)	35 mg	700%
Choline (as choline dihydrogen citrate)	6 mg	2%
Calcium (as di-calcium malate[S2], d-calcium pantothenate, and calcium ascorbate)	17 mg	2%
Iodine (as potassium iodide)	17 mcg	11%
Magnesium (as di-magnesium malate)[S2]	65 mg	15%
Zinc (as zinc bisglycinate chelate[S2])	2 mg	18%
Selenium (as selenium glycinate complex)[S2]	17 mcg	31%
Manganese (as manganese bisglycinate chelate)[S2]	0.09 mg	4%
Chromium (as chromium nicotinate glycinate chelate)[S2]	89 mcg	254%
Molybdenum (as molybdenum glycinate chelate)[S2]	8 mcg	18%
Potassium (as potassium glycinate complex[S2] and potassium ascorbate)	17 mg	0%
Acetyl-L-Carnitine (as acetyl-L-carnitine HCl)	500 mg	**
N-Acetyl-L-Cysteine	200 mg	**
Bacopa Extract (*Bacopa monnieri*)(whole plant)(8% bacosides)	200 mg	**
Alpha-Lipoic Acid	100 mg	**
Shilajit (10.3% Dibenzo-α pyrones (DBPs) & Dibenzo-α pyrone Chromoproteins (DCPs))(50% fulvic acids with DBP Core Nucleus)[S3]	100 mg	**
Theacrine[S4]	100 mg	**
Milk Thistle Extract (*Silybum marianum*)(seeds)(30% silybins)	90 mg	**
Green Tea Extract (*Camellia sinensis*)(leaf)(75% catechins, 45% EGCG)	45 mg	**
Mixed Tocopherols	25 mg	**
Benfotiamine	10 mg	**
trans-Resveratrol (from *Polygonum cuspidatum*)(root)	10 mg	**
Inositol	6 mg	**
Glucoraphanin (from broccoli extract)(*Brassica oleracea italica*)(seed)[S5]	5.2 mg	**
Huperzine A (from *Huperzia serrata*)(whole plant)	200 mcg	**
Vanadium (as vanadium nicotinate glycinate chelate)[S2]	134 mcg	**

** Daily Value (DV) not established.

Other Ingredients: Capsule (hypromellose and water), ascorbyl palmitate, silica, and hydroxypropyl cellulose.

Quatrefolic® S1. Quatrefolic® is a registered trademark of Gnosis S.p.A. Produced under U.S. Patent 7,947,662.

S2. Albion®, DimaCal®, TRAACS® and the Albion Gold Medallion® are registered trademarks of Albion Laboratories, Inc.

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Directions

Take four capsules daily, or use as directed by your healthcare professional.

Consult your healthcare professional before use. Individuals taking medication should discuss potential interactions with their healthcare professional. Do not use if tamper seal is damaged.

Formulated To Exclude

Wheat, gluten, yeast, soy protein, dairy products, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, and artificial preservatives.

References

1. Raghu G, Berk M, Campochiaro PA, et al. *Curr Neuropharmacol.* 2021;19(8):1202-1224. doi:10.2174/1570159X19666201230144109
2. Virmani A, Binienda Z. *Mol Aspects Med.* 2004;25(5-6):533-549. doi:10.1016/j.mam.2004.06.003
3. Carnitine Fact Sheet. National Institutes of Health. Office of Dietary Supplements. Updated March 29, 2021. Accessed December 14, 2021. https://ods.od.nih.gov/factsheets/Carnitine-HealthProfessional/
4. Packer L, Tritschler HJ, Wessel K. *Free Radic Biol Med.* 1997;22(1-2):359-378. doi:10.1016/s0891-5849(96)00269-9
5. Liu J. *Neurochem Res.* 2008;33(1):194-203. doi:10.1007/s11064-007-9403-0
6. Milk Thistle Fruit. American Botanical Council. Accessed December 13, 2021. http://cms.vherbalgram.org/expandedE/MilkThistlefruit.html
7. Soleimani V, Delghandi PS, Moallem SA, et al. *Phytother Res.* 2019;33(6):1627-1638. doi:10.1002/ptr.6361
8. Taylor L, Mumford P, Roberts M, et al. *J Int Soc Sports Nutr.* 2016;13:2. doi:10.1186/s12970-016-0113-3
9. Saeed M, Naveed M, Arif M, et al. *Biomed Pharmacother.* 2017;95:1260-1275. doi:10.1016/j.biopha.2017.09.024
10. Green tea. *Altern Med Rev.* 2000;5(4):372-375.
11. Keum YS. *Ann N Y Acad Sci.* 2011;1229:184-189. doi:10.1111/j.1749-6632.2011.06092.x
12. Fahey JW, Talalay P. *Food Chem Toxicol.* 1999;37(9-10):973-979. doi:10.1016/s0278-6915(99)00082-4
13. Kennedy DO, Wightman EL, Reay JL, et al. *Am J Clin Nutr.* 2010;91(6):1590-1597. doi:10.3945/ajcn.2009.28641
14. Cicero AFG, Ruscica M, Banach M. *Arch Med Sci.* 2019;15(4):936-943. doi:10.5114/aoms.2019.85463
15. Wang R, Yan H, Tang XC. *Acta Pharmacol Sin.* 2006;27(1):1-26. doi:10.1111/j.1745-7254.2006.00255.x
16. Damar U, Gersner R, Johnstone JT, et al. *Med Hypotheses.* 2017;99:57-62. doi:10.1016/j.mehy.2016.12.006
17. Carrasco-Gallardo C, Guzmán L, Maccioni RB. *Int J Alzheimers Dis.* 2012;2012:674142. doi:10.1155/2012/674142
18. Russo A, Izzo AA, Borrelli F, et al. *Phytother Res.* 2003;17(8):870-875. doi:10.1002/ptr.1061
19. Kongkeaw C, Dilokthornsakul P, Thanarangsarit P, et al. *J Ethnopharmacol.* 2014;151(1):528-535. doi:10.1016/j.jep.2013.11.008
20. Ames BN. *Arch Biochem Biophys.* 2004;423(1):227-234. doi:10.1016/j.abb.2003.11.002
21. Block G, Jensen CD, Norkus EP, et al. *Nutr J.* 2007;6:30. doi:10.1186/1475-2891-6-30
22. Fletcher RH, Fairfield KM. *JAMA.* 2002;287(23):3127-3129. doi:10.1001/jama.287.23.3127
23. U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2020-2025.* 9th ed. December 2020. https://www.dietaryguidelines.gov/sites/default/files/2020-12/Dietary_Guidelines_for_Americans_2020-2025.pdf
24 . Blumberg JB, Bailey RL, Sesso HD, et al. *Nutrients.* 2018;10(2):248. doi:10.3390/nu10020248
25. Reider CA, Chung RY, Devarshi PP, et al. *Nutrients.* 2020;12(6):1735. doi:10.3390/nu12061735
26. Multivitamin/Mineral Supplements Fact Sheet. National Institutes of Health. Updated October 12, 2021. Accessed November 29, 2021. https://ods.od.nih.gov/factsheets/MVMS-HealthProfessional/?print=1
27. Bird JK, Murphy RA, Ciappio ED, et al. *Nutrients.* 2017;9(7):655. doi:10.3390/nu9070655
28. Multivitamin/Mineral (MVM) Inclusion in the Supplemental Nutrition Assistance Program (SNAP). Council for Responsible Nutrition; 2017. Accessed December 6, 2021. https://www.crnusa.org/multivitamin-mineral-mvm-inclusion-supplemental-nutrition-assistance-program-snap
29. Blumberg JB, Frei BB, Fulgoni VL, et al. *Nutrients.* 2017;9(8):849. doi:10.3390/nu9080849
30. Blumberg JB, Cena H, Barr SI, et al. *Clin Ther.* 2018;40(4):640-657. doi:10.1016/j.clinthera.2018.02.014
31. Marra MV, Bailey RL. *J Acad Nutr Diet.* 2018;118(11):2162-2173. doi:10.1016/j.jand.2018.07.022
32. Kiyose C, Muramatsu R, Kameyama Y, et al. *Am J Clin Nutr.* 1997;65(3):785-789. doi:10.1093/ajcn/65.3.785
33. Burton GW, Traber MG, Acuff RV, et al. *Am J Clin Nutr.* 1998;67(4):669-684. doi:10.1093/ajcn/67.4.669
34. Venn BJ, Green TJ, Moser R, et al. *Am J Clin Nutr.* 2003;77(3):658-662. doi:10.1093/ajcn/77.3.658
35. Prinz-Langenohl R, Brämswig S, Tobolski O, et al. *Br J Pharmacol.* 2009;158(8):2014-2021. doi:10.1111/j.1476-5381.2009.00492.x
36. Lamers Y, Prinz-Langenohl R, Brämswig S, et al. *Am J Clin Nutr.* 2006;84(1):156-161. doi:10.1093/ajcn/84.1.156
37. Calderón-Ospina CA, Nava-Mesa MO. *CNS Neurosci Ther.* 2020;26(1):5-13. doi:10.1111/cns.13207
38. Kennedy DO. *Nutrients.* 2016;8(2):68. doi:10.3390/nu8020068
39. Depeint F, Bruce WR, Shangari N, et al. *Chem Biol Interact.* 2006;163(1-2):94-112. doi:10.1016/j.cbi.2006.04.014
40. B Vitamins. National Library of Medicine. MedlinePlus. Last reviewed September 23, 2021. Accessed December 2, 2021. https://medlineplus.gov/bvitamins.html
41. Jayedi A, Rashidy-Pour A, Parohan M, et al. *Adv Nutr.* 2018;1;9(6):701-716. doi:10.1093/advances/nmy040
42. Doyle ME, Pariza MW. In: Kotsonis FN, Mackey MA, eds. *Nutritional Toxicology.* 2nd ed. Taylor & Francis; 2002:1-30. https://doi.org/10.1201/9781420025088
43. Liska DJ. *Altern Med Rev.* 1998;3(3):187-98.
44. Hodges RE, Minich DM. *J Nutr Metab.* 2015;2015:760689. doi:10.1155/2015/760689

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