Multi SAP

*Science-based, essential multivitamin**

Research indicates that several of the nutrients found in a multivitamin supplement play important roles in preventing chronic diseases like heart disease, cancer, and osteoporosis.* A vitamin is an organic substance or chemical found in food that is absolutely necessary for life.* We now know that although vitamins each have individual roles in the body, they also work together as a team to maintain normal physiological functions.* A daily multivitamin / micronutrient supplement ensures adequate intake of several nutrients that might be lacking in processed, cooked, denatured, or overfarmed foods in today's diet.*

SUPPLEMENT FACTS

Serving Size: 3 Capsules — **Servings:** 60

	Amount Per Serving	% Daily Value
Vitamin C (from calcium ascorbate)	200 mg	222%
Vitamin D (from cholecalciferol) [400 IU]	10 mcg	50%
Vitamin E (as mixed tocopherols from non-GMO sunflower) [3 IU]	2 mg	13%
Thiamin (Vitamin B1; from thiamin hydrochloride)	100 mg	8333%
Riboflavin (Vitamin B2)	75 mg	5769%
Riboflavin (Vitamin B2; from riboflavin-5´-phosphate)	25 mg	1923%
Niacin (from inositol hexanicotinate, flush-free)	50 mg NE	313%
Vitamin B6 (from pyridoxal-5´-phosphate)	20 mg	1176%
Folate (from calcium l-5-methyltetrahydrofolate)	1700 mcg DFE	425%
Vitamin B12 (from methylcobalamin)	1000 mcg	41667%
Biotin	150 mcg	500%
Pantothenic acid (from calcium d-pantothenate)	100 mg	2000%
Calcium (from calcium citrate)	125 mg	10%
Iodine (from potassium iodide)	450 mcg	300%
Magnesium (from magnesium citrate)	100 mg	24%
Zinc (from zinc citrate)	15 mg	136%
Selenium (from l-selenomethionine)	100 mcg	182%
Copper (from copper gluconate)	1.5 mg	167%
Manganese (from manganese citrate)	1.5 mg	65%
Chromium (from chromium picolinate)	100 mcg	286%
Molybdenum (from molybdenum citrate)	150 mcg	333%
Potassium (from potassium citrate)	50 mg	1%
Inositol	100 mg	**

**Daily Value not established

Other ingredients: Vegetable magnesium stearate, silicon dioxide, and microcrystalline cellulose in a vegetable capsule composed of vegetable hypromellose and purified water.

This product is non-GMO.

Contains no: Gluten, soy, wheat, eggs, dairy, yeast, citrus, preservatives, artificial flavor or color, or sugar.

Multi SAP (multivitamin) contains 180 vegetable capsules per bottle.

DIRECTIONS FOR USE

Adults: Take 3 capsules daily with a meal or as directed by your healthcare practitioner. If you are taking other medications, take this product a few hours before or after them.

INDICATION

Supplementing 3 **Multi SAP** capsules daily provides therapeutic doses of a variety of supplemental nutrients from a single product, in order to prevent vitamin or mineral deficiencies as well as to achieve higher intakes of nutrients believed to be of benefit beyond typical dietary levels.

CAUTIONS AND WARNINGS

Do not use if you are pregnant or breast-feeding. Consult a healthcare practitioner prior to use if you have a history of non-melanoma skin cancer.

FEATURES

- **Vegetable capsules** ensure **100% disintegration**, so vitamins enter the intestine where tablets may not.
- Noninclusion of the nutrients **β-carotene**, **vitamin A**, and **iron**, providing healthcare practitioners the flexibility to supplement these micronutrients separately as needed.

PURITY, CLEANLINESS, AND STABILITY

All ingredients listed for all **Multi SAP** lot numbers have been validated by a third-party laboratory for identity, potency, and purity.

*** 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.**

Scientific Advisory Panel (SAP): adding nutraceutical research to achieve optimum health

NFH®

351, Rue Joseph-Carrier, Vaudreuil-Dorion, Quebec, J7V 5V5
T 1 866 510 3123 • F 1 866 510 3130 • nfh.ca

For healthcare professional use only.

Multivitamins are broad-spectrum micronutrient sources that help to ensure daily adequacy in nutrient intake. The typical North American diet may not provide adequacy for all micronutrients considering the high intake of processed foods and the limited time people may have to make better food choices for an adequate, balanced diet. Digestive disorders and issues of absorption may further compound inadequate micronutrient intake. Our bodies require vitamins and minerals to carry out reactions for basic functions. Multivitamins help to cover this gap to supply micronutrients that a diet may lack, thereby helping to avoid nutrient deficiencies, and maintain optimal physiological and metabolic functions. Vitamin and mineral supplementation has been shown to favorably affect angiogenesis, immunity, cell differentiation, proliferation and apoptosis.[1] They play a role in prevention of chronic diseases seen with aging such as cardiovascular disease, diabetes mellitus[2, 3] and osteoporosis. At any stage in life, supplementing a multivitamin is prudent to ensure adequate nutrient intake.

MINERALS

Zinc is essential to human metabolism and catalyzes more than 100 enzymes; it facilitates protein folding and regulates gene expression. Zinc is also involved in healthy immune function, wound healing, and is highly involved in the reproductive system. Among its many uses, zinc supplementation has been shown to be beneficial to increased sperm motility; increasing levels of T lymphocytes, which fight infections of the gastrointestinal and respiratory tract; and has been shown to decrease epithelial inflammation.

Iodine deficiency can have an effect on thyroid and metabolic function, and cystic formations in the body including fibrocystic breasts and polycystic ovarian syndrome.[4] Iodine deficiency has also been a leading contributor in childhood developmental delays.[5]

Calcium and magnesium are critical for musculoskeletal development, and influence nerve signalling. The intake of processed and low-nutrient foods are a major contributor to osteoporosis. Calcium supplementation has been shown to positively benefit bone mineral density.[6] Magnesium is a cofactor for many enzymatic reactions and may decrease inflammation and pain via analgesic action. It has been shown to help relax muscles and relieve cramps.[7]

Magnesium and chromium play a role in blood glucose metabolism, transport and insulin sensitivity. Supplementation of these minerals may greatly decrease the risk of diabetes.

Potassium homeostasis is critical for the cardiovascular system, and deficiency can be quite common as it is depleted by excessive sodium intake from food and by medications. Studies have implicated the importance of potassium imbalance in the pathogenesis of cardiovascular disorders.[8]

ANTIOXIDANTS, BIOFLAVONOIDS, VITAMIN C AND VITAMIN E

Antioxidants, working in a complex synergistic system, play a major role in humans to quench free radicals and reactive oxygen species, the metabolic paradox of using oxygen as an energy source. The function of the antioxidant system is to prevent damage by free radicals to DNA, protein and lipid structures — the integral bases of cell physiology.

Antioxidants, a family to which vitamins C and E as well as selenium and the bioflavonoids belong, act as inhibitors at stages of initiation and promotion of tumour growth and proliferation and mitigate neoplastic processes.[9, 10]

Selenium is a mineral that is a potent antioxidant that has effects on both the immune and endocrine system. Most epidemiological studies have shown an inverse relationship between selenium intake and cancer risk.[10] It has been shown to have an influence on eicosanoid metabolism and modulation of adhesion molecule and cytokine expression.[11] Selenium influences hormonal regulation of metabolism by converting T_4 (thyroxine) into T_3 (triiodothyronine), and is suggested to have insulin-mimetic properties.[12]

B VITAMINS AND FOLATE

B vitamins are required by the human body for metabolic processes, most notably involved in enzymatic processes required for energy production, while maintaining healthy skin and muscle tone. As the body's physical demands increase, more B vitamins are mobilized to support the required output of energy.[13] They also play a role in the development and maintenance of healthy immune and nervous systems, promote cell growth, and cell division, and are required for healthy blood cell development.

In addition to the immediate benefits that can be seen with B vitamin supplementation, adequate status plays a role in long-term health. Along with vitamin B_{12}, folic acid plays a role in nucleic acid synthesis and one-carbon metabolism. B_6, folate and B_{12} help to lower levels of homocysteine. Hyperhomocysteinemia has been correlated with chronic diseases associated with age such as type 2 diabetes, cardiovascular disease, Parkinson's disease,[14] difficulty conceiving, miscarriages[15] and hip fractures.[16] Numerous studies have documented associations between suboptimal vitamin B_6 status and inflammatory responses.[15]

VITAMIN D

Vitamin D is important for the development of bones, and an inadequacy may contribute to the development of rickets, a disease once thought to be eradicated. Rickets is once again on the rise due to the use of sunscreens and limited sun exposure for fear of ultraviolet overexposure. Limited exposure to ultraviolet rays inhibits the body's ability to synthesize its own vitamin D.

The roles of vitamin D include the maintenance of mineral serum levels (i.e. calcium and phosphorus) to support metabolic function, neuromuscular transmission, regulate bone metabolism and enhance immunity.

Many studies have shown the correlation between vitamin D supplementation and decreased risk of cancer.[17] Studies have also found vitamin D deficiency to be a contributor to cardiovascular disease.[18] It is suggested to have cardiovascular effects as vitamin D receptors are distributed in vascular smooth muscle, endothelium, and cardiomyocytes.

SAFETY

Despite the prevalence of anemia, iron overload can be quite common. Low hemoglobin levels do not necessarily indicate that iron levels in the body are low, without ascertaining levels of iron deposition in tissues or organs. Excessive amounts of iron have been linked to increased oxidative stress and inflammation,[19] and have been shown to be linked to neurodegenerative disorders such as Parkinson's and Alzheimers's diseases.[20] For these reasons, iron is omitted from NFH's Multi SAP formulation.

Vitamin A is not included in this formulation due to its ability to antagonize the metabolism of vitamin D. Any deficiency of vitamin D may be further exacerbated by higher intakes of vitamin A.

REFERENCES

1. Huang, H.Y., et al. "The efficacy and safety of multivitamin and mineral supplement use to prevent cancer and chronic disease in adults: a systematic review for a national institutes of health state-of-the-science conference." *Annals of Internal Medicine* Vol. 145, No. 5 (2006): 372–385.
2. Farvid, M.S., et al. "The impact of vitamin and/or mineral supplementation on lipid profiles in type 2 diabetes." *Diabetes* Vol. 65, Issue 1 (2004): 21–28.
3. Farvid, M.S., et al. "The impact of vitamins and/or mineral supplementation on blood pressure in type 2 diabetes." *Journal of the American College of Nutrition* Vol. 23, No. 3 (2004): 272–279.
4. Abraham, G.E. "Iodine: The universal nutrient." *Vitamin Research News* Vol. 19, No. 9 (2005): 11–16.
5. Berbel, P., et al. "Iodine supplementation during pregnancy: a public health challenge." *Trends in Endocrinolgy and Metabolism* Vol. 18, Issue 9 (2007): 338–343.
6. Winzenberg, T., et al. "Effects of calcium supplementation on bone density in healthy children: meta-analysis of randomised controlled trials." *British Medical Journal* Vol. 333, No. 7572 (2006): 775.
7. Goyal, P., et al. "Role of magnesium sulphate for brachial plexus analgesia." *The Internet Journal of Anesthesiology* Vol. 21, No. 1 (2009).
8. Macdonald, J.E. and A.D. Struthers. "What is the optimal serum potassium level in cardiovascular patients?" *Journal of the American College of Cardiology* Vol. 43, No. 2 (2004): 155–161.
9. Park, O.J. and Surh, Y.J. "Epigallocatechin gallate and genistein as representative functional food ingredients with chemopreventive potential: evidence from epidemiologic and laboratory studies." *Toxicology Letters* Vol. 150, Issue 1 (2004): 43–56.
10. Combs, G.F. and J. Lü. "Selenium as a cancer preventive agent." *Biomedical and Life Sciences* Part III (2006): 249–264.
11. McKenzie, R.C., G.J. Beckett, and J.R. Arthur. "Effects of selenium on immunity and aging." *Biomedical and Life Sciences* Part III (2006): 311–322.
12. Beckett, G.J. and J.R Arthur. "Selenium and endocrine systems." *Journal of Endocrinology* Vol. 184, No. 3 (2005): 455–465.
13. Woolf, K. and M.M. Manore. "B-vitamins and exercise: does exercise alter requirements?." *International Journal of Sport Nutrition and Exercise Metabolism* Vol. 16, No. 5 (2006): 453–484.
14. de Lau, L.M.L., et al. "Dietary folate, vitamin B_{12}, and vitamin B_6 and the risk of Parkinson disease." *Neurology* Vol. 67, No. 2 (2006): 315–318.
15. Ronnenberg, A.G., et al. "Preconception B-vitamin and homocysteine status, conception, and early pregnancy loss." *American Journal of Epidemiology* Vol. 166, No. 3 (2007): 304–312.
16. McLean, R.R., et al. "Plasma B vitamins, homocysteine, and their relation with bone loss and hip fracture in elderly men and women." *The Journal of Clinical Endocrinology & Metabolism* Vol. 93, No. 6 (2008): 2206–2212.
17. Garland, C.F., et al. "The role of vitamin D in cancer prevention." *American Journal of Public Health* Vol. 96, No. 2 (2006): 252–261.
18. Wang, T.J., et al. "Vitamin D deficiency and risk of cardiovascular disease." *Circulation* Vol. 117, no .4 (2008): 503–511.
19. Reddy, M.B. and L. Clark. "Iron, oxidative stress, and disease risk." *Nutrition Reviews* Vol. 62, No. 3 (2004): 120–124.
20. Zecca, L., et al. "Iron, brain aging and neurodegenerative disorders." *Nature Reviews Neuroscience* Vol. 5, No. 11 (2004): 863–873.

© NFH Nutritional Fundamentals for Health 2017

For healthcare professional use only.