# KIDS PLUS

*A Children's Multivitamin and Multimineral Tablet*

Kids Plus is a multi-vitamin especially designed for young, growing children. It combines vitamins, minerals and other nutrients, essential for healthy growth and development. Kids Plus improves blood nutrient levels of many vitamins and minerals, which have been found to boost immunity, support cognitive development and provide the necessary building blocks for healthy and optimal growth.

**Active Ingredients:**

Each tablet contains:

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| Mixed Carotenoids as Betacarotene | 2.0 mg |
| Thiamine nitrate (Vitamin B1) | 1.2 mg |
| Riboflavine (Vitamin B2) | 1.5 mg |
| Nicotinamide | 10.0 mg |
| Calcium pantothenate | 3.0 mg |
| Equiv. Pantothenic acid (Vitamin B5) | 2.7 mg |
| Pyridoxine hydrochloride (Vitamin B6) | 2.0 mg |
| Cyanocobalamin (Vitamin B12) | 10 mcg |
| Ascorbic acid (Vitamin C) | 100 mg |
| Cholecalciferol | 2.5 mcg |
| Equiv. Vitamin D3 | 100 IU |
| d-alpha-Tocopheryl acid succinate | 23.1 mg |
| Equiv. Vitamin E | 25 IU |
| Folic acid | 25 mcg |
| Biotin | 10 mcg |
| Calcium hydrogen phosphate | 43.5 mg |
| Equiv. Calcium | 10mg |
| Equiv. Phospherous | 7.8 mg |
| Magnesium oxide | 8.77 mg |
| Equiv. Magnesium | 5mg |
| Potassium gluconate | 5.0 mg |
| Equiv. Potassium | 775 mcg |
| Ferrous fumarate | 4.6 mg |
| Equiv. Iron | 1.5mg |
| Zinc amino acid chelate | 1.0 mg |
| Equiv. Zinc | 100mcg |
| Manganese amino acid chelate | 500 mcg |
| Equiv. Manganese | 50mcg |
| Copper gluconate | 36 mcg |
| Equiv. Copper | 5mcg |
| Chromic chloride | 10.3 mcg |
| Equiv. Chromium | 2mcg |



Contains glucose and sucralose.
Trusil Natural Blackcurrant

**Recommended Dose**

Children (2 years and over): Chew 1 tablet daily or as directed by your health care professional.

The active ingredients in the Nutrition Care formulations, when professionally prescribed, may assist patients suffering from specific conditions. This statement does not imply or make a claim for a cure for disorders treated with any Nutrition Care products and their use should be based on published and relevant scientific and clinical data.

**Literature Review**

Children are often at risk of marginal nutrient deficiencies. In various studies iron, zinc, calcium, magnesium, beta-carotene, vitamins C, D, E, B6, B12 and folic acid have all been found to be deficient in children and consumed at levels below the RDI. [1,4,5,11,17,20] Sugar consumption is high in young children. [26] Many children do not eat breakfast and these children are less likely to meet RDI requirements, usually obtaining less than 2/3 of the recommended allowances for vitamins and minerals. [22] The foods most commonly eaten by preschool children are fruit drinks, carbonated drinks, milk and French fries. [11] Eighty percent of children do not eat the recommended five portions of fruit and vegetables daily. [10]

Common micronutrient deficiencies may damage DNA by the same mechanism as radiation and many chemicals folate, vitamin B6 and B12 deficiencies cause extensive incorporation of uracil into human DNA leading to chromosomal breaks. [10] Ames (1999) suggests that remedying these micronutrient deficiencies is a low cost method to bring about a major improvement in public health and increased longevity. [10]

**Immune System**

During childhood, the immature immune system is constantly being challenged by common infections such as colds, flu and the usual childhood diseases. Nutrient deficiencies impair immune response and lead to frequent and severe infections. For example, deficiencies of zinc, iron, selenium, vitamins A, B6, C and E have been found to reduce immune response. [12]

Vitamin A and zinc are known modulators of immune responses against common pathogens. Supplementation with vitamin A and zinc is recommended as an effective method of preventing infections in susceptible children. [6] Children are at high risk of zinc deficiency. [1] Zinc affects leukocyte functions such as phagocytosis and T-lymphocyte-mediated immune responses. Zinc deficiency is associated with decreased CD4+:CD8+ cells and decreased chemotaxis of phagocytes. [12] Zinc supplementation reduces the duration of childhood diarrhea. [13] Vitamin A stabilizes the membrane of mucosal epithelial cells and enhances leukocyte function. [12] Vitamin A is effective in severe measles even in the absence of deficiency. [21,24,25] Supplementation with vitamin A decreases morbidity and mortality associated with measles infection in children and it has been suggested that vitamin A supplementation should be routine in measles, especially if there are complications.

The incidence of asthma has increased in the past 10 years and diet is recognized as a potential risk factor for asthma occurrence. [8] Asthmatic children have low serum levels of vitamin A, E and C even during asymptomatic periods. [8] Vitamin C is associated with protective effects of airway responsiveness, lung function and asthma symptoms. [16] Supplementation with the antioxidants, especially vitamins C and E, in children whose lungs are still developing is likely to provide benefit against these air pollutants. [19] Bronchial asthma and atopic dermatitis respond more effectively to treatment if adequate vitamin B6 is also supplied. [23] Children with type 1 diabetes have low levels of vitamins B and C. [18]

**Cardiovascular Disease**

The incidence of hyperhomocysteinemia in children is lower than that found in adults, but there are a significant number of children at elevated risk of future cardiovascular disease. Vitamins B6, B12 and folic acid are known to restore normal homocysteine levels. [14]

**Learning and Cognitive Abilities**

Children with poor dietary habits may have impaired intelligence, and supplementation to correct low blood nutrient levels may improve cognitive abilities and performance on IQ tests. [27] The academic performance of learning disabled children can be increased with supplementation with B vitamins and minerals. In a US study of 20 learning disabled children showed improvement in behaviour and reading comprehension within a few weeks or months of beginning supplementation. Within the first year of supplementation, some children gained 3 to 5 years in reading comprehension. The improvements continued with continuing use of the supplements. [7]

**Behaviour Patterns**

Numerous studies have demonstrated that nutrient supplementation can reduce violent and antisocial behaviour in institutionalized juvenile offenders. Poor nutritional habits can lead to low levels of vitamins in the blood, impaired brain function and may ultimately contribute to violent and antisocial behaviour. [9] To determine whether schoolchildren with a history of antisocial behaviour will also respond to supplementation, children aged 6 to 12 years were given daily vitamin and mineral supplementation or placebo for 4 months. The children receiving active treatment recorded lower rates of antisocial behaviours including being disrespectful, vandalism and refusal to work. This trial supports the benefits of nutritional supplements for children in normal

educational settings with some history of antisocial behaviour. [9]

**Other Uses**

Children and young adults with active inflammatory bowel disease have low serum levels of vitamins A and E. Lower levels are noted with greater disease activity. [15]

Marginal vitamin and mineral deficiencies create abnormalities in biochemical processes, which may not be obvious in the early stages, with signs and symptoms of tissue or organ damage appearing only after prolonged periods of deficiency. Micronutrient deficiencies limit growth and supplementation to raise blood levels of important nutrients in children can improve height and weight gains. [28] Kids Plus should be combined with a healthy, balanced diet. Avoid food sensitivities.

**References**


1.Werbach MR (1999) Textbook of Nutritional Medicine. Third line Press, Inc, California.

2. Rivera JA, Gonzalez-Cossio T, Flores M, Romero M, Rivera M, Tellez-Rojo MM, Rosado JL & Brown KH. (2001) Multiple micronutrient supplementation increases the growth of Mexican infants. *Am J Clin Nutr* Nov;74(5):657-63.

3.Sichert-Hellert W, Kersting M & Manz F. (2001) Changes in time-trends of nutrient intake from fortified and non-fortified food in German children and adolescents – 15 year results of the DONALD study. Dortmund Nutritional and Anthropometric Longitudinally Designed Study. *Eur J Nutr* Apr;40(2):49-55.

4.Serra-Majem L. (2001) Vitamin and mineral intakes in European children. Is food fortification needed? *Public Health Nutr* Feb;4(1A):101-7.

5.Picciano MF, Smiciklas-Wright H, Birch LL, Mitchell DC, Murray-Kolb L & McConahy KL. (2000) Nutritional guidance is needed during transition in early childhood. *Pediatrics* Jul;106(1PT1):109-14.

6.Molina EL & Patel JA. (1996) A to Z: vitamin A and zinc, the miracle duo. *Indian J Pediatr* Jul0Aug;63(4):427-31.

7.Carlton RM, Ente G, Blum L, Heyman N, Davis W & Ambrosino S. (2000) Rational dosages of nutrients have a prolonged effect on learning disabilities. *Altern Ther Health Med* May;6(3):85-91

8.Kalayci O, Besler T, Kilinc K, Sekerel BE & Saraclar Y. (2000) Serum levels of antioxidant vitamins (alpha tocopherol, beta carotene and ascorbic acid) in children with bronchial asthma. *Turk J Pediatr* Jan-Mar;42(1):17-21.

9.Schoenthaler SJ & Bier ID. (2000) The effect of vitamin-mineral supplementation on juvenile delinquency among American schoolchildren: a randomized, double-blind placebo-controlled trial. *J Altern Complement Med* Feb;6(1):7-17

10.Ames BN. (1999) Micronutrient deficiencies. A major cause of DNA damage. *Ann N Y Acad Sci*;889:87-106

11.Skinner JD, Carruth BR, Houck KS, Bounds W, Morris M, Cox DR, Moran J 3rd & Coletta F. (1999) Longitudinal study of nutrient and food intakes of white preschool children aged 24 to 60 months. *J Am Diet Assoc* Dec;99(12):1514-21

12.Chandra RK. (1999) Nutrition and immunology: from the clinic to cellular biology and back again. *Proc Nutr Soc* Aug;58(3):681-3

13.Penny ME, Peerson JM, Marin RM, Duran A, Lanata CF, Lonnerdal B, Black RE & Brown KH. (1999) Randomized, community-based trial of the effect of zinc supplementation, with and without other micronutrients, on the duration of persistent diarrhea in Lima, Peru. *J Pediatr* Aug;135(2Pt1):208-17

14.Osganian SK, Stampfer MJ, Spiegelman D, Rimm E, Cutler JA, Feldman HA, Montgomery DH, Webber LS, Lytle LA, Bausserman L & Nader PR. (1999) Distribution of and factors associated with serum homocysteine levels in children: Child and Adolescent Trial for Cardiovascular Health. *JAMA* Apr;281(13):1189-96

15.Bousvaros A, Zurakowski D, Duggan C, Law T, Rifai N, Goldberg NE & Leichtner AM. (1998) Vitamins A and E serum levels in children and young adults with inflammatory bowel disease: effect of disease activity. *J Pediatr Gastroenterol Nutr* Feb;26(2):129-35

16.Weiss ST. (1997) Diet as a risk factor for asthma. *Ciba Found Symp*;206:244-57

17.Alaimo K, Mc Dowell MA, Briefel RR, Bischof AM, Caughman CR, Loria CM & Johnson CL. (1994) Dietary intake of vitamins, minerals and fiber of persons aged 2 months and over in the United States: Third National Health and Nutrition Examination Survey, Phase 1, 1988-91. *Adv Data Nov* 14(258):1-28

18.Kodentsova VM, Vrzhesinskaia OA, Sokolnikov AA, Trofimenko EV, Blazheevich NV, Kharitonchik LA, Trofimenko LS, Dronova VI & Spirichev VB. (1994) Vitamin metabolism in children with insulin-dependent diabetes mellitus. Effect of length of illness, severity and degree of disruption of substance metabolism. *Vopr Med Khim* Jul-Aug;40(4):33-8

19.Menzel DB. (1994) The toxicity of air pollution in experimental animals and humans: the role of oxidative stress. *Toxicol Lett* Jun;72(1-3):269-77

20.Doyle W, Jenkins S, Crawford MA & Puvandendran K. (1994) Nutritional status of schoolchildren in an inner city area. *Arch Dis Child* May;70(5):376-81

21.Bendich A. (1993) Physiological role of antioxidants in the immune system. *J Diary Sci* Sep;76(9):2789-94

22.Nicklas TA, Bao W, Webber LS & Berenson GS. (1993) Breakfast consumption affects adequacy of total daily intake in children. *J Am Diet Assoc* Aug;93(8):886-91
23.Balabolkin II, Gordeeva GF, Fuseva ED, Dzhunelov AB, Kalugina OL & Khamidova MM (1992) Use of vitamins in allergic illnesses in children. *Vopr Med Khim* Sep-Oct;38(5):36-40
24.Bendich A. (1992) Vitamins and immunity. *J Nutr* Mar;122(3 Suppl):601-3
25.Coutsoudis A, Coovadia HM, Broughton M, Salisbury RT & Elson I. (1991) Micronutrient utilization during measles treated with vitamin A or placebo. *Int J Vitam Nutr Res*; 61(3):199-204
26.Bremner B, Langenhoven ML, Swanepoel AS & Steyn M. (1990) The snacking habits of white preschool children. *S Afr Med J* Oct 20;78(8):472-5
27.Schoenthaler SJ, Bier ID. (1999) Vitamin-mineral intake and intelligence: a macrolevel analysis of randomized trials. *J Altern Complement Med.* 5(2):125-134.
28.Smith JC, Makdani D, Hegar A, Rao D & Douglass LW. (1999) Vitamin A and zinc supplementation in preschool children. *J Am Coll Nutr* 18(3):213-222