



KEY FACTS

Micronutrient Malnutrition

- Micronutrient malnutrition, a serious public health problem in developing countries, results primarily from diets lacking essential vitamins and minerals, such as iron, vitamin A, and zinc, and from high rates of infectious diseases. [[World Health Organization \[WHO\]](#), 2007]
- Micronutrient malnutrition can exist even when poor people have enough to eat, but lack the resources to buy fresh fruits and vegetables, meat, milk products, and other foods rich in vitamins and minerals. ([Food and Agriculture Organization of the United Nations](#), 2003)
- Diets poor in micronutrients cause illness, blindness, premature death, impaired mental development, and susceptibility to infectious diseases, particularly among children in developing countries. It also causes reduced productivity later in life. ([United Nations Children's Fund \[UNICEF\]/The Micronutrient Initiative](#), 2004)
- Good nutrition is the cornerstone for survival, health, and development. Well-nourished children perform better in school, grow into healthier adults, and are able to give their own children a better start in life. ([UNICEF](#), 2006)
- Due to micronutrient deficiencies, one million children die before the age of five and 100,000 infants are born with preventable physical defects each year. ([Global Alliance for Improved Nutrition \[GAIN\]](#), 2007)
- Nutrition interventions made during pregnancy and early childhood (under two years of age) have the greatest impact in reducing vulnerability to disease and death due to poor nutrition. ([UNICEF](#), 2006)

Key Micronutrient Deficiencies

Iron

- Iron deficiency is the most common and widespread micronutrient deficiency in the world. In infants and young children, diets with inadequate levels of iron impair physical growth, mental development, and learning capacity. ([WHO](#), 2007)
- Approximately 40 percent of all infants in the developing world are iron deficient. ([The Micronutrient Initiative](#), 2007).
- Iron deficiency is a main cause of anemia, a condition in which the blood contains low levels of red blood cells. More than two billion people worldwide are anemic, mostly due to iron deficiency. ([HarvestPlus](#), 2007)
- An estimated four out of ten pre-school children in developing countries are anemic. ([WHO](#), 2007)
- Anemia affects an estimated 60 percent of the population in Sub-Saharan Africa, 19 percent in Latin America and the Caribbean, 76 percent in South Asia, and 40 percent in East Asia and the Pacific region. ([United Nations' Population Division, 2000](#); [WHO, 2004](#))

Vitamin A

- Vitamin A is essential for the human immune system to function well and can help increase resistance to disease and improve chances for survival, growth, and development. Severe Vitamin A deficiency can cause diseases of the eye leading to blindness during early childhood. ([WHO](#), 2007)
- Approximately 100 million children worldwide are Vitamin A deficient. ([UNICEF](#), 2007)
- Vitamin A deficiency affects an estimated 42 percent of the population in Sub-Saharan Africa, 17 percent in Latin America and the Caribbean, 33 percent in South and Southeast Asia, and 14 percent in the Western Pacific region. (United Nations University, *Food and Nutrition Bulletin*, [28:1, 2007](#) and [26:4, 2005](#))

Zinc

- The human body relies on zinc to heal wounds, grow and repair body tissue, and properly clot blood. Severely malnourished children or those with persistent diarrhea or respiratory problems may be zinc deficient. ([GAIN](#), 2007)
- Approximately 2 billion people remain at risk of zinc deficiency. Globally, zinc deficiency contributes to approximately 800,000 child deaths per year. ([The Micronutrient Initiative](#), 2007)
- Zinc deficiency affects an estimated 68 percent of the population in Sub-Saharan Africa, 46 percent in Latin America and the Caribbean, and 61 percent in Asia. ([The Micronutrient Initiative](#), 2000)

Sprinkles

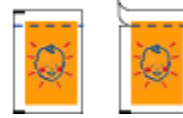
- Sprinkles—a blend of micronutrients in powder form—have been developed to help prevent and treat iron deficiency among young children and other vulnerable groups when mixed with food.
- All solid or semi-solid foods can be fortified in the home by adding Sprinkles.
- Each packet of Sprinkles contains 12.5 milligrams of iron, 5 milligrams of zinc, 400 micrograms of Vitamin A, 160 micrograms of folic acid, and 30 milligrams of Vitamin C, and provides a daily dose of micronutrients to a child, regardless of the quantity of complementary food consumed.
- The content and types of micronutrients included in the Sprinkles can be modified according to the needs of specific populations.
- The sachets are lightweight and simple to store, transport, and distribute. Sprinkles have a long shelf-life (two years), even in hot conditions.
- Sprinkles do not require special measuring utensils or handling and they can be given with any meal. Since they are a food-based rather than a medical intervention, Sprinkles can be easily incorporated into the busy rhythm of everyday life.
- The cost of Sprinkles is not excessive (3-5 cents or less per packet).
- Sprinkles were developed by Stanley Zlotkin, professor of nutrition at the University of Toronto and founder of the Sprinkles Global Health Initiative.

Source: Sprinkles Global Health Initiative, www.sghi.org

How Sprinkles Are Used

The following are the standard guidelines for using Sprinkles:

Tear open the top of the package.



Pour the entire contents of the package into any semi-solid or solid food after the food has been cooked and is at a temperature acceptable to eat.



Mix Sprinkles with an amount of food that the child can consume at a single meal.



Mix the food well after you have added the package of Sprinkles.

Give no more than one full package per day at any mealtime.



Do not share the food to which Sprinkles were added with other household members since the amount of minerals and vitamins in a single package of Sprinkles is just the right amount for one child.



The food mixed with Sprinkles should be eaten within 30 minutes because the vitamins and minerals in the Sprinkles will cause the food to noticeably darken.

Source: Sprinkles Global Health Initiative, www.sghi.org