



GRAIN FOODS FOUNDATION

Flour Enrichment: The Greatest Bargain in Health Care

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Flour enrichment has played an important role in improving health in America for more than 50 years. Diseases caused by vitamin deficiencies were widespread early in the last century. The implementation of vitamin enrichment played a major role in reducing the occurrence of diseases such as beriberi and pellagra. Today most people are not even aware of them.

Most of the US flour supply is enriched with four B vitamins (thiamin, riboflavin, niacin and folic acid) and iron. Other countries may also add vitamin A and zinc. The typical cost of enriching flour with B vitamins and iron is less than seven cents per 100 pounds of flour. Based on today's average per capita consumption of flour products, **it costs about \$0.10 cents per person per year on average to provide the benefits of enrichment through flour fortification.** Flour enrichment may be the most cost effective public health policy ever implemented.

Thiamin (vitamin B1) is required to help the body use its major source of energy, carbohydrates, to the fullest extent. Thiamin is also essential for proper muscle coordination and peripheral nerve tissue maintenance. Thiamin deficiencies can lead to beriberi which is characterized by inflammatory or degenerative changes to the nervous system, digestive system and heart.

Riboflavin (vitamin B2) plays an important role in helping the body transform proteins, fats and carbohydrates into energy. It helps the body maintain healthy skin and eyes and is necessary for building and maintaining body tissues.

Niacin (a B complex vitamin) is essential for fat synthesis, protein metabolism and the conversion of food energy. Niacin has often been called the pellagra preventing factor. Pellagra is a condition characterized by reddish rashes that later turn dark and rough. It became widespread in North America around 1907 but has been virtually eliminated since the advent of flour enrichment.

Folic acid plays a major role in the prevention of neural tube birth defects such as spina bifida. Since the FDA mandated folic acid fortification to enriched grains in 1998, the incidence of neural tube birth defects has declined dramatically. according to various public health agencies. Folic acid also has also been shown to reduce the incidence of strokes. Enriched grains are the primary source of folic acid in American's diets and contain twice the amount of that found in whole grains.

Iron is essential for cell maturation, protein formulation and as a carrier of oxygen throughout the blood stream. Infants and women have the highest probability for iron deficiency. Iron is available in many forms, including flour and semolina.

A healthy balanced diet consisting of enriched grain foods is a great way to ensure you receive the recommended daily intake of these B vitamins, without having to spend a lot of money on supplements.

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