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Perspective

Originating National Strategies and Nanostructured Minerals and Vitamins for Food Fortification

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DESCRIPTION

The practice of adding vitamins and minerals to regularly consumed foods during processing to increase their nutritional value is known as food fortification. Food fortification was recognized as one of the most effective development goals by the Copenhagen Consensus in 2008 and 2012. While mandatory food fortification has been used to prevent micronutrient deficiencies in High-Income Countries (HIC) since the 1920s in Europe and North America when the first salt was iodized, it is still less common in LMICs where food systems are failing to deliver nutritionally adequate diets due to the production and consumption of only a few major starchy food crops (maize, rice, wheat) with low micronutrient content and bioavailability. Food fortification has grown in popularity in LMICs over the last two decades for a variety of reasons, including growing urbanization and rising household spending power, which has resulted in a higher proportion of the population relying on processed foods.

Food fortification in high-income countries has been shown to be effective in alleviating micronutrient deficits. In large-scale food fortification, the evidence is still being established, but research, such as a recent systematic review and meta-analysis of Large-Scale Food Fortification (LSFF) programs, has confirmed the impact of fortification on nutritional outcomes such as reductions in vitamin A deficiency, iodine deficiency, anemia, and iron deficiency among women and children's in Neural Tube Defects (NTDs) among children and improved serum foliate among women However, other fortification methods, such as adding iron to staple foods like bread.

Large-scale food fortification

The addition of micronutrients to commonly consumed foods such as salt, flours, oil, sugar, and condiments during processing is known as industrial or large-scale food fortification.

Large-Scale Food Fortification programs can be classified as required, depending on whether the government initiates and regulates them. Mandatory programs require food process to add nutrients to their products on their own initiative, although they are still subject to regulatory restrictions. Mandatory fortification schemes, particularly for fortified flour and iodized salt, are becoming more frequent.

Types of food fortification

- Mass fortification
- Market driven fortification
- Household and community fortification

Mass fortification:

- Fortification is done in a food that is consumed by the broad public in mass fortification.
- When the majority of the population faces an intolerable risk (public health risk) due to nutritional insufficiency, mass fortification is the best option.
- Cereals, sauces, milk, oil, and veggies, for example can all be fortified.
- The government normally regulates this form of fortification.

Market driven fortification:

- In market-driven fortification, a food manufacturer takes a business-oriented approach to fortifying particular micronutrients to the product.
- Although this type of fortification is optional, the maker must adhere to government-imposed fortification restrictions.
- In comparison to developing countries, market-driven fortification is more widespread in developed countries.

Household and community fortification:

- Household and community fortification refers to adding one or more micronutrients to foods at the household level.
- Multiple micronutrient powders, soluble tablets, and other examples

Advantages of fortification

- Micronutrient fortification helps to prevent or reduce the occurrence of micronutrient insufficiency.

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- Fortification in improving a person's dietary intake and nutritional health.
- One of the most cost-effective methods that may be carried out on a larger scale is fortification.
- Fortified foods are more effective at reducing the risk of various insufficiencies that might arise from a lack of nutrition or a poor eating pattern.

Limitations of food fortification

Infants and young children, consume relatively small amounts of food, are less likely to meet their recommended micronutrients from universally fortified staples alone. The availability, accessibility, and consumption of sufficient quantities of micronutrient rich foods, such as animal foods and fruits and vegetables.