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Developing Evidence-Based, Food-Based Dietary

Guidelines: Critical Contributions of Dairy

Scientific excellence
Industry applicability
Strategic networking
Global influence

The purpose of this factsheet is to provide context and rationale for addressing the evolving recommendations surrounding dairy in global Food-Based Dietary Guidelines (FBDG). It highlights the importance of including nutrient-dense foods, specifically dairy foods, in FBDGs based on credible scientific evidence.

Why are Food-Based Dietary Guidelines Necessary?

FBDGs are recommendations for healthy eating patterns and lifestyle choices created by governmental agencies and health authorities. These provide advice on the types and amounts of foods, food groups, and nutritionally adequate dietary patterns that promote health and prevent chronic diseases. In addition, FBDGs may also form the basis for a wide range of decisions made by policy makers, health professionals, and food manufacturers, among others. FBDGs should be based on robust scientific evidence and designed to be tailored to the specific nutritional and cultural needs, and the food choices and availability of a population. FBDGs typically encourage the consumption of a variety of nutrient-dense foods and limitation of foods and beverages that contain high amounts of nutrients connected with increased risk of non-communicable diseases (NCDs) (e.g., added sugars, saturated fat, sodium). FBDGs are powerful tools for promoting nutrition security, overall health, and well-being among populations. Thus, there is a need for concomitant education and communication tactics. Messaging within FBDGs plays an important role in both national and global health efforts. However, FBDGs are not standardized and vary considerably from country to country, and from food group to food group, with implications for dairy recommendations around the world (Comerford et al., 2021).

Recommendations for What FBDG's Should Address

1. **Meet Nutrient Needs Across the Lifespan:** provide high-quality protein, vitamins and minerals necessary for various bodily functions, such as growth and development, immune function, and metabolism.
2. **Support Healthy Growth and Development:** provide the nutrition needed for optimal cognitive development, strong bones, and lean muscle, as well as development and maintenance of good health across the lifespan.
3. **Reduce Risk of diet-related Chronic Diseases:** lower risk of cardiovascular disease, osteoporosis, type 2 diabetes, diet-related cancers, and excess body fat.
4. **Address Nutrition Security:** ensuring access to sufficient, safe, and nutritious food to maintain a healthy and active life.
5. **Maintain a Healthy Weight:** help support weight management and optimal body composition.

6. Foster Overall Health and Well-being: provide additional functional benefits beyond isolated nutrients to support optimal health.

Other Considerations to be Taken into Account for FBDG's

1. Evidence-Based Guidance: Any changes in dietary guidance related to dairy foods should be based on the preponderance of the body of scientific evidence and consider the overall nutritional needs of the population, especially vulnerable life stages and socio-economic considerations (Binns et al., 2021).
2. Education, Programs and Policies: Public education campaigns can help promote understanding of the positive health contributions of dairy foods as part of healthy and sustainable dietary patterns. FBDGs also play a critical role in ensuring nutrient-dense foods, such as dairy, are readily available to vulnerable populations through nutrition security programs, such as school food programs and nutrition assistance initiatives.
3. Cross-Disciplinary and Multi-Sector Engagement: The process of creating FBDGs should provide clear entry points throughout the development to engage different sectors, disciplines, stakeholders, and the public. All aspects of the process, from inception to realistic implementation of strategy and action plans, should be transparent (Food Agriculture Organization of the United Nations, 2024).
4. Social, Economic, and Cultural Sensitivity: Changes in dietary guidance should be sensitive to social and cultural practices and traditions, ensuring that they factor in accessibility, acceptability, affordability, taste, health equity, and diverse cultural backgrounds.
5. Evolving Research: While there is already strong evidence supporting a role for dairy in promoting health and nutrient adequacy, further research is needed to better understand the important contributions of a wide variety of dairy foods in supporting health and disease prevention, particularly large, high-quality clinical studies as well as mechanistic studies to understand possible causality in diverse populations and across the lifespan.

Why Should Dairy Be in Food-Based Dietary Guidelines?

Dairy foods, including milk, yogurt, and cheese, are an integral part of FBDGs due to their significant nutritional, health, and food systems contributions. The unique food matrix found in dairy is high in essential nutrients and is an affordable nutrient-dense food. Dairy stands out for its efficiency in delivering nutrients with high bioavailability due to its unique matrix. The dairy matrix describes the unique structure of a dairy food, its components (e.g., nutrients and non-nutrients) and how they interact (International Dairy Federation, 2023). Dairy products, consumed in optimal amounts, provide an important contribution to reducing the risk of many NCDs and to maintaining health.

1. Dairy and Optimal Nutrition throughout the Lifespan:

- Dairy foods, such as milk, yogurt, and cheese, are bioavailable sources of key nutrients, including calcium (Muleya et al., 2024), protein, vitamin B12, potassium, vitamin B2, and phosphorus. These nutrients are essential for bone health, muscle function, growth/development, and overall health (Thorning et al., 2016). Dairy is a source of multiple nutrients associated with global nutrient inadequacy, such as protein, vitamin A, vitamin B12, calcium (Kiani et al., 2022).
- Fermented dairy products, such as yogurt and kefir, can provide health benefits beyond their essential nutrient content. They have been shown to be among the most effective dietary sources of naturally-occurring probiotics and have been credited with protecting various aspects of oral health, gut health, and immune function (Comerford et al., 2021; Kaur et al., 2022).

- Nutrients, bioactive constituents, and other compounds in the physical structures of dairy foods work together uniquely to impact digestion, absorption, and physiological functions. This dairy matrix helps explain why dairy foods have health benefits beyond their isolated nutrients and are important throughout life (Weaver, 2021).
- Dairy products come in cost-effective and convenient options that can help households enjoy nutrient-dense foods as part of healthy eating patterns to benefit health, wellness, and improve health equity.
- Dairy provides key nutrients like protein, vitamin B12, iodine, zinc, and choline, which contribute to brain development during pregnancy and early childhood (12 to 23 months) (Aggarwal & Bains, 2022; Schwarzenberg et al., 2018; Smith et al., 2022; Solomons, 2001).
- Recent research found that consuming three cups of 1% fat milk was linked with improved brain health in older adults by increasing the antioxidant glutathione in the brain (Choi et al., 2022).
- Adequate calcium intake, primarily from dairy foods, is essential for achieving peak bone mass in adolescence and maintaining bone health throughout life (Weaver, 2017). Low intake of dairy foods has been associated with an increased risk of osteoporosis and fractures (Sahni et al., 2010).

2. Dairy and Chronic Disease Prevention:

- Dairy foods have complex food matrices and bioactive components, including proteins, fats, micronutrients, and probiotics (in fermented dairy), that are delivered in a unique package, which is associated with many positive health outcomes.
- Consuming dairy foods, like milk, yogurt, and cheese, is linked with a reduced risk of cardiovascular diseases (Dehghan et al., 2018), type 2 diabetes (Feng et al., 2022), and colorectal cancer (Zhu et al., 2022). As of March 1st, 2024, the United States Food and Drug Administration is allowing the use of a qualified health claim about the relationship between yogurt consumption and reduced risk of type II diabetes.
- Dairy intake, especially milk and yogurt, as part of a healthy eating pattern, is associated with a lower risk of overweight or obesity.

3. Dairy and Social, Cultural, and Economic Factors:

- Milk, yogurt, and cheese provide accessible, affordable, and culturally relevant for many populations around the world.
- Increasing dairy food consumption could play a role in addressing health disparities by supporting consumption of nutrients of public health concern. Dairy foods are often deeply embedded in cultural and social practices. Any changes in dietary guidance should be sensitive to these factors and ensure that cultural traditions are respected (Goff, 1996).
- For centuries, many cultures have enjoyed dairy (Hirst KK., 2023). It is estimated that more than 80% of the global population consumes milk or other dairy foods and global demand for dairy foods is rising (International Dairy Federation, 2024).
- Dairy offers a variety of tastes and textures to add nutrient-dense flavor to traditional meals. For individuals with lactose intolerance, low-lactose (cheese, yogurt, and fermented milk drinks) and lactose-free dairy options (ripened cheese, lactose-free products) are nutrient-dense choices that can fit into a variety of culturally relevant eating patterns.
- Dairy farming is a vital part of the global economy. 600 million people live on 112 million dairy farms throughout the world and an estimated 400 million more people work in industries that support dairy farming, from feed and fertilizer companies to processing and retail (Food and Agriculture Organization of the United Nations et al., 2018). More than 37 million dairy farms are female-headed, and 80 million women are estimated to be engaged in dairy farming (Food and Agriculture Organization of the United Nations, 2016).

Conclusion and Future Perspectives

Dairy foods offer an unmatched package of essential and bioavailable nutrients, numerous functional properties, and the ability to reduce key risk factors for some of the world's most common micronutrient deficiencies and NCDs (such as cardiometabolic diseases and certain cancers).¹ Dairy foods are an integral part of healthy dietary patterns and should be included in FBDGs. The overall evidence demonstrates that adequate consumption of dairy foods supports a variety of health outcomes, such as cognitive development, bone health, healthful weight management, gut health, and immune health. By including dairy foods in FBDGs, we can help ensure that populations receive essential nutrients needed for optimal health throughout all life stages.

As the urgency to address environmental concerns has escalated, the international community has considered the potential for FBDGs to catalyze food systems transformation towards the inclusion of environmental sustainability to influence agriculture and public procurement policies beyond the scope of consumer education. Trade-off analyses at the national level may overlook local food system realities. One common strategy for sustainability is reducing animal source foods, yet this approach risks neglecting their nutritional contributions. While many countries advocate for increased plant-based foods and reduced animal-based foods for environmental reasons, this could exacerbate nutrient deficiencies (Leonard et al., 2024), especially among vulnerable life stages (such as young children, pregnant/lactating people, females of reproductive age, and older adults) who are most at risk for certain nutrient deficiency diseases. Thus, dietary recommendations should prioritize nutritional needs, considering environment, economic, and social aspects (Food and Agriculture Organization of the United Nations, 2023).

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