The Ind. J. Nutr.Dietet., (1999), 36, 398

FOOD - BASED DIETARY GUIDELINES (FBDGs) : TRADITIONAL CUISINES, MODERN FOODS AND THE ENVIRONMENT

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(Received 9th August, 1999)

Dedicated to Dr. Rajammal P. Devadas on her 80th birth day celebration

What are Food-based Dietary Guidelines or FBDGs?

Food-based Dietary Guidelines (FBDGs) are new. Although the idea is based on the familiar idea of dietary guidelines, FBDGs depart from them in important ways. Current Dietary Guidelines (DGs) are essentially nutrient based (fat, alcohol, salt sugar, calcium, iron), but expressed as food groups. As a result, this may create confusion about the term "Food-Based" since most existing guidelines around the world also mention foods e.g eat more vegetables, cereals etc. However, FBDGs are a more integrated way of describing the human diet, because they go beyond addressing "foods" simply as "food groups" : they address the way in which foods are produced (like agriculture), prepared (like cuisine), processed (like the food industry) and developed (like novel/functional foods). They address traditional foods and dishes and most importanly cuisine, making such guidelines more practical and user-friendly at the individual level.

When were FBDGs Borne?

Following the FAO/WHO International conference on Nutrition, held in Rome in 1992[1,2], over 160 countries have now committed themselves to developing National Plan of Action for Nutrition (NPAN). To address it in practical policy terms and to develop a plan for re-orientation from nutrients to foods, a World Health Organization working party met in Cyprus on 2-7 March 1995[3]. At this meeting the concept and philosophy behind FBDGs was borne which was encompassed in the "Cyprus declaratiion".

The so-called "Cyprus declaration" at the conclusion of the meeting was :

- FBDGs are developed in cultural context, recognizing the social, economic and environmental aspects of foods and eating patterns
- Public health issues should determine the relevance of DGs e.g FBDGs can be culturally specific, relate to the particular public health concerns and acknowledge excess, deficiency or combination of these errors in food intake.
- DGs need to reflect food patterns rather than numeric goals
- DGs need to be positive and encourage enjoyment of appropriate dietary intakes

- Various diets and food patterns can be consistent with good health

For this declaration to be at all possible several developments are required :

- A broad socio-cultural approach to food and health, with sensitivity to food traditions/beliefs
- Major advances in food science which allow an appreciation of food component complexity and its implications for human biology
- Scientific studies which show that food patterns, food scores (like variety, traditionality and acculturation), and not simply nutrient intakes, are predictive of health outcomes and are amenable to useful change in their own right
- The ability to handle large data bases of food intakes, health outcomes and trends in those variables with time-the new discipline of nutrition information applied to nutritional epidemiology
- An appreciation of the ecological implications of dietary guidelines

What are the approaches for developing and evaluating FBDGs?

There are at least four possible approaches to the assessment of nutritional quality in the development and evaluation of FBDGs (*cited from the Cyprus report)* :

1. Food Pattern

Assessing the health outcomes of adherence to a particular food pattern with a favourable health relationship is one way of evaluating the nutritional soundness of an envisaged DG approach. This is most likely to be a traditional food pattern of people with longevity, low morbidity and low prenatal and infant mortality rates (e.g Scandinavian, Japanese, Mediter ranean), through traditional or through cultural adaptation. Negative effects following changes in dietary patterns also indicate food patterns to be avoided. Tracking health indices in populations in accordance with food intake has so far, been the most valuable evidence on which to base FBDGs.

2. Food variety indices

While the value of increased food variety in either ensuring essential nutrient adequacy or decreasing the risk of food toxicity (adverse health factors in food are generally diluted where foods eaten are varied) has been understood for some time, measuring food variety as a predictor of health outcome is a relatively recent approach. Enough evidence is available to justify its inclusion in the methodologies for development of FBDGs as a technique to reduce morbidity and mortality whilst awaiting further scientific studies on how it operates. To increase food variety FBDGs can promote healthy traditional foods/dishes from the local cuisine as well as from other cuisines (if available). Similarly, healthy modern, novel and functional food will be addressed and promoted.

3. *Recommended nutrient intakes (RNIs)*

FBDGs should be structured to enable the population to meet RNIs that are critical for diet related public health problems.

4. *Use of nutrient densities in establishing and evaluating FBDGs*

Using nutrient densities to evaluate dietary quality involves expressing existing RNI values provided by the diet. The conditions for this model are that if a diet provides for the energy needs of individuals it will also satisfy the RNIs for all essential nutrients. This approach permits the simplification of age and gender RNI figures since if these figures are expressed per 1000 kcal the values differ minimally. Individuals within a family group usually form the basic unit for food consumption. Thus, if there is enough food at the family or household level all members can consume a diet with the recommended nutrient densities and meet their specific RNIs. The problem of intrafamily food distribution needs to be considered in establishing general DGs and those specifically addressing the needs of vulnerable groups in the community.

FBDGs allow the principles of nutrition education to be expressed mostly as foods and culture - specific dishes (qualitative and quantitative) in order to make the guidelines as practical as possible. They are intended for use by individual members of the general public. They can largely avoid technical terms of nutritional science. FBDGs will encourage maintenance of healthy traditional dishes and cooking practices and will be sensitive to the local agriculture and whether it can support the guidelines. They can also take into account the negative and positive nutritional effects which follow changes in dietary patterns (e.g changes to traditional diets on migration and acculturation to mainstream diet) where there is evidence about food patterns to be avoided and encouraged. Even though they focus on diet, bodies responsible for developing FBDGs are encouraged to integrate these messages with other policies related to health (e.g smoking, physical activity, alcohol consumption).

The principles of FBDGs

The World Health Organisation (WHO) and Food and Agriculture Organization (FAO) have now applied the Food-based Dietary Guidelines framework to the nutritional and health needs of : 1. populations in the Western Pacific Region[4] and 2. older adults[5].

The principles of FBDGs outlined in these reports are as follows :

1. Encourage **a variety of low energy dense foods** e.g. at least 20 biologically distinct foods a week drawing from all food groups. An easy way to increase food variety is to include healthy dishes from other cuisines e.g tofu and leafy greens from Asia, tomato/legume dishes from the Mediterranean.

2. Emphasize **healthy traditional dishes** which are vegetable and legume based and where meat and nuts are used as condiments (i.e small serves of

nutritious but energy dense foods are combined with larger serves of low energy dense foods). Encourage consumption of **available protective foods** (e.g fish, garlic, onion, cruciferous and leafy vegetables, tomatoes, soy, other pulses, citrus fruits, grapes, berries, olives, herbs, tea - to name a few).

3. Limit traditional dishes/foods which are heavily preserved / pickled in **salt or battered and fried.**

4. Consume **fat** which, ideally, should be **unrefined** from whole foods such as nuts, seeds, beans, olives, fish, lean meat. Limit fatty spreads in cooking or on bread. Minimise foods containing **hidden animal fats** (fatty meat, full-fat dairy products, some fast/processed food) and **hydrogenated plant fats** (some fast/processed food, commercial cakes / biscuits).

5. Reserve added liquid fats (e.g oils, coconut products) for cooked meals, vegetables and salads. **Liquid plant fats** added to cooking or at the table **are useful if they encourage the consumption of a variety of low energy dense foods** (especially plant foods, fish) by improving the flavour of such dishes (e.g traditional vegetable dishes cooked with coconut milk or extra virgin olive oil). Added oils may also assist in the absorption of fat soluble nutrients and phytochemicals from plant foods. Encourage a variety of liquid plant fats for cooking which have been minimally processed (e.g cold pressed or 'extra virgin').

6. Enjoy food and eating in the company of others, but **avoid the regular use of energy dense (nutrient poor) celebratory foods** which are high in fat and or sugar (e.g. icecream, cakes pastries, sweet drinks in Western food culture, confectionery and sweets, candies in Malay cultures and crackling pork in Chinese food culture).

7. Encourage **food industry and fast food chains** to produce ready-made meals that minimize or combine liquid plants fats with low energy dense plant foods (e.g frozen vegetarian meals based on pulses, vegetables and extra virgin olive oil) as alternatives to animal based convenience foods containing animal fats or hardened plant fats. Functional foods produced by the food industry (e.g. bread based on wholegrains and seeds like soy linseed bread) can also be reflected by FBDGs.

8. **Transfer** as much as possible of one's food culture and health knowledge and related **skills** (in food production, choice, preparation, and storage) to one's children and grandchildren and to the broader community. Ensure knowledge is transferred. Teach cooking techniques (as part of survival skills) to all primary and secondary school children.

Summary and Conclusion

There is a gathering momentum for a shift towards a more integrated way of describing the human diet, linking this to health outcomes, and making recommendations accordingly. This

TABLE I

Weekly Food Variety Score (1-57)[6]

Biologically distinct food groups	Score	Continued.	Score
1. Eggs (all variety)		**CEREALS**	////////
DAIRY	////////	20. Wheat (bread,pasta, ready-to-eat)	
2. Milk, ice cream, cheese		21. Corn (cornflakes, polenta)	
LIVE CULTURES	////////	22. Barley (bread, barley cereal)	
3. Yoghurt (e.g acidophilus, bifidobacteria)		23. Oats (porridge, cereal, bread)	
YEAST	////////	24. Rye (bread; ready-to-eat)	
4. Vegemite		25. Rice (grain, ready-to-eat)	
FISH (+canned)	////////	26. Other grains (millet, linseed)	
5. Fatty fish (tuna, anchovies, salmon, sardines, herring, mackerel, kipper)		**FAT & OILS**	////////
6. Saltwater fish		27. Oils	
7. Fresh water fish		28. Hard / soft spreads	
8. Fish roe (caviar salad)		**BEVERAGES**	////////
9. Shellfish (mussels, oysters, squid)		29. Water (& mineral)	
10. Crustaceans (prawns, lobster)		30. Tea, coffee, herbal teas wine, beer, spirits	
MEAT	////////	**FERMENTED FOODS**	////////
11. Ruminants (lamb, beef, veal)		31. Miso, tempeh, soy sauce	
12. Monogastric (pork, ham, bacon)		32. Sauerkraut	
13. Poultry (chicken, duck, turkey)		33. All other variety	
14. Game (quail, wild duck, pigeon)		**SUGAR/CONFECTIONERY**	////////
15. Game (kangaroo, rabbit)		34. All variety (+ soft drinks)	
16. Liver		**VEGETABLES (+canned, frozen)**	////////
17. Brain 18. all other organ meats		35. Root (potato, carrot, sweet potato, beetroot, parsnip, bamboo shoot, ginger, radish, water chestnut)	
LEGUMES (+canned)	////////	36. Flowers (broccoli, cauliflower)	
19. Peas (fresh, dried, split peas); Chickpeas (dried, roasted); Beans (haricot, kidney, lima, broad); Lentils (red, brown, green); Soy products (tofu, milk)		37. Stalks (celery, asparagus) 38. Onion (spring, garlic, leeks) 39. Tomatoes, okra	

guidelines may also be required for different geographic regions or socio-economic groups within the same country. Whatever FBDGs are developed they must be subject to critical appraisal, monitoring and review, especially in regard to unintended consequences and to ecological considerations. This process is part of the new 'public health nutrition'.

The development of culturally sensitive FBDGs, in light of the best scientific evidence, is to be preferred to food-changes driven by studies on single food components and single disease outcomes; the risk-benefit ratio is likely to be much lower in this way. This changing understanding and acknowledgment of people's personal and cultural needs as well as more integrative and not only reductionist nutrition science, is now reflected in FBDGs. There is, yet, much to be learned and distilled from the pooling of food cultural tradition.

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