



Center for Food and Nutrition Policy  
Virginia Tech - Alexandria

*Diet, Nutrition and the Prevention of Chronic Diseases*

Comments to the WHO and FAO

Maureen L. Storey, Ph.D.  
Acting Director

Richard A. Forshee, Ph.D.  
Research Assistant Professor

John A. Knubel, M.A. (Oxon)  
Senior Fellow

May, 2002

The Center for Food and Nutrition Policy (CFNP) is an independent, non-profit, center chartered at Virginia Polytechnic Institute and State University. The CFNP mission is to advance rational, science-based food and nutrition policy, and it is recognized as a Center of Excellence on such matters by the Food and Agriculture Organization of the United Nations (FAO).

May 9, 2002

Dr. Pekka Puska  
Director, Noncommunicable Disease Prevention  
and Health Promotion  
Noncommunicable Diseases and Mental Health  
World Health Organization  
CH-1211  
Geneva, 27-Switzerland

Dear Dr. Puska:

The Center for Food and Nutrition Policy (CFNP) is an independent, non-profit, center chartered at Virginia Polytechnic Institute and State University. The CFNP mission is to advance rational, science-based food and nutrition policy, and it is recognized as a Center of Excellence on such matters by the Food and Agriculture Organization of the United Nations (FAO). The following represents our views on the draft report *Diet, Nutrition and the Prevention of Chronic Diseases* developed by the WHO/FAO expert consultation.

First, the draft report acknowledges that the review does not examine the energy expenditure side of the energy balance equation to any great extent. We believe that this is a serious omission and directly conflicts with at least one earlier report published by FAO and WHO. Indeed, in January 2002, the WHO endorsed physical activity as a major determinant of good health. The 1998 Joint FAO/WHO Report on Carbohydrates in Human Nutrition notes that excess energy consumption will promote body fat accumulation and obesity if energy expenditure is not adjusted to the level needed for daily energy requirements. Policy recommendations that concentrate on only one aspect of the dietary patterns-energy expenditure complex should not be promulgated as an approach to attenuating, and eventually reversing, the global problem of weight gain and obesity.

Second, the draft report stresses the importance of shifting dietary patterns as a significant cause of disability and premature death from noncommunicable diseases (NCDs). It is quite easy to understand why the disease approach exemplified by the *Epidemiological Triad* for infectious or communicable diseases was proposed “for convenience.” But when recommendations concentrate solely on food groups or the

dietary aspect, and are coupled with the epidemiological triad, with a focus on the “environment,” policy becomes disengaged from scientifically validated approaches. Consequently, recommended actions such as the following bullet points appear to rest on weak evidence and subvert educational programs and informed choice to societal paternalism:

- “pressure schools and other public facilities not to have vending machines...”
- “encourage a food production policy based on small regional food producers...”
- “recommend fiscal pricing policies for items that are high in free sugars and fats and are otherwise of questionable nutritional value...”
- “facilitate bike paths, exercise facilities in public paths, etc.”

The epidemiological triad model unfortunately oversimplifies the etiologies of extremely complex, multi-factorial diseases and conditions like obesity, and in addition, ignores the undernourished, and the poverty that they live with on a daily basis. The so-called “host” most certainly is endowed with risk factors such as, genetic makeup and family history that must be taken into account and may not be subject to modification. The “vectors” related to obesity are not simply food and nutrients, but are also levels of physical activity and inactivity. In addition, there are multiple factors within this vector paradigm that are a function of the host’s behavior.

The report’s failure to address these results is an analytical bias that understates the role of the individual in managing his or her weight, while overstating the role government could or should play. To date, there is no evidence that individual behavior, such as dietary habits, food choices, and the desire to be physically active, can be manipulated by mandates of legislative bodies or regulatory impositions. Even if government mandates could alter behavior, the side effects of these mandates have not been considered nor have their effectiveness compared with simply allowing the individual freedom to choose, a fundamental tenet of the free market.

Third, urbanization and mechanization have created secular societal trends that foster greater propensity toward obesity that are not only diet-related. Without addressing this reality, analysis tends to overstate the role of diet and understates the role of other lifestyle choices that mitigate overweight and obesity. For example, urbanization and mechanization have produced new opportunities and challenges in developing countries that include fewer physically demanding jobs and more sedentary ones. Despite this secular trend, the draft report presents minimal discussion of ways to encourage more physical activity among those who are becoming increasingly less active. In general, that means more exercise for most people in countries whose workforce is engaged in decidedly sedentary jobs. The cultures in many developing countries view overweight and a sedentary lifestyle as a sign of status, wealth, and health. The concept of exercising for health is not established in the general community. This means that there must be comprehensive and collaborative educational efforts by all segments of society to help

people understand the need to balance energy intake and energy expenditure and make informed choices.

Fourth, many of the policy recommendations were not supported by the scientific review that noted equivocal or disparate results in the links between dietary components and obesity. For example, at several points the draft report cites evidence based on aggregate level data to support a claim on possible causes of obesity. Arguments based on these data must be interpreted with great caution because of the well-known statistical phenomenon called the *ecological fallacy*.

It has been known since at least 1950 that aggregate-level data cannot be generalized to explain individual-level behaviors.<sup>1,2</sup> It is very difficult, some say impossible, to draw conclusions about individual behavior based on aggregate level data. For example, one could construct a scenario in which the population as a whole is eating out at fast food restaurants and is becoming more obese, but the population estimates do not explain individual-level data. The basic problem is that the people who are eating out more often and the people who are gaining weight may not be the same people.<sup>3</sup> This applies to all of the aggregate level inferences in the draft report.

Fifth, the global policy recommendations in the draft report offer no evidence that environment-based interventions have any effect on obesity prevalence. The draft report cites that of 24 school-based interventions, only one showed an effect on obesity and that one study saw positive results in girls, but not boys. Also cited is a study published by Ludwig and his associates that tracked soft drink consumption among growing 11- and 12-year children. The authors showed that during the 18-month study period 37 children were newly categorized as “overweight,” while 35 children became “normal” weight.

A large body of literature shows carbohydrates, in general, and added sugars in particular, are not associated with overweight and obesity.<sup>4,5,6,7,8</sup> This literature includes:

---

<sup>1</sup> Robinson WS. 1950. “Ecological Correlation and the Behavior of Individuals.” *American Sociological Review* 15: 351-357.

<sup>2</sup> King G. 1997. *A solution to the ecological inference problem: reconstructing individual behavior from aggregate data*. Princeton, N.J.: Princeton University Press.

<sup>3</sup> Forshee RA. Nutrition Research and the Ecological Inference Problem: Determining the Causes of Obesity and Poor Nutrition. North American Association for the Study of Obesity, Long Beach, CA, October 29-November 2, 2000.

<sup>4</sup> Glinsmann WH, Irausquin H, Park YK. Report from FDA’s Sugars Task Force: evaluation of health aspects of sugars contained in carbohydrate sweeteners. *J Nutr* 116(11S):S1-216, 1986.

<sup>5</sup> The Surgeon General’s Report on Nutrition and Health. Public Health Service, U.S. Department of Health and Human Services. Washington, DC: U.S. Government Printing Office, DHHS(PHS) Publication No. 88-50210, 1988.

<sup>6</sup> National Research Council. Diet and Health: Implications for Reducing Chronic Disease Risk. National Academy of Sciences. pp. 273-290, 1989.

<sup>7</sup> Clydesdale FM. Nutrition and health aspects of sugars. *Am J Clin Nutr* 62:161S-296S, 1995.

<sup>8</sup> Food and Agriculture Organization/World Health Organization. FAO/WHO Expert Consultation on Carbohydrates in Human Nutrition. Carbohydrates in Human Nutrition. pp.1-129, 1998.

- 1) FDA's Sugars Task Force: Evaluation Of Health Aspects Of Sugars Contained In Carbohydrate Sweeteners.
- 2) The Surgeon General's Report on Nutrition and Health. Public Health Service, U.S. Department of Health and Human Services.
- 3) National Research Council. Diet and Health: Implications for Reducing Chronic Disease Risk. National Academy of Sciences.
- 4) Clydesdale FM. Nutrition and health aspects of sugars.
- 5) Food and Agriculture Organization/World Health Organization. FAO/WHO Expert Consultation on Carbohydrates in Human Nutrition. Carbohydrates in Human Nutrition.

In addition, a recent study conducted by the center showed that, controlling for other factors, children and adolescents who consume more added sugars do not have higher BMI scores.<sup>9</sup> It should be noted that sugar-sweetened soft drinks and fruit juices are not cited in 4.1 "Strength of Evidence" of the preface, and the text for "Sugar in drinks" in Annex 2 does not appear sufficiently strong to conclude that the evidence for promoting weight gain is "consistent and moderately strong." Yet, this is listed in Table 3 of the preface as having probable evidence for increasing risk for weight gain and obesity. Subsequent recommendations reflect this bias.

Sixth, the draft report avoids mention of more than 800 million victims of food insecurity. The fact is that the world population is growing rapidly, and will reach 8-10 billion people by 2050. Most of that growth is currently in developing countries that already have food insufficiency problems and many of the recommendations would hurt this subsistence population. The production of a safe and nutritionally adequate food supply for all must remain the priority. Healthier economies, better understanding of nutrition science, and improved applications of agricultural and food technologies will create a reliable food infrastructure and industry that produces a safe, wholesome, consistent food supply.

Certain aspects of the draft report oversimplify food production systems. With regard to food policy, there is no recognition of the improvements in health of populations as a result of harvesting, storing, preserving, and processing seasonal surpluses of commodities, which are transformed to basic, palatable, nutritious, and affordable foodstuffs by the food industry. This knowledge and contribution appears sadly lacking in the draft. Rather than denigrate the contribution of food production and distribution of foods to urban and rural populations, the report should acknowledge and praise the

---

<sup>9</sup> Storey ML, Forshee RA, Weaver AR, Sansalone WR. Demographic and Lifestyle Factors Associated with Body Mass Index Among Children and Adolescents. Ceres® Working Paper Number 1, 2002.

contributions of the agriculture and food industries in making adequate amounts of safe and good quality foods available, while doing this in a sustainable and environmentally friendly way. Criticisms of foods and food groups must be based on sound scientific evidence and data that reflect the current consensus of informed experts. We therefore urge WHO to seek individuals who are experts in food production and distribution systems to provide that particular insight.

Finally, there are suggestions that taxes and subsidies should be instituted to discourage or encourage—as appropriate—the consumption of certain foods.<sup>10</sup> However laudable the objectives, actual experience with taxes and subsidies demonstrate that neither are efficient means of achieving the goal of changing food patterns. Taxes frequently have long-term, indirect, and unforeseen effects that are cumbersome and costly to implement. Moreover, there are perverse impacts that contradict the purposes for which they were intended, placing the heaviest burden on the world's subsistence population. For example, a tax on a food intentionally raises the price of that food compared with its alternatives. There is a presupposition that the consumer will be enticed to switch from the higher priced food and substitute the “desirable” food(s) that is comparatively cheaper. This also presupposes that the consumer will have the knowledge and desire to switch to the “desirable” food rather than some equally “undesirable” alternative. Thus, to be effective, the tax relies on the consumer being informed enough to select a “desirable” food and to know the reason why he/she should behave differently. If consumers are so informed and they choose to behave differently, they will switch without the tax.<sup>11</sup>

We urge WHO to consider that higher food prices imposed by a regressive tax will be paid by people who can least afford them, thus reducing their disposable incomes. If the switching between food choices is delayed or does not occur, consumers will pay more for food and the effect of the tax is to simply make them poorer. This is true where a high degree of “price inelasticity of demand” exists for the taxed food product. The end result is the government becomes the primary, and perhaps, the sole beneficiary of the tax revenues. These points should be carefully reviewed since the recommended actions place the greatest societal hope on the weakest scientific justification.

In summary, we urge WHO to:

- 1) withdraw the current version of this draft report because it fails to address the other key factor in preventing obesity—physical activity and fitness;
- 2) re-examine the policy recommendation that imposes food taxes that are likely to be ignored by the rich and middle-class, and further impoverish the poor; and

---

<sup>10</sup> Ortiz, et al. 2002; *California Childhood Obesity Prevention Act*. S.B. 1520.

<sup>11</sup> Frank RH. *Microeconomics and Behavior*, fourth edition, McGraw Hill Publishing. 2000. pp. 55-59, 113-117, 122-131.

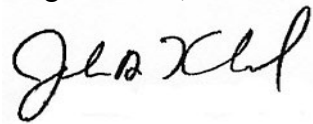
3) re-submit a revised report to a balanced, independent panel of referees, experts in nutrition, physical activity, economics, and food production, manufacturing, and distribution systems, who can provide the credible review needed for global acceptance, adoption, and implementation by member states.

Thank you for considering these comments.

Yours respectfully,



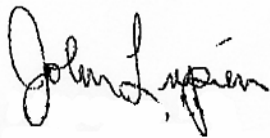
Maureen L. Storey, PhD  
Virginia Tech, CFNP



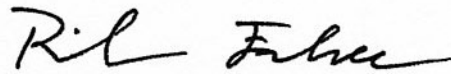
John A. Knubel, MA  
Virginia Tech, CFNP



David R. Lineback, PhD  
University of Maryland, JIFSAN



John Lupien, DSc  
University of Massachusetts



Richard A. Forshee, PhD  
Virginia Tech, CFNP



Theresa A. Nicklas, DrPh, LD  
Baylor College of Medicine



Walter Glinsmann, MD  
Glinsmann, Inc.