



A last call to prepare for action at a later better time, made by the US labour organizer Joe Hill before his execution exactly a century ago. If the time for transformation is not yet, now prepare for it

partnerships wouldn't be the objects of envy or competition within the discipline, but subjects of study – and scorn.

This is the kind of acceptance that I'd like to see nutrition embrace. I fear that this day is some time in the future, and in the meantime, we must – in the words of martyred labour activist Joe Hill - mourn, and organise.

Patel R. WN Project Phoenix. If the time is not now, it will come [Feedback]. World Nutrition September-October 2015, 6, 9-10, 745-748



Anthony Fardet
Centre de Recherche de Clermont- Theix-Lyon (INRA), France
Email: anthony.fardet@clermont.inra.fr

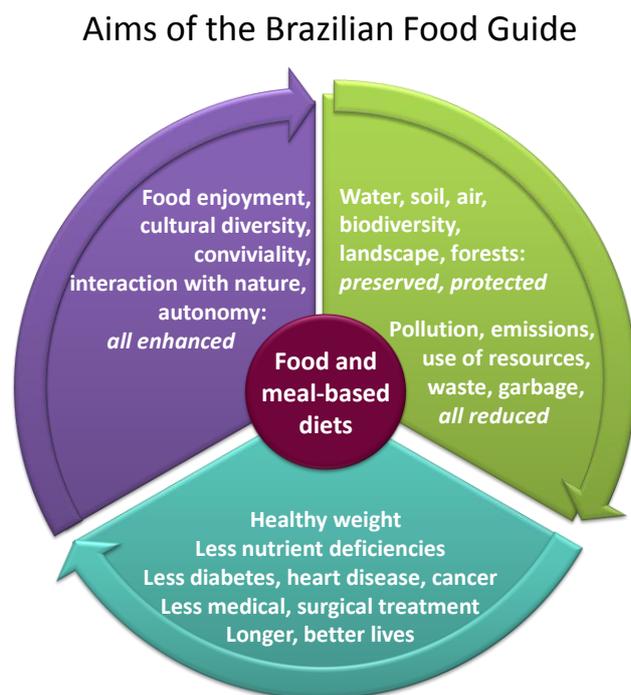
My theme in response to the *WN Project Phoenix* series (access these above) is 'defining a new paradigm so that a more efficient preventive nutrition arises from the

ashes of nutritionism'. Today, nutrition science is undoubtedly in transition. As emphasised by Gyorgy Scrinis(1), David Jacobs and Linda Tapsell(2), and later by myself and Edmond Rock (3), the 'nutritionism' paradigm, which is to say reductionism, has largely prevailed. This attends to foods only as sums of nutrients.

This is not to say that nutritional reductionism is useless. It has indirectly saved very many lives, notably by elucidating the mechanisms of vitamin deficiencies. But reductionism is too prominent, to the point of being a dogma. Now its deleterious consequences are obvious.

Thus, reductionism has enabled and encouraged the fractionation and recombination of food ingredients in energy-dense, poorly satiating, ultra-processed food and drink products. If these were consumed occasionally in small amounts there would be no problem. But in many countries such products have become predominant, constituting in some urban populations the basis of their diet(4), contributing to the decrease of healthy life years. People in such countries may on average live longer than their parents did – but increasingly in a diseased state.

Diet seen as a whole



The new Brazilian food guide sees diet as a whole in all its aspects. As illustrated here, in the segments from top, left, these include the social, environmental and personal dimensions and benefits

Based on this finding and awareness, I propose five shifts amounting to a new paradigm for a new preventive nutrition to increase healthy life years. This has much in common with the philosophy of the new [Brazilian food guide](#), the benefits of whose recommendations are projected in the diagram above.

- 1 Shifting from a dominant reductionist approach to a holistic approach in nutrition research, which means considering nutrition as a holistic discipline with all its complex dimensions(3, 5).
- 2 Shifting from dominant curative nutrition to a more focused preventive nutrition, notably by studying more states of good health, not only searching for a differential effect between healthy and ill subjects(6, 7). Indeed, the healthy state has never been seriously characterised. By doing so, we will be able to elaborate new nutritional recommendations to maintain stable healthy states within the range of natural variation.
- 3 Ranking foods in epidemiological studies according to their degree of processing, to reach more solid scientific evidence as regards association with chronic disease risks(8, 9), notably based on a classification such as NOVA (10). Indeed, increased prevalence of chronic disease risk is associated with a high consumption of ultra-processed food products(11, 12), not with food groups as such, like fruits, vegetables, dairy. This is well illustrated by the Western and Mediterranean diets, the former being characterised by a high quantity of ultra-processed products and higher risk of chronic diseases, and the latter by a high quantity of minimally-processed products and a lower risk of chronic diseases.
- 4 Defining food health potential based not only on nutrient density but also on food structure properties, vital to satiety, the synergy of nutrient physiological actions, and nutrient bioavailability(13-15), Nutrient composition is not sufficient. Food structure indices should now be developed, according to the extent which food is broken down, (16) and degree of satiety (17).
- 5 Shaping the framework or design of human interventional studies. When these are based and derived from a pharmacological approach or design (7) they do not correspond to real life and are not really applicable in preventive nutrition. New and future intervention studies should be of 'real life' situations, including quality of life, emotional factors, energy input and output (physical exercise), and also environmental impacts.

Acceptance and use of a holistic paradigm for epidemiological studies, and for characterising food health potential, is now necessary and indispensable. Nutrition education, based on food health potential according to degree of processing, including the role of food structure and nutrient density, should be promoted in primary and high schools and universities. In this way populations will be well-armed against the pressure of corporate advertising of harmful products.

A holistic vision of diets should encompass their global health effects, and their environmental impacts and socio-economic and cultural aspects. The definition of what is a healthy diet should not be dogmatic and normative, implying only one type of diet. By adapting to specific local or regional realities, it should respect cultural habits, religious beliefs, environment, the pleasure of eating, and also the well-being of farm animals. Healthy and sustainable diets are plant-based; dietary energy from food of animal origin should amount at most to one-sixth of total intake (18).

References

1. Scrinis G. *Nutritionism*. Columbia University Press, 2013.
2. Jacobs DR, Tapsell LC. Food, not nutrients, is the fundamental unit in nutrition. *Nutrition Reviews* 2007, **65**: 439-450. [Access pdf here](#)
3. Fardet A, Rock E. Towards a new philosophy of preventive nutrition: from a reductionist to a holistic paradigm to improve nutritional recommendations. *Advances in Nutrition* 2014, **5**, 430-446. [Access pdf here](#)
4. Monteiro CA, Moubarac JC, Cannon G, Ng SW, Popkin B. Ultra-processed products are becoming dominant in the global food system. *Obesity Reviews* 2013, **14**, S2: 21-28.
5. Fardet A. New approaches to studying the potential health benefits of cereals: from reductionism to holism. *Cereal Foods World* 2014, **59**: 224-229.
6. Fardet A, Rock E. The Healthy Core Metabolism: a new paradigm for primary preventive nutrition. *The Journal of Nutritional Health & Aging* 2015. DOI: 10.1007/s12603-015-0560-6.
7. Fardet A, Rock E. The search for a new paradigm to study micronutrient and phytochemical bioavailability: from reductionism to holism. *Medical Hypotheses* 2014, **82**: 181-186.
8. Fardet A. Are technological processes the best friends of food health potential? *Advances in Nutrition and Food Technology* 2014, **1**: 103.
9. Fardet A. Foods and health potential: is food engineering the key issue? *Journal of Nutritional Health & Food Engineering* 2014, **1** : 1-2.
10. Moubarac J-C, Parra DC, Cannon G, Monteiro CA. Food classification systems based on food processing: significance and implications for policies and actions: a systematic literature review and assessment. *Current Obesity Reports* 2014, **3**: 256-272.
11. Monteiro C, Cannon G, Levy RB, Claro R, Moubarac J-C. The big issue for nutrition, disease, health, well-being. *World Nutrition* 2012, **3**: 527-569.
12. Moubarac JC, Martins APB, Claro RM, Levy RB, Cannon G, Monteiro CA). Consumption of ultra-processed foods and likely impact on human health. Evidence from Canada. *Public Health Nutrition* 2013, **16**: 2240-2248.
13. Fardet A. A shift toward a new holistic paradigm will help to preserve and better process grain product food structure for improving their health effects. *Food & Function* 2015, **6**: 363-382.
14. Fardet A. Food health potential is primarily due to its matrix structure, then nutrient composition: a new paradigm for food classification according to technological processes applied. *Journal of Nutritional Health & Food Engineering* 2024, **1**: 31.
15. Fardet A. Nutrients, nutrition, nourishment. See and enjoy food whole. *World Nutrition* 2015, **6**: 269-279.
16. Bornhorst GM, Ferrua MJ, Singh RP. A proposed food breakdown classification system to predict food behavior during gastric digestion. *Journal of Food Science* 2015, **80**: R924-R934.
17. Holt SH, Miller JC, Petocz P, Farmakalidis E. A satiety index of common foods. *European Journal of Clinical Nutrition* 1995, **49**: 675-690.
18. Agrimonde. *Agricultures et alimentations du monde en 2050 : scénarios et défis pour un développement durable* (note de synthèse). INRA & CIRAD, 2009.

Fardet A. *WN Project Phoenix. Shifts to a holistic paradigm*
[Feedback]. *World Nutrition* September-October 2015, **6**, 9-10, 748-751

[Feedback] *World Nutrition* September-October 2015, **6**, 9-10, 745-762