

On the Ideology of Nutritionism

NUTRITION SCIENTISTS, dieticians, and public health authorities—the nutrition industry, for short—have implicitly or explicitly encouraged us to think about foods in terms of their nutrient composition, to make the connection between particular nutrients and bodily health, and to construct “nutritionally balanced” diets on this basis. After several decades of nutrition education campaigns, it is primarily this general approach to food that the public has taken on board—that is, the understanding of food in terms of nutrients—rather than the experts’ more specific advice about what foods to eat more or less of, such as fewer processed foods and more plant-based foods.

I refer to this nutritionally reductive approach to food as the ideology or paradigm of *nutritionism*.¹ This focus on nutrients has come to dominate, to undermine, and to replace other ways of engaging with food and of contextualizing the relationship between food and the body.

Nutritionism is the dominant paradigm within nutrition science itself, and frames much professional- and government-endorsed dietary advice. But over the past couple of decades nutritionism has been co-opted by the food industry and has become a powerful means of marketing their products. At the same time, nutritionism has moved from the margins to the center of the public’s understanding of food and health, and has thereby increased the susceptibility of nutrition-conscious individuals to the food industry’s marketing strategies. Nutritionism has become a contemporary certainty, one that is taken for granted and mostly unchallenged, even among food and nutrition experts and institutions. While there is much contestation over the way nutrient-level knowledge is used and abused, few have questioned the reductive focus on nutrients per se.²

In *Food Politics: How the Food Industry Influences Nutrition and Health*, Marion Nestle describes what she considers to be a central contradiction between nutrition theory and practice:

On the one hand, our advice about the health benefits of diets based largely on food plants—fruits, vegetables and grains—has not changed in more than 50 years and is consistently supported by ongoing research. On the other hand, people seem increasingly confused about what they are supposed to eat to stay healthy.³

Nestle attributes this “nutrition confusion” primarily to the way the food industry has created an environment that is “conducive to overeating and poor nutritional

Since the late nineteenth century nutrition science has been characterized by the attempt to understand foods and diets in terms of their nutrient and biochemical composition.

practices and so confusing about basic principles of diet and health.”⁴ Her book is an excellent exposé and analysis of the strategies that sow nutrition confusion to sell value-added products.

Nestle examines how the food industry has lobbied the United States government to shape official dietary guidelines in ways that undermine criticism of processed foods and of high meat and dairy consumption. For example, the dietary guidelines suggest that we eat less of particular nutrients, such as saturated fat and sugar, rather than less of the actual foods that contain high levels of these nutrients, such as meat or processed sweets. However, Nestle doesn’t consider the ways in which the very conceptual frameworks popularized by nutritionists have contributed to this nutrition confusion and have,

in fact, created the conditions for the success of nutritional marketing strategies.

While it may be correct, as Nestle suggests, that dietary advice about particular types of foods has not changed much over recent decades, advice at the level of nutrients certainly has undergone significant change. This includes the refinement, qualification and even direct contradiction of earlier nutrient-level advice, as well as the introduction of new categories and subcategories of nutrients into mainstream nutritional discourses. I suggest that this constantly changing *nutriscape*,⁵ and this nutritionally reductive approach to food and bodily health, are an important source of nutrient-level confusion.

In this essay I outline a broad framework for understanding the nutritionism paradigm. I introduce a number of original concepts and terms to identify some of the characteristics and consequences of nutritionism within the realms of scientific research, dietary advice, food processing, and marketing. I also explore the ways in which we encounter food and experience our bodies, using such terms and concepts as the *nutritional gaze*, *biomarker reductionism*, the *functional body*, and the *nutri-biochemical level of engagement with food*.⁶

Nutritional Reductionism

There are many ways to evaluate and categorize the qualities of food when we engage with it at the level of the whole food product. They include a consideration of the types of processing a food is subjected to (for example, unprocessed or highly processed foods); whether the food is animal or plant based, fresh, or preserved; the methods of agricultural production (for example, *organic traditional*, *chemical industrial*, or *genetic corporate* foods and forms of agricultural production⁷); and the sensual and embodied experience of consumption. Particular foods can also be understood in terms of broader diets and their historical,

cultural, economic, and ecological relations and contexts (for example, *traditional wholefood*, *refined industrial*, or *processed corporate* diets).

Since the late nineteenth century, nutrition science has been characterized by the attempt to understand foods and diets in terms of their nutrient and biochemical composition. It has focused on this *nutri-biochemical level of engagement with food and the body*, and on identifying relationships between nutrients on the one hand, and particular health conditions, biological markers (i.e., biomarkers), and biochemical processes of the body on the other.⁸

The nutritionism paradigm, however, is defined by an overly reductive focus on this nutri-biochemical level. Particular nutrients, food components, or biomarkers—such as saturated fats, kilojoules, the glycemic index (GI), and the body mass index (BMI)—are abstracted out of the context of foods, diets, and bodily processes. Removed from their broader cultural and ecological ambits, they come to represent the definitive truth about the relationship between food and bodily health. Within the nutritionism paradigm, this nutri-biochemical level of knowledge is not used merely to inform and complement but instead tends to displace and undermine food-level knowledge, as well as other ways of understanding the relationship between food and the body.

Nutritionism incorporates a number of forms of reductionism with respect to nutrients, foods, and diets. First, there is the reduction of foods and diets to their effects on bodily health—to their *biological functionality*—such as their association with particular diseases and biomarkers. This obsession with “healthy food” and with the pursuit of “health” in general—i.e., *health reductionism*—may come at the expense of other ways of encountering food through its embedded sensual, cultural, or ecological qualities.⁹ The promotion of margarine over the better tasting but supposedly less-healthy butter is an example of the primacy of this healthism and the power it has to shape dietary behavior.¹⁰



Second, there is a reductive focus on individual foods, whereby particular foods are analyzed and evaluated in isolation from other foods, diets, and broader contexts. Within this *food-level reductionism* individual foods either tend to be fetishized as “super foods” or vilified, usually on the basis of their underlying nutrient composition. The vilification of eggs due to their cholesterol content is an example of this decontextualization of single foods out of the contexts in which they are usually consumed.

Third, and most important, is the reductive focus on nutrient composition as the primary means of evaluating the quality of foods and their relationship to bodily health. This *nutritional reductionism* can itself take two forms: a *first-order* reduction to the nutri-biochemical level and a *second-order* reduction within the nutri-biochemical level.

There is, in the first instance, a reduction from the level of food to the nutri-biochemical level. This first-order reductionism refers to the attempts to understand all issues relating to the quality of foods and their relationship to bodily health at the nutri-biochemical level. Within this first-order nutritional reductionism, the nutri-biochemical level is considered the ultimate guide and arbiter of the relationship between food and bodily health. The mandatory nutrient information panel on the back of packaged foods that details their nutrient composition is, in a sense, a product and a symbol of first-order reductionism, particularly when it appears more prominently than the ingredients list.¹¹

At the nutri-biochemical level nutrition scientists do nevertheless attempt to develop an ever more complex understanding of the various nutrients and their relationship to the body. Over the years categories and subcategories of nutrients and biomarkers—such as different types of fats and types of blood cholesterol—have proliferated, promising ever more precise and targeted knowledge and dietary advice. These more differentiated categories have also been used to correct some of the inaccuracies and mistakes of

past nutritional certainties. For instance, the distinction between “good and bad” fats has, to some extent, replaced the earlier focus on total fat content and is now used to qualify the advice to follow a low-fat diet. But, as David Jacobs and Maureen Murtaugh have noted, “it will be a long time before science unravels the complexity of nutrient interactions in the relation of foods to health.”¹²

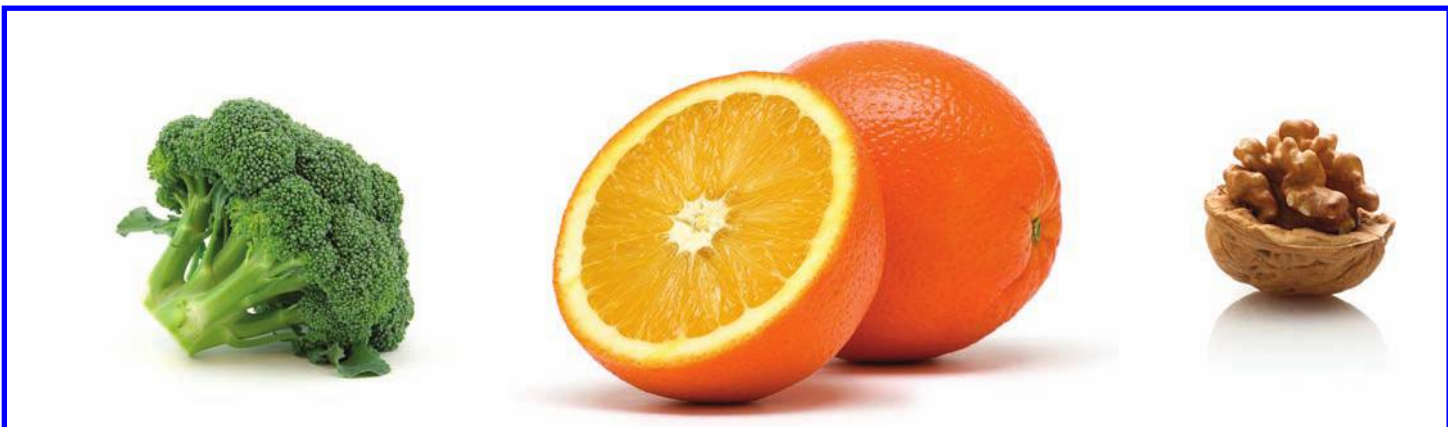
This first-order nutritional reduction to the nutri-biochemical level can be distinguished from a second-order reduction *within* the nutri-biochemical level. In this case, the complexities of interactions between nutrients and the body are overridden by a simplified focus on particular nutrients, or on particular bodily processes and biomarkers. Individual nutrients are thereby analyzed in isolation from other nutrients and from particular foods.

This second-order reductionism is most heavily promoted by the food and weight-loss diet industries to market their products and is represented by the inflated nutrient or health claims on the front of packaged foods that focus on single nutrients. However, due to the inherent limitations of nutrition science, and the practicalities of translating this scientific knowledge into meaningful dietary advice, all nutrition-science and dietary advice tends toward this more simplified form of nutritional reductionism.¹³ It is this second-order reductionism—the “one nutrient at a time” approach—that nutritionists tend to criticize more than first-order reductionism.

All forms of nutritional reductionism are further characterized by a kind of *nutritional determinism*, in which nutrients are considered to be the irreducible units that determine bodily health.¹⁴ The assumption is that a calorie is a calorie, a vitamin a vitamin, and a protein a protein, regardless of the particular food it comes packaged in; the

Below: “Superfoods” contain natural compounds such as antioxidants, Omega-3s, fiber, and calcium that are said to promote good health.

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aim is to uncover a nutrient's effect on the body and its relationship with other nutrients.

Despite the uncertainties, limitations, and contradictions within nutrient-level knowledge, nutritionism is nevertheless characterized by a sustained and confident discourse of precision and control. This discourse implies both a precise understanding of foods, diets, and the body and an ability to precisely control and manipulate them. I call this the *myth of nutritional precision*, as it involves a greatly exaggerated representation of scientists' understanding of the relationship among nutrients, food, and the body. At the same time, the disagreements and uncertainties that exist within the scientific community tend to be concealed from, or misrepresented to, the lay public. An example of this myth is the claim that the amount of exercise required to burn off a particular food can be accurately measured in calories/kilojoules, according to an energy in/energy out model of the body.¹⁵ For instance, the claim that "expending the calories of a single meal from a fast food restaurant consisting of a large hamburger, fries and a milkshake would require half a marathon."¹⁶

Not only individual foods, but also entire diets and eating patterns, are often examined in terms of their nutrient profile. The macronutrient profile of diets in particular (i.e., the ratio of protein, carbs, and fats) is a common focus of scientific studies. The original Nurses Health Study, for example, and the more recent Women's Health Initiative were in part designed to evaluate the relationship between a reduced-fat diet and the risk of particular diseases, rather than to examine the actual types of foods consumed.¹⁷

Similarly, scientific studies into weight-loss diets also typically focus on the macronutrient profile of the diets rather than on the types of foods consumed. In Australia the enormously popular *CSIRO Total Wellbeing Diet* book, based on research by CSIRO nutrition scientists comparing a high-protein diet with a high-carb diet, promotes a high-protein/moderate-carb/low-fat diet as the most effective macronutrient profile for effective weight loss.¹⁸

Biomarker Reductionism, Genetic Nutritionism, and the Functional Body

Nutritionism involves not only a nutritionally reductive approach to food but also a reductive approach to understanding the body and bodily health. At the biochemical level of engagement with the body, particular bodily processes and biomarker categories are examined in terms of their relationship to particular foods, nutrients, and other food components. These include such quantifiable

measures as LDL and HDL cholesterol levels, blood sugar levels and the Glycemic Index (GI), input/output energy equations measured in kilojoules or calories, the body mass index (BMI), and the incidence of diseases and risk factors.

Within the nutritionism paradigm this approach to the body takes the form of *biomarker reductionism*, an understanding of bodily health that is reduced to a number of diet-related and often quantifiable biomarkers, biochemical processes, and bodily functions. Biomarker reductionism is the flip side of nutritional reductionism.

An example of biomarker reductionism is *BMI reductionism*—the attempt to summarize and reduce bodily health to a single statistic, in this case based on body size and shape. Within the dominant discourse of the "obesity epidemic"—or what I call the *obesity* discourse, for short—the BMI is assumed to represent and determine a person's state of health and their susceptibility to particular diseases, regardless of, for example, a person's dietary and exercise patterns.¹⁹

Overlaying this biochemical level of engagement with the body is the *genetic level of engagement with the body* that has emerged in the form of the new field of nutritional genomics. Nutrigenomics is the study of the interactions between nutrients and genes, and its proponents promise ever more precise and optimized diets to fit an individual's genetic profile. However, nutrigenomics will essentially be used to extend the nutritionism paradigm from the biochemical level to the genetic level, and in this sense it can be understood as a form of *genetic nutritionism*.²⁰

Over the last couple of decades, these various forms of reductionism—nutritional, biomarker, and genetic—have also promoted what I call an increasingly *functional approach to food and the body*. Just as foods are broken down into their component parts and these parts are assigned health-related functions, so too does the body come to be understood and experienced in terms of its component parts and processes. This functional approach to food and the body entails a heightened sense of the relationship between foods and nutrients on the one hand, and specific bodily functions, health conditions, or biomarkers on the other. This approach also moves us beyond encountering the body as a whole—say, in terms of end-state diseases or health conditions—toward a deeper penetration of its inner workings as they relate to particular nutrients, foods, and diets.

While this functionalized—and essentially medicalized—view of food and the body is not in itself new, it has, significantly, moved from the margins to the center of everyday food discourses and consumption practices.

The emergence of so-called “functional foods” has been made possible by the rise of this functional approach to food and the body. However, I would suggest that functional foods could not exist if we did not already have *functional bodies*, that is, a corresponding view and experience of our own bodies in functional terms.²¹ The *functional body* represents the internalization and embodiment of the nutritionism paradigm.

An example of this functional view of food and the body is the promotion of probiotic yogurts, by means of which consumers are encouraged to imagine the “good” and “bad” microorganisms in their stomachs as they purchase or consume these products. Similarly, some advertisements for cholesterol-lowering margarines provide explicit descriptions of how plant sterols enter the intestines and block the absorption of cholesterol into the blood. The concept of the GI likewise calls forth the image of sugars being released into the blood more quickly or slowly.

Nutri-Quantification and the Blurring of Qualitative Food Categories and Contexts

The limitations of nutritionism become most apparent in attempts to translate nutri-biochemical knowledge and scientific research into meaningful dietary advice and guidelines for the lay public. This is particularly evident when dietary advice is framed around the need to choose foods or dietary patterns on the basis of relatively precise nutrient profiles. While this reductive nutrient-level focus may be useful within particular parameters, it is often translated into fairly meaningless, misleading, and decontextualized dietary advice.

Nutritionism is characterized by a quantifying and calculating logic that presumes the ability to measure and prescribe the nutrient composition of foods and diets.²² Foods tend to be compared and ranked on a one-dimensional scale according to the quantities of particular nutrients and kilojoules they contain. Similarly, the body is measured in terms of daily nutrient requirements, input/output energy equations, and biomarkers such as the GI and the BMI.

Nutritionism promotes the idea that the perceived problems with contemporary diets can be tackled by the more or less precise quantitative tinkering of the nutrient profile of foods and diets—by *nutritional tinkering*—rather than by means of more far-reaching qualitative changes in diets and the types of foods eaten. The food industry itself engages in a form of nutritional tinkering when it modifies or engineers the quantities of one or two nutrients in food products.

The quantification of the nutrient profiles of foods—*nutri-quantification*—effectively creates a hierarchy of foods within particular food categories. For example, within the category of plant-based wholefoods, “wonder foods” are identified as containing high concentrations of “good nutrients,” such as olive oil, thanks to its high monounsaturated fatty-acid content. Within the category of animal-based wholefoods, concerns over their high rates of consumption is translated into a demand for varieties with modified nutritional profiles, such as reduced-fat milk, lean red meat, or the switch from red to white meat, rather than a recommendation simply to eat less of these foods. Within the category of processed foods, nutritionism similarly encourages the consumption of foods that have been *nutritionally engineered*, such as low-fat, low-cal, or trans-fat-free varieties, rather than advising decreased consumption of highly processed foods.

Nutri-quantification also tends to cut across and undermine other ways of categorizing the qualities of foods. In particular, it blurs the qualitative distinction between different types of foods—such as processed and unprocessed, plant-based and animal-based—in favor of a quantitative ranking of all foods across these categories. The assessment of highly processed foods as being of poor quality—junk food—is common in lay understandings of food and nutrition.²³ Yet, when nutri-quantification becomes the primary or exclusive basis for evaluating foods, then some highly processed foods may exhibit similar—even superior—nutrient profiles to unprocessed wholefoods. An important example has been the promotion of margarine over butter on the basis of their respective fatty acid profiles. Likewise, the Glycemic Index often correlates unprocessed foods with a low GI score and highly processed foods with a high GI score, yet it sometimes awards high GI scores to unprocessed wholefoods, thereby blurring any clear qualitative distinctions between processed and unprocessed foods in terms of their supposed impact on blood glucose levels.

The nutritionism paradigm further tends to problematize unprocessed wholefoods in general, implying that the nutrients contained in each wholefood must be understood and evaluated, rather than trusting in their inherent nutritional quality and recognizing how traditional cuisines have always selected and combined different types and quantities of wholefoods. In these ways, the focus on nutri-quantification undermines unambiguous dietary advice recommending minimally or traditionally processed wholefoods over highly processed and reconstituted foods. In fact, the more extensively a food is processed, the more opportunities there are for its nutrient profile to be engineered according to the latest nutritional fetish.

While there is a reluctance among some nutritionists—and certainly the food industry—to use the language of “good and bad foods,”²⁴ they nevertheless promote the idea that there are “good and bad nutrients.”²⁵ Nutritionists highlight the distinctions between good and bad cholesterol, good and bad fats, and good and bad carbohydrates. Omega-3 fats and phytochemicals are some of the latest “good” nutrients, while saturated fats and trans-fats are regarded as “bad” nutrients.

This discourse of good and bad nutrients—and good and bad fats in particular—has not only been used to blur the distinction between processed and unprocessed foods, but also to blur the boundaries between “natural” and “artificial” nutrients or food components. For example, artificial trans-fats—those created through the hydrogenation process—are now characterized as “bad fats” because they are said to raise “bad cholesterol” levels and lower “good cholesterol” levels. Nutritionists have thereby placed this artificial food component in the same basket as a natural and common food component like saturated fat, rather than into a separate category altogether of “artificial nutrients” or novel food components.²⁶

The quantitative logic of nutritionism also obscures the broader cultural, geographical, and ecological contexts in which foods, diets, and bodily health are situated. Foods that are central to traditional cuisines may be discouraged on the basis of their nutrient profiles. An example of such quasi-precise evaluations of wholefoods is the recommendation to switch from jasmine rice to basmati rice on the basis of the latter’s lower GI score,²⁷ as if such a substitution would make any meaningful difference to one’s blood sugar levels or overall bodily health. The belief that particular wonder foods are essential to achieve particular health outcomes also overrides the preference for local and seasonal foods, as well as the need to reduce meat consumption to minimize the environmental impacts of animal production.

Within the nutritionism paradigm, a balanced diet has come to be defined in terms of the calculated balance of generic nutrients. These nutrients can, in principle, be sourced from any number of interchangeable food (and nonfood) sources, rather than from a balanced combination of wholefoods. These nutrients may come from wholefoods, from nutrient-fortified processed foods, or from nutritional supplements; actual foods are referred to only as carriers of particular nutrients. In some cases, a direct equation is made between a food and what is interpreted to be its defining nutrient, such as the equation of oil and fat, eggs and cholesterol, meat and protein, meat and iron, or oranges and vitamin C. Nutritionism has also given rise to a number of

popular nutrient-level certainties and expressions. I refer to these as *everyday nutritionisms* when they take the form of expressions picked up by and often repeated by the lay public, such as “eggs are high in cholesterol” and “nuts are fattening.”

While much current dietary advice is framed in terms of the nutrient profile of foods, the problem with dietary advice referring to actual foods is that it often makes mention only of unprocessed foods. Food pyramids, for example, still primarily consist of four or five food groups made up of wholefoods, such as meats, grains, and vegetables. Such food-based dietary guidelines typically make little or no reference to processed and convenience foods, even though such foods constitute a significant portion of many people’s diets.²⁸ They thereby imply that the problem with contemporary eating patterns lies primarily in an imbalance among these wholefood groups, rather than with the high levels of consumption of processed and convenience foods. Food-based dietary guidelines therefore tend to conceal the level and types of processing that these wholefoods typically undergo in the contemporary food supply, and in this sense they are complicit with nutritionism’s tendency to evade or conceal the increasingly processed character of contemporary foods and diets.

Rather than erasing the distinction between processed and unprocessed foods, I suggest that we need to develop new ways of categorizing and more accurately differentiating among foods on the basis of the level and type of processing they undergo. For example, we could distinguish among unprocessed wholefoods, manually or traditionally processed wholefoods, refined wholefoods, mechanically processed and chemically processed wholefoods, and the more recent *processed reconstituted foods*. Processed reconstituted foods can be defined as foods that have little or no direct relation to any particular wholefoods but have instead been constructed—from the ground up—out of the deconstituted components of wholefoods and other highly engineered ingredients.²⁹ The emergence of the new nanotechnologies of food production now also enable the production of *nano-processed* and *nano-reconstituted foods*.

The Nutritional Façade: Nutritionally Engineered, Nutritionally Marketed, and Functionally Marketed Foods and Diets

Nutritionism has been used by the food industry over the past three decades as a framework to guide both the marketing of foods and diets on the one hand, and the production, processing, and re-engineering of foods on the other.³⁰ A



Above: The producers of so-called “functional foods” can make misleading claims about the nutritional value of their products.

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primary task of food scientists and technologists is to construct a *nutritional façade* around a food product, which becomes the focus of packaging and marketing strategies. *Nutritionally marketed foods* are explicitly promoted with nutrient-content claims on their labels or in advertisements, such as “low fat,” “high protein,” and “high in calcium.” The marketing typically focuses on the absolute or relative quantities of one or two nutrients in the food, and in so doing, it tends to—often deliberately—distract attention from both the overall nutrient profile of a food and from the quality and characteristics of the food and its ingredients. Michele Simon has usefully referred to the nutritional marketing of fast foods and processed foods as “nutri-washing.”³¹

Nutritionally marketed weight-loss diets are similarly often promoted in terms of their macronutrient profiles. The contemporary *macronutrient diet wars*, as I call them, are being fought out between high-fat and good-fat diets (e.g., the Atkins and Omega-3 diets), high-protein diets (e.g., the Australian CSIRO Total Wellbeing Diet), and high-carb and good-carb diets (e.g., the low GI diet).

Functionally marketed foods can be defined as foods that are directly marketed with health claims.³² These include any marketing claims that refer to the relation between a food or nutrient on the one hand, and a bodily process, disease, biomarker, or state of physical or mental health on the other. Examples of functionally marketed foods are

plant-sterol-enriched margarines that claim to lower cholesterol levels, dairy- or calcium-enriched products that claim to strengthen bones, and low-GI products that make claims about the effect of a food on blood-glucose levels. The term commonly used by the food industry for such foods is “functional foods,” because they are supposed to be beneficial for specific health or bodily functions. But no definitions of this term offer any credible criteria for distinguishing between functional and nonfunctional foods. I prefer the term *functionally marketed foods*, because it is the ability to market their supposed health (or functional) benefits that essentially defines this class of foods.

Nutritionally engineered foods are those with nutrient profiles that have been deliberately modified. Often only one or two nutrients or food components have been engineered.³³ Nutritionally engineered foods include refined wholefoods, such as fat-reduced milk; chemically engineered or nano-reconstituted processed foods, such as vitamin-fortified breakfast cereals; and genetically engineered wholefoods, such as betacarotene-enhanced Golden Rice.³⁴ The technical challenge for food scientists is to find ways of nutritionally engineering these foods while maintaining taste, texture, and shelf stability.

A characteristic of many nutritionally engineered foods is that they introduce nutrients and food components that have not previously been associated with particular foods or food groups, such as calcium-fortified orange juice or plant sterols added to margarines and spreads. I refer to these foods as *transnutric foods*, because the added nutrients are transferred across traditional food groups, thereby blurring category distinctions.³⁵ Transnutric foods are thus likely to add to nutrition confusion and undermine dietary advice referring to traditional food groups.³⁶

These techniques for nutritionally engineering and functionally marketing foods have become one of the primary strategies for the further commodification of food production, preparation, and consumption. It is primarily the larger food corporations that tend to have access to the technologies and resources to develop, commercialize, and seek regulatory approval for these foods. This process of *nutri-commodification* thereby also facilitates the concentration of corporate ownership and control of the agrifood system.

The Nutricentric Person and the Nutritional Gaze

At the level of everyday experience, nutritionism has given rise to and promoted the *nutritional gaze*—a way of looking at and encountering food as being composed of nutrients, which overwhelms other ways of encountering and sensually experiencing food. The nutritional gaze is typically employed when a consumer wanders down the aisles of a supermarket past rows and rows of packaged and processed foods; it is one of the characteristics of a new type of individual who has emerged in the nutritionism era. I refer variously to this new person as the *nutrition-conscious individual*, the *nutricentric person*, and the *nutritionalised self*.

Nutritionism creates ambiguous tendencies toward a disempowered, confused, and dependent individual on the one hand, and an active, empowered, and critically informed individual on the other. It creates the conditions for nutrition confusion, a dependence on scientific expertise, a susceptibility to food marketing claims, and a general sense of anxiety about “what to eat.” It also contributes to the creation of new needs and to the idea that people are “in need” of nutritional information, dietary assessment, and advice, and of nutritionally engineered and functionally marketed foods.³⁷

The nutrition-conscious individual has nutritional “requirements” that must be measured, monitored, and scientifically managed.³⁸ We are expected to keep up

with the latest scientific studies reported in the media, to understand and incorporate the proliferation of nutrient categories and biomarkers, and to accept the celebration or condemnation of particular nutrients and foods. The sense of a constantly changing nutriscape undermines trust in traditional approaches to food and in the wisdom built into traditional cuisines. It also increases our dependence on nutritional experts as a source of knowledge about food. Nutritionists, health experts, and food writers have obliged by offering us an endless stream of advice on “what to eat.”³⁹

Yet, the nutricentric person may also feel empowered to understand the nutri-biochemical basis of food and the body, to follow the dietary debates in the media, to see through the more inflated nutritional marketing hype, and to make informed decisions in putting together a “healthy” diet. *Nutritionally savvy* people are also able selectively to accept and integrate the nutrient-level knowledge they consider relevant to their own personal circumstances.

Nutrition-conscious individuals thrive on a degree of familiarity with some basic categories of nutrition science to explain and legitimize connections among foods, nutrients, and their own functional bodies. The concept of the GI, for example, has become popular because it purports to offer a simple and accessible explanation of the relationship between foods and biomarkers, such as the story of how low-GI foods convert carbohydrates into blood sugar more slowly. In grasping and articulating such simplified scientific explanations, the nutricentric person can feel empowered and take ownership of these nutritional concepts.

Nutricentric people are, in fact, compelled to actively construct their own diets in the face of so many competing nutritional claims and food products and the submersion of traditional ways of understanding food. They must put together their own personalized package of foods, their own *nutritional menu*, in order to meet their perceived individual needs and optimize the nutrient profile of their diets and the functional performance of their bodies. The nutritionalized self is expected to take personal responsibility for balancing its own nutrient intake according to the nutritional certainties of the day.

Nutritional knowledge may also be used simply to rationalize a person’s food “choices,” which are determined largely by other cultural or structural factors. For instance, many people eat highly processed and fast-food meals primarily because they are cheap and convenient. People may recognize the poor quality of these foods, yet they are unable to afford or have the time to prepare better-quality alternatives. They may then “choose” the products with

low-fat claims, or with a Heart Foundation seal of approval, as a way of exercising some level of choice for “healthy” or better-quality food, but this ostensible choice must be seen in the context of an otherwise restricted set of options.

Nutritionally Integrating the Food System

The implications of nutritionism go beyond the cultivation of nutrition confusion and the promotion of questionable dietary advice. Certainly, the reductive focus on nutrients has overridden and concealed the important question of the type and quality of foods and ingredients that are consumed. Nutritionism has also undermined other ways of engaging with and understanding foods, including traditional, cultural, sensual, and ecological approaches.

But the broader function of nutritionism has been to enable the smooth integration of individuals and populations into the structures and requirements of the dominant agrifood system. Nutritionism has adapted and aligned our minds and bodies to the nutritional marketing strategies and nutritionally engineered products of the food industry. We are constituted as in need of nutritional advice, weight loss plans and products, “functional” foods, nutritional supplements, nutritionally “enhanced” genetically engineered crops, quantified and managed diets, and a range of other commodified products and services.

The ideology and practices of nutritionism shape not only the way we think about food but also our view of and experiences of our own bodies. The nutritional gaze, the functional body, BMI reductionism, obesityism, and the nutritionalized self are all in part constituted by nutritionism. Our bodily functions and requirements take a form that can be readily commodified, scientifically and professionally managed, and technologically integrated.

To loosen the grip of nutritionism, these various reductive approaches to food, diets, and the body need to be challenged. However, the popular acceptance of nutritionism is closely tied to the growth in consumption of highly processed foods and to the nutritional anxieties that these foods provoke. Furthermore, the ideology of nutritionism no longer belongs solely to the domain of nutrition science; it has now been co-opted, promoted, and exploited by the food industry, with the assistance of compliant governments, regulatory bodies, and health institutions. Nutritionism has become a key strategy for facilitating the corporate integration of the entire agrifood system, providing a framework for precisely aligning the characteristics of agricultural produce, processed foods, retailing and marketing practices, and consumer preferences.

Ultimately, it is the policies and practices of these corporations—and of complicit governments and institutions—that need to be challenged, and the structures and demands of everyday life transformed, if we are to enable other ways of engaging with our food and our bodies. ☺

NOTES

1. Gyorgy Scrinis, “Sorry Marge,” *Meanjin* 61, no. 4 (2002): 108–16. The term *nutritionism* had previously been used in reference to the nineteenth-century American “New Nutritionism” social reform movement. See Dennis Roth, “America’s Fascination with Nutrition,” *Food Review* 23, no. 1 (2000): 32–37.
2. Those who have questioned nutritional reductionism per se to varying degrees include Ross Hume Hall, *Food for Nought: The Decline in Nutrition*, (Hagerstown, Maryland: Harper & Row, 1974); Geoffrey Cannon, *The Fate of Nations: Food and Nutrition Policy in the New World* (Cornwall: Caroline Walker Trust, 2003); T. Colin Campbell and Thomas M. Campbell, *The China Study* (Dallas: Benbella Books, 2005); David Jacobs and Lyn Steffen, “Nutrients, Foods, and Dietary Patterns as Exposures in Research: A Framework for Food Synergy,” *American Journal of Clinical Nutrition* 78 (suppl.) (2003): 508S–513S. See also Michael Pollan’s *New York Times Magazine* cover story “Unhappy Meals,” 28 January 2007, in which he introduces and elaborates on my nutritionism concept and related arguments.
3. Marion Nestle, *Food Politics: How the Food Industry Influences Nutrition and Health* (Berkeley: University of California Press, 2000), vii.
4. *Ibid.*
5. The term *nutriscape* here refers to the changing nutrient-level knowledge and certainties. It is similar to and borrows from John Coveney’s term *nutrition landscape*, which he defines as “the growing expanse of nutrition knowledge, rationales and understandings about food in terms of scientific and medical concerns.” John Coveney, *Food, Morals and Meanings: The Pleasure and Anxiety of Eating*, 2d ed. (London: Routledge, 2006), 95.
6. Other original terms and concepts to be introduced and defined include: first-order and second-order nutritional reductionism, nutritional determinism, BMI reductionism, obesityism, genetic nutritionism, nutri-quantification, nutritional tinkering, nutritionally engineered and nutritionally marketed foods, functionally marketed foods, transnutric foods, processed reconstituted foods, the nutritional façade, the macronutrient diet wars, nutri-commodification, the nutricentric person, the nutrition-conscious individual, and the nutritionalized self. These terms will be rendered in italics as they first appear in the text.
7. Gyorgy Scrinis, “From Techno-Corporate Food to Alternative Agri-food Movements,” *Local Global* 4 (2007): 112–40. Available at www.gyorgyscrinis.com.
8. Nutrition scientists have distinguished between bottom-up (i.e., nutricentric) and top-down (i.e., food-based) nutrition research. See Dimitrios Trichopoulos et al., “Evidence-Based Nutrition,” *Asia Pacific Journal of Clinical Nutrition* 9, supplement (2000): S4–S9.
9. In the 1980s Ivan Illich argued that in the contemporary era, the pursuit of a “healthy body” and the imperative to take responsibility for one’s own health facilitate the adaptation and smooth integration of one’s body to the requirements of the socioeconomic system. See Ivan Illich, “Twelve Years after Medical Nemesis,” *In the Mirror of the Past: Lectures and Addresses 1978–1990* (New York: Marion Boyars, 1992).
10. Scrinis, “Sorry Marge.”
11. For a critique of the nutrient information panel, see Cannon, *The Fate of Nations*, 19.
12. David Jacobs and M.A. Murtaugh, “It’s More Than an Apple a Day: An Appropriately Processed Plant-Centered Dietary Pattern May Be Good for Your Health,” *American Journal of Clinical Nutrition* 72 (2000): 899–900.
13. In the food and nutrition literature, these two orders of nutritional reductionism are not otherwise distinguished between, and are therefore conflated.
14. This “nutritional determinism” has parallels with genetic determinism, whereby genes are considered to determine the characteristics of plants or humans.

15. For a critique of the energy-in/energy-out model, see Michael Gard and Jan Wright, *The Obesity Epidemic: Science, Morality and Ideology* (London: Routledge, 2005).
16. C. Baker and K. Brownell, "Physical activity and maintenance of weight loss: Physiological and psychological mechanisms," in Claude Bouchard, ed., *Physical Activity and Obesity*, (Champaign, IL: Human Kinetics, 2000), 316.
17. See Campbell, *The China Study*, p.278, on the Nurses' Health Study. For a report on the Women's Health Initiative, see Gina Kolata, "Maybe You're Not What You Eat," *The New York Times*, 14 February 2006.
18. Gyorgy Scrinis and Rosemary Stanton, "Too Much Wellbeing or Too Much Meat," *Australasian Science* 26, no. 9 (2005): 37–38. The CSIRO (Commonwealth Scientific and Industrial Research Organisation) is Australia's national science agency.
19. See, for example, Gard and Wright, *The Obesity Epidemic*; Paul Campos, *The Obesity Myth* (New York: Gotham Books, 2004); Julie Guthman and Melanie DuPuis, "Embodying Neoliberalism: Economy, Culture, and the Politics of Fat," *Environment and Planning D: Society and Space* 24, no. 3 (2006): 427–448.
20. Gyorgy Scrinis, "Engineering the Food Chain," *Arena Magazine*, no. 77, (June-July 2005): 37–9.
21. In his analysis of consumer society Jean Baudrillard has also referred to the "functional body" in a different context, referring to the body constituted by fashion. See Jean Baudrillard, *The Consumer Society: Myths and Structures* (London: Sage, 1998), 132. The functional body I describe corresponds more closely with the iatrogenic and post-iatrogenic body defined by Ivan Illich. See Ivan Illich, "Twelve Years after Medical Nemesis"; Ivan Illich, *Blasphemy: A Radical Critique of Technological Culture*, Science, Technology and Society Working Papers No. 2 (College Park, PA: Pennsylvania State University Press, 1994).
22. On quantification, see S. Bryn Austin, "Fat, Loathing and Public Health: The Complicity of Science in a Culture of Disordered Eating," *Culture, Medicine and Psychiatry* 23 (1999): 245–68; Jessica Mudry, "Quantifying an American Eater: Early USDA Food Guidance, and a Language of Numbers," *Food, Culture & Society* 9, no. 1 (2006): 49–67.
23. Deborah Lupton, *Food, the Body and the Self* (London: Sage, 1996).
24. See, for example, American Dietetic Association, "Position of the American Dietetic Association: Total Diet Approach to Communicating Food and Nutrition Information," *Journal of the American Dietetic Association* 107, no. 7 (2007): 1224–1230.
25. Gyorgy Scrinis, "High in Protein, Low in Fat and Too Good To Be True," *The Sydney Morning Herald*, Sydney, 7 April 2006.
26. Gyorgy Scrinis, "The Artificial Taming of the Fat Scare," *The Sydney Morning Herald*, Sydney, 11 May 2007.
27. John Crace, "Jennie Brand Miller—G1 Jennie," *The Guardian*, 19 July 2005.
28. Ross Hume Hall, *The Unofficial Guide to Smart Nutrition* (Foster City, CA: IDG Books, 2000), 27.
29. Scrinis, "From Techno-Corporate Food."
30. On nutrition science and commodification see S. Bryn Austin, "Commodity Knowledge in Consumer Culture: The Role of Nutritional Health Promotion in the Making of the Diet Industry," in J. Sobal and D. Maurer, *Weighty Issues: Fatness and Thinness as Social Problems* (Hawthorne: Aldine de Gruyter, 1999), 175.
31. Michelle Simon, *Appetite for Profit: How the Food Industry Undermines Our Health and How to Fight Back* (New York: Nation Books, 2006). Jane Dixon and Cathy Banwell have also referred to the "nutritionalisation" of the food supply, "where foods are judged almost exclusively on the basis of their perceived contribution to nutritional health." Jane Dixon and Cathy Banwell, "Re-embedding Trust: Unravelling the Construction of Modern Diets," *Critical Public Health* 14, no. 2 (2004): 117–131.
32. Scrinis, "From Techno-Corporate Food."
33. Warren Belasco refers to the "nutrification" of foods in *Appetite for Change: How the Counterculture Took on the Food Industry*, 2d ed. (Ithaca, NY: Cornell University Press, 2007), 218. See also Joan Dye Gussow and Sharon Akabas, "Are We Really Fixing Up the Food Supply," *Journal of the American Dietetic Association* 93, no. 11 (1993): 1300–1304.
34. Scrinis, "Engineering the Food Chain."
35. The term *transnutric* borrows from and is defined similarly to genetically engineered "transgenic" crops.
36. L. Holm, "Health Policies and Ethics: Lay Perspectives on Functional Foods," *Journal of Agricultural and Environmental Ethics* 16 (2003): 531–44.
37. Ivan Illich, "Needs," in Wolfgang Sachs, *The Development Dictionary: A Guide to Knowledge as Power* (London: Zed Books, 1992).
38. John Coveney uses the term *nutri-centred* in *Food, Morals and Meaning*, 105.
39. For a critique of the "what to eat" literature, see Julie Guthman, "Commentary on Teaching Food: Why I Am Fed Up with Michael Pollan et al.," *Agriculture and Human Values* 24 (2007): 261–264; and Aaron Bobrow-Strain, "Kills a Body Twelve Ways: Bread Fear and the Politics of 'What to Eat?'" *Gastronomica* 7, no. 3 (2007): 45–52.