

WN *Hot stuff*

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Project Phoenix

Conventional nutrition is burned out. 1. Obscurity, ignorance

Access April Update on Project Phoenix here



Is conventional nutrition as a profession and as practiced now a burned-out case? Many think so. If yes, can a phoenix rise out of the ashes, able to fly up from the flames of the age we live in now?

The *Update* team reports

Good nutrition is vital for everybody. It is fundamental and essential for physical, mental, emotional and spiritual good health, and to living wisely and well. This is a constant theme of *WN* and is not contradicted by *Project Phoenix.* Our *Update* special series sets out an indictment of conventional nutrition science as now taught and practiced. This is a reductionist biological science focused on nutrients, in many ways a junior branch of conventional medicine. It is evidently unable to check the pandemic of obesity and diabetes, and other relevant critical circumstances of this century. The indictment includes charges of obscurity, ignorance, obsolescence, irrelevance, incompetence, complacency and venality. Is nutrition in its present state a burned-out case? The topic is controversial. We invite debate. The series continues here with the charges of obscurity and ignorance, and will end by proposing how the discipline of nutrition can, like a phoenix, the firebird, arise from the ashes.

Introduction

We should begin by defining 'conventional nutrition', so as to be clear about what *Project Phoenix* is addressing. The term as used here refers to the now generally dominant form of nutrition science as studied and practiced, as set out in textbooks, as assumed or implied in papers published by nutrition journals, and used on food labels and other material designed to inform and educate.

'Nutrition' is not often defined. This perhaps is where the trouble starts. A dictionary definition is 'The branch of science that deals with (*esp.* human) nutrients and nutrition'. There follows a definition of 'nutritionist' as 'an expert in or student of (*esp.* human) nutrients and nutrition'. These definitions are almost circular. Nutrients are usually identified as specified chemical constituents of food known to have biological activity, mostly necessary for life – essential fats and vitamins, for example. Nutrition seen as the basic and applied science of these nutrients, has been termed 'nutritionism'.

A standard 107-author textbook states that 'nutrition is an ever-changing science', but does not say what 'nutrition' is. Its 65 chapters in its 760 large-format pages have a typical structure. The first 36 have sections on energy physiology; macronutrients; fat-soluble vitamins; water-soluble vitamins; and minerals and trace elements. The other 29 have sections on the life cycle; physiology and pathophysiology; nutrition and chronic diseases; food, nutrition and pathophysiology; international nutrition, and 'emerging issues' such as biotechnology, functional foods, and the human genome.

Conventional nutrition defined

So conventional nutrition is not just a basic science but is also concerned with health, in the sense of preventing and treating various physical diseases. A 2005 workshop meeting held in Giessen, Germany, whose participants included three successive presidents of the International Union of Nutritional Sciences, agreed on *the scope and definition* of conventional nutrition. Its scope is as a biological science, with biochemical, physiological, medical and now genomic aspects. Its definition, consistent with while rather broader than what has been implied above, is:

> Nutrition science studies the interactions of constituents of food and of diets, with human and other biological systems. The application of nutrition as food and nutrition policy is designed to prevent disease and sustain health in individuals and populations.

This is what is meant here by 'conventional nutrition'. It originated as a biochemical discipline in Europe in the early 19th century and then also in the US and elsewhere up to the mid-20th century. It has been spectacularly successful. In its first period the growth of human populations was accelerated and tall attained height achieved, by emphasis on protein. In its second period, sometimes known as its 'golden age', a range of diseases were identified as caused by deficiency of vitamins or minerals, and successfully treated and prevented. In parts of the world where many children are comparatively small and where diets are inadequate, such work remains important and

effective. In all parts of the world, apparent special need for protein, vitamins and other nutrients remains a concern especially of parents and 'the worried well'. Alternative systems of dietetics or nutrition have in most but not all countries been marginalised or even outlawed.

The thrill has gone

But the golden era of this modern nutrition science is ended. The thrill has gone. The most obvious reason for decline is its apparent inability as practiced to check the now uncontrolled pandemics of obesity and diabetes, or any other diet-related diseases other than those of the cardiovascular system. While effective as an adjunct to medical practice for individuals and also in controlled population interventions, it is apparently ineffective with free-living populations. The time when it was realistically seen as of actual achieved great social, economic and political importance has passed.

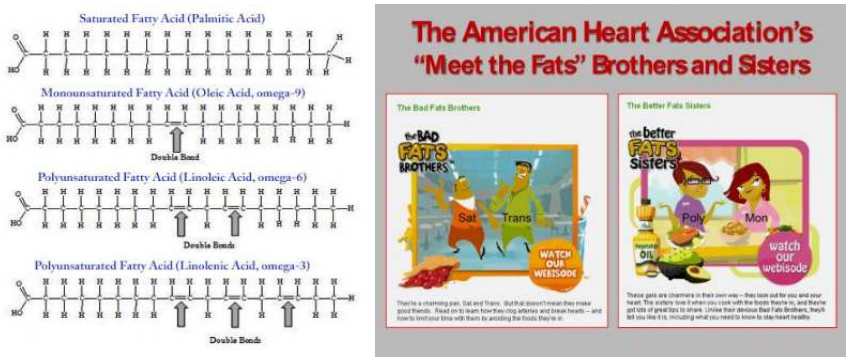
Also, as frequently reported in *WN*, and constantly found by investigators and amplified by the media, the general agreement or 'consensus' among professionals identified as the most knowledgeable and trustworthy, has disintegrated. On nutrition, health and disease, the experts disagree. Hence the case builds for an indictment that conventional nutrition is now burned-out. An indictment is a preliminary finding only, that prepares the ground for judgement. We continue to make the case in this and the next two issues of *WN*, using a few brief examples. There are many more. They all can be challenged or countered, as tendentious or misleading. Let a debate begin.

Obscurity

Any science, and any other organised human activity, is in trouble when the people who need or want to understand its meaning or uses are baffled. This is all the more so when mny or most of those in charge use private language, or seem not know what they are talking or writing about, or are dogmatic or quarrel among themselves.

An example is the established mediaeval Roman Catholic church. Riven by schism, its bishops and priests intoned ancient texts and precepts in Latin, while scholars pored over the significance of Holy Writ. The common folk were cowed by graphic images of Hell for the damned unbeliever and Heaven for the blessed faithful. Then came iconoclasm and the creation of new forms of belief, one of whose tenets was that the holy texts must be published and sermons preached in the languages of the people.

The analogy with conventional nutrition science is rather strong. The reduction of food to nutrients – as said, chemical constituents of food with relevant biological activity, including those known to be essential for life – is inherently obscure. It creates an elite class of 'experts' who are keepers of the secrets, possessive of their elevated status and arcane knowledge, who condemn others who respect alternative practices or disciplines as meddlers, ravers or quacks, the equivalent of heretics, pagans or witches.



The chemical structure of various types of fatty acid, found on the web and as taught to students (left). Then (right) the common people are taught to abhor 'the bad fats brothers' and rejoice in 'the better fats sisters' by the expert guardians of nutrition, a modern version of a mediaeval morality story

Take cholesterol, much in the news lately. Here is an example of obscurity in practice: a description of cholesterol from chapter 10 of the textbook above:

> Cholesterol is an amphipathic molecule composed of a steroid nucleus and a branched hydrocarbon tail. Its occurrence in the food supply is mostly restricted to fats of animal origin. Cholesterol occurs naturally in two forms – free or esterised to a fatty acid. Free cholesterol is a component of cell membranes. Intercellularly, it inhibits the activity of 3-hydroxy-3-methylglutaryl coenzyme A (CoA) reductase, the rate-limiting enzyme in *de novo* cholesterol biosynthesis. High levels of free cholesterol in the cell are cytotoxic.

And so on. Students, scholars and other seekers after truth are led to believe that they need to know the chemistry. The analogy with studying for the priesthood stands up. If you want to be The Rev and a preacher, or if you want to be PhD and a lecturer, you have to learn the prescribed texts. The chapter does not make clear that around 75-80 per cent of cholesterol in the blood is produced by the body itself. Only a small proportion comes from foods. So why should anybody want to read chapter 10, unless to become a chemistry professor? The answer comes 450 pages later in chapter 49. This says that high blood levels of cholesterol 'are associated with' higher risk of heart disease, and that guidelines recommend relatively low consumption. The text implies cutting out or down foods such as egg yolks, shellfish, red meat and dairy products.

Fats in the fire

Now see the illustrations above, of professional and popular information and advice on dietary fats in general. In the lifetimes of older people, the story about fats has become very confused. Until the middle of the last century, foods high in fat were generally welcomed or accepted, as sources of dietary energy at a time when undernutrition especially of children was common – as it still is especially within Asia and Africa. Then recommendations flipped, because for a while fat, and then for much longer saturated fat, was agreed by expert groups to be an important cause of heart disease. Hence the perceived need for students, teachers and practitioners to learn the chemical structures of fats, or to be more scientific, fatty acids (as shown above, left).

In the last half-century this has enabled a whole new profession of practitioners part of whose work is to explain the basic chemistry of saturated, monounsaturated and polyunsaturated fats to a bemused public and befuddled consumers, who like you and me, cannot see saturated fat or cholesterol. These are invisible substances, like the Holy Ghost. But everybody has been told about 'the bad fats' as in the cartoon from the American Heart Association (above, right), with its jocular images of 'the bad guys'. Now though, the joke is on conventional nutrition science. After half a century of demonising cholesterol, and thus whole foods including eggs and shellfish, it turns out that dietary cholesterol is practically harmless. The implications of this fiasco question the entire business of conventional nutrition as taught and practiced.

Ignorance



A consequence of incessant focus on the biological effects of nutrients, has been ever increasing ignorance of all other aspects of nutrition properly understood, including the nature of food and the value of meals

'Scientists are people who know more and more about less and less, until eventually they know everything about nothing'. This joke, attributed to the zoologist Konrad Lorenz, has the sting of truth if pointed at conventional nutritionists. Some have been and are marvellously imaginative and innovative. But the vast mass of ordinary nutrition investigation does not pass the 'why am I reading this and what is it for?' test.

To some extent this is because of the folly of insisting on a type of originality which drives research into ever more minute detail. It would be much better if the brightest nutritionists spent much more time thinking about the significance now of research that has already been done. The idea implicit in most reference lists that the only valuable work is that recorded since the creation of on-line data-bases around the year 1980, is foolish nonsense. Knowledge tends to drive out wisdom. People who studied nutrition a hundred or 500 or 2000 years ago were just as intelligent as we are, and lived in societies for whom adequate, nourishing and delicious food was vital for survival and central to the good life well led. In times past, people spent much more time observing and thinking about food and health than is usual now.

Thus, in his treatise on animals Book 8, written in the 4th century BCE, Aristotle cites the practice of breeders to starve pigs for several days immediately before fattening them, in order to accelerate weight gain. This guide to the effect of low-energy diet regimes on obesity is not well known. Better known now as a reliable authority on the impact of processed starches and sugar on body fat, based on his observations of Parisians at table, is Jean Anthelme Brillat-Savarin, whose *Physiology of Taste* was published in 1825. Aristotle and Brillat-Savarin are ancient. They did not conduct randomised controlled trials, which now engage hundreds of thousands of people. But apart from opportunity to earn money or pass the time, does this matter?

Natural experiments

Typically, nutritionists are taught nothing and know little about the natural experiments that have created countless rational and appropriate food systems and dietary cultures all over the world. Connected with this, is ignorance of food as produced, processed, prepared and enjoyed in the form of meals. An example is shown above. This is Fernanda de Guia from Manila, Philippines, with her soup of tamarind, pork and vegetables, from the series of grandmothers with their favourite dishes worldwide, created by Gabriele Galimberti. But if you look for the word 'meals' in the indexes of nutrition textbooks, you may look in vain, for the study of meals is seen as 'unscientific'. This alienates nutrition from gastronomy. What folly!

Ignorance of so many relevant fields of knowledge and so much learned experience makes conventional nutrition an unreliable basis for any form of dietary advice. Here is one explanation of the apparent paradox whereby many high-income countries are now crammed with nutritionists and with obese children suffering from diabetes.

Status

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