

PERSPECTIVE: NUTRITION PARADIGMS

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KNOWING AND EATING: A BRIEF WESTERN HISTORY OF NUTRITION PARADIGMS

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Learning Outcomes

After reading and discussing this text, students should be able to:

- Explain the historical relativity of nutritional paradigms.
- Differentiate between humoural medicine, the doctrine of signatures, and modern nutritionism.
- Argue for the ways our understandings of food change our relationships to it.

INTRODUCTION¹

As a sociologist, I have long maintained that food is cultural. Food ties us² to our childhoods, to our families and their ancestral histories, and to our cultures and their traditions. What we eat today—our tastes and distastes—is a reflection of those cultural histories. What we eat today is also a reflection of our access to various foods, whether through geographical location and food availability, or through the social determinants of health, such as income, affordable housing, and job security, which affect our ability to procure and prepare food. While food can be studied through a range of disciplinary lenses (psychological, anthropological, biological, etc.), this chapter analyzes how historic framings of food shape contemporary understandings of health. To understand why we eat the way we eat, we also have to examine the changing social and historical **paradigms** in and through which we come to know food, and, cor-

1. This chapter has been adapted from “Western Genealogies of Healthy Eating: From Humoural Medicine to Modern Nutritionism, Chapter 1 in my book *Shifting Food Facts* (Overend 2021, 14).
2. I use “us”, “our” and “we” in a plural sense to capture multiplicity, not homogeneity, of people, identities, and cultures.

respondingly, frame health and nutrition. This chapter offers a broad overview of three paradigm shifts in Western nutritional wisdom: (a) ancient humourism; (b) the Middle Ages and the Doctrine of Signatures; and (c) modern nutritionism. Knowledge about food is contingent and changes over time, depending on the values circulating at any given historical moment.

A BRIEF WESTERN HISTORY OF FOOD KNOWLEDGE

Ancient and Renaissance food knowledge

For more than 15 centuries in much of Europe and its colonies, the dominant understanding of food and nutrition stemmed from the theories of **humoural medicine**. Although the ancient Greek physician, Hippocrates, did not put forth the complete theory of humoural medicine, he is often credited for attributing foods with ‘heating’, ‘cooling’, ‘moistening’, and ‘drying’ properties. It was Galen, a Greek physician and disciple of Hippocrates, who advanced and popularized the idea that disease states were the result of an imbalance of the bodily humours—black bile, yellow bile, blood, and phlegm—which were considered central for the body’s regulation, maintenance, and function.³ Humoural medicine was part of a broader dietetic understanding of health and medicine held by the ancient Greeks. **Dietetics** were a set of rules that regulated the care of the self, including eating, drinking, sex, exercise, and sleep. These rules were not the same for everyone—labourers and upper-class bodies were seen to tolerate different foods. Likewise, athletes and scholars had divergent dietetic needs. Unlike today’s almost singular focus on the relationship between health and nutrition, dietetics was a holistic

3. Anderson 2005, 141.

approach—a mode living that combined health, medical, and philosophical orientations to everyday life.⁴

Given the holistic framework of dietetics, it is unsurprising that according to humoural logic, diet was both the cause and treatment of disease. The principal philosophy behind humoural medicine was *allopathic*—to rebalance the humours by consuming foods with the opposite properties to the symptoms described. For example, a physician would attempt to correct phlegmatic symptoms (i.e., those that were considered a result of an excess of cold and moist properties) with foods that were classified as hot and dry.⁵ Likewise, a fever would be rebalanced by cooling foods and liquids (a method still used today). Eating foods with opposite properties to one's temperament was essential to maintain balance, part of a dietetic regimen of living.⁶ While humoural theory was widely accepted from ancient times into the Renaissance, the classification of hot/cold, wet/dry foods was more complicated and widely debated.

Detailed in his book *Eating Right in the Renaissance*, Ken Albala documents how humoural properties were foremost categorized through taste.⁷ The tongue was the first indicator—a kind of litmus test—for effects foods would have on the rest of the body. Black pepper, which burns or warms the tongue, was presumed to have similar heating effects as it passed through the body; sour foods, such as lemons, were considered cooling and constricting (or drying) to the tongue, and were assumed to have similar effects on the rest of the body; and cooling foods, such as cucumbers, were classified as cooling and moistening to the tongue, and were thought to hydrate the body. In addition to taste, a food's

4. Coveney 2000, 26.

5. Crowther 2013, 12.

6. Gentilcore 2016, 19.

7. Albala 2002, 52.

colour was also used to determine its humoural properties. Red and yellow foods, such as bell peppers, were considered heating; green foods, like lettuce or spinach, were considered cooling; and foods pallid in colour, such as rice and bread, were considered to have neutral effects on the body.⁸ Another consideration in humoural food classification was the physical environment in which foods grew. Marsh plants, for example, were considered cool and wet, while mountain plants were cool and dry.⁹

Cooking methods, food order, and food pairings also played important roles in the ancient and Renaissance understanding of food's effects on the body and on health. Potentially harmful foods such as raw meats or eggs were corrected (or balanced) by appropriate cooking methods and by combining foods to counterbalance any insufficiencies. The latter is one explanation for why meats, which were considered heating, were often combined with vegetables, which were cooling, and why denser red meats were often broken down into soups and stews, rendering them easier to digest.¹⁰ Wheat also had to be corrected (or balanced) by salt and leavening processes, rendering it more easily digestible and absorbed by the body. Food order was also debated at great length. The general consensus among ancient and Renaissance physicians was to start with "opening foods," which is one explanation for why European cuisines tend to start with cooling salads. Jams and cheeses, because of their texture, were seen to "close the meal" by providing a plug between the stomach and the mouth, and likewise still function in many European cuisines as desserts.¹¹

8. Anderson 1997, 82.

9. Albala 2002, 81.

10. *Ibid.*, 94.

11. *Ibid.*, 59.

By the 19th century, through mass migration and colonization, humoral medicine had spread throughout the various parts of the world, blending with the traditional knowledge systems of local cultural groups. Humoral medicine and its associated theories of food remain one of the longest-standing documented knowledge systems historically and cross-culturally. As E.N. Anderson notes, “by the mid-20th century, the humoral theory of food was the most widespread belief on earth, far outrunning any single religion.”¹² While the bulk of contemporary Western food knowledge has drifted away from humourism, remnants of this 3,000-year-old system still linger. Many people continue to treat the common cold (the name of the ailment itself a vestige of humoral thinking) with a hot soup, refer to a laid back or ‘chill’ person as someone who is as “cool as a cucumber”, and use the word “hot” as a synonym for spicy.¹³ Moreover, distant cousins of the humoral system are still widely used by traditional Chinese, Ayurvedic, Indigenous, and some holistic dietary practices where food and diet are used to counteract (or rebalance) disease states. The major Western epistemological shift in food knowledge that followed humoral medicine was the folk concept of the **Doctrine of Signatures** (DOS). The DOS emerged out of the spiritual paradigm of the late Middle Ages and circulated as an alternative model to humoral theory into the Renaissance period.

Middle Ages and the Doctrine of Signatures

While Galen and Hippocrates subscribed to the healing epistemology of *antipathy* (i.e., opposite cures opposite), Paracelsus—a 16th-century Swiss physician and alchemist—and his followers espoused the healing philosophy of *sympathy* (i.e., like cures

12. Anderson 2005, 142.

13. Ibid, 84.

like).¹⁴ In the spiritual societies of the Middle Ages, the guiding premise of the DOS was that the divine creator had endowed *signs-in-nature* (i.e., signatures) that pointed healers to the curative potential of foods and plants. Unlike humoral medicine, which focused on a food's taste, colour, and location of growth, the theory DOS contended that a food's shape provided clues to the body part or ailment it was intended to heal.¹⁵ A walnut, for example, which resembles the brain, was widely used to treat head ailments; gingerroot, which resembles the stomach, was widely used to treat indigestion and other stomach ailments.

A number of European scholars, including pioneers in modern toxicology and botany, were attracted to the DOS. Paracelsus was one of the earliest proponents of the DOS and contended that humoral theory was too limited to account for the scope and complexity of human ailments. Like many of that era, he maintained that health and eating were best achieved in union with the heavens.¹⁶ Paracelsus, like other supporters of the DOS, believed that the spiritual essence of all things (including food) were best understood by studying their material form as presented in nature. For scholars of that generation, the many wonders of the natural world, including humans and food, were considered a microcosm of the divine, connected by a universal chain of symmetry (or similitude). As Paracelsus explains, humans and the natural world were "two twins who resemble one another completely, without it being possible for anyone to say which of them brought its similitude to the other".¹⁷ Epochal understandings of nutrition were merely an extension of this spiritual paradigm.

14. Bennett 2007, 248.

15. Pearce 2008, 51

16. Richardson-Boedler 1999, 174.

17. Quoted in Foucault 1970, 20.

As a broad-scale theory of food, the DOS was eventually replaced and debunked. According to historians and anthropologists, the DOS is best understood as a mnemonic method for recalling and classifying a wide range of curative plants, especially in illiterate societies common to the Middle Ages.¹⁸ Moreover, in highly spiritual societies, the DOS was “rather fancied by men than designed by Nature,”¹⁹ understood in today’s terms as a kind of confirmation bias. Despite the paradigmatic shift away from the DOS, elements of the similarity framework persisted. Into the 18th and 19th centuries, red wine was thought to strengthen the blood and was often given to the ill. Likewise, meat was considered necessary for manual labour—muscle work needed to be replenished with muscle tissue. Even today, walnuts (like other nuts) are high in omega-3 fatty acids and are thus beneficial to brain function, and gingerroot is still widely used (by both Western and Eastern medicine) to treat indigestion and upset stomachs. Finally, Paracelsus’s near 500-year-old claim that “it is the dose that makes the poison” was foundational to the development of modern understandings of toxicology and immunology, which rely on the homeopathic logic developed in the DOS.²⁰ While sight continued to play a formative role in the incumbent paradigm of modern **nutritionism**, how one came to see food, and correspondingly, what came to be seen, changed extensively in the era of scientific nutrition.

Modern nutritionism

Commonplace by contemporary Western standards, scientific understandings of food date back to the chemical revolution in France at the end of the 18th century. The identification of chemical properties and the development of methods of chem-

18. Bennett 2007, 249.

19. Ray 1717, quoted in Bennett 2007, 251.

20. Richardson-Boedler 1999, 174.

ical analysis led to quantitative ideas concerning food and how food was used by the body and departed substantially from the similarity and humoural paradigms of previous eras. In 1827, summing up the work of chemists of the past three decades, the 17th-century English biochemist, William Prout, divided foods into three substances: saccharine (i.e., sweet), oily, and albuminous (i.e., resembling animal protein). These classifications would later come to be reclassified as carbohydrates, fats, and proteins, respectively, and form the basis of a macronutrient approach to food.²¹ Food was no longer understood in terms of its humoural or morphological characteristics, but instead by its internal nutrient properties, launching an empirical focus into the study of food.

The next building block in the scientific understanding of diet was the small unit, but immeasurable force, of the calorie. Derived from the Latin word *calor*, meaning heat, the unit of the calorie was used to measure the energy contained in food and burned by the body.²² By the end of the 19th century, German and American scientists led the study of the energy content of various foods and the amount of energy expended during a range of activities. In both countries, considerations about which foods most efficiently maximized human energy were largely focused on questions of labour.²³ Using a calorimeter, American chemist Wilbur Atwater measured the caloric composition of food, aiming to decipher which foods maximized human energy at the cheapest costs. As Atwater itemizes, “[t]en cents spent for beef sirloin at 20 cents a pound buys 0.5 pounds of meat, which contains 0.08 pound of protein, 0.08 pound of fat, and 515 calories of energy available to the body”.²⁴ These measurements were

21. Scrinis 2013, 54.

22. Hargrove 2006, 2957.

23. Neswald 2017, 32.

24. Atwater 1902, quoted in Mudry 2009, 40.

used to advance empirical understandings of food but also to continue differentiating working- and upper-class food and bodies. As Neswald explains, early nutrition science “aimed for the precision of physics and chemistry, but was confronted with the enormous variability of its subjects, objects, and external circumstances, and with discrepancies between the artificially controlled conditions of the lab and the variable conditions of human life”.²⁵ In a relatively short period of time, a good diet, which was once understood as a matter of balance broadly defined, aimed to be both uniform and quantified.

As transformational as the caloric model of food was, however, it failed to account for the persistence of scurvy and other illnesses that continued to plague Europe and North America at the turn of the 20th century.²⁶ In 1912, the Polish biochemist Casimir Funk hypothesized that beri beri, pellagra, scurvy, and rickets were caused by unknown food deficiencies. He went on to propose that these deficiencies were a result of a lack of vital amines, which he shortened to “vitamins” since not all vitamins were amines.²⁷ For the next 30 years, beginning with Elmer McCollum’s work on “accessory food factors” A and B (later renamed vitamins A and B), vitamins including riboflavin, folic acid, and vitamin D were the central focus of nutritional research and had both replaced and challenged the prior, singular focus on the calorie.²⁸ Even today, vitamins are hailed as protective agents against disease as well as for their broader promises of health.

In a matter of a couple hundred years, the dominant food paradigm of Enlightenment Europe had swung from holism to mechanism, from individualization to homogenization, from

25. Neswald 2017, 29.

26. Scrinis 2013, 63.

27. Carpenter 2003, 3023.

28. Scrinis 2013, 64.

localization to standardization, from community- to expert-driven, and from one largely concerned with quality to one inherently focused on quantity. What was once fluid, contingent, and complex, became increasingly mechanistic—“ordered, controlled, and understood through measurable factors.”²⁹ Coining the term nutritionism, Australian food theorist Gyorgy Scrinis highlights the reductive nature of empirical understandings of nutrition. While scientific understandings of nutrition have yielded valuable insights into human health, the focus on internal biochemical components of food has also led to the “decontextualization, simplification, and exaggeration of the role of nutrients in determining bodily health.”³⁰ Culturally, we have swung so far to the role of nutrients, calories, and vitamins, that we have decentralized foods as a whole, the diet of which they are a part, and the broader social, cultural, and economic contexts in which they are embedded.

DISCUSSION AND IMPLICATIONS

By tracing the broad shifts in historic framings of food knowledge, this chapter sets up the ways that nutritional knowledge is far from continuous and has changed—quite significantly—between paradigms. The language of nutrients, calories, and vitamins, while near ubiquitous by contemporary Western standards, was unknown to past populations. Likewise, the holistic, descriptive humoral understandings of food have been, for the most part, replaced. Using the French philosopher Michel Foucault’s³¹ helpful concept of a **history of the present**, the historical overview of nutritional paradigms offered here provides a critical orientation on how current understandings of healthy

29. Mudry 2009, 2.

30. Scrinis 2013, 5.

31. Foucault 1997, 31.

eating have come to be constructed. As David Garland explains,³² Foucault's history of the present is not intended to judge historical concepts through contemporary values, nor is it meant to reimagine the past in new ways. As its name suggests, a history of the present is a means of critically engaging with and understanding how the contemporary moment has come to be shaped. A critical questioning of current food paradigms, I contend, is beneficial for two reasons.

First, rather than accepting current **nutricentric** framings of nutrition as static truths, these truths should be positioned as one historical paradigm among others. How we eat today, and prospectively how we will eat in the future, are thus contingent and actively shaped by shifting knowledge paradigms. As new nutritional information emerges, our Western collective understandings of nutrition will also change. Researchers, for example, are only beginning to understand the role of our gut's microbiome in human health, factors previously unstudied in nutrition.³³ Newer nutritional studies are also only beginning to include situational factors that affect health, such as genetic predisposition, epigenetics, hormone levels, life stage, medications, environmental toxins, and gut bacteria, but these factors are far from the norm in mainstream food research. What other yet-to-be discovered food, bodily, illness, and/or environmental factors will alter our currently held nutricentric views of nutrition? Only time will tell, but if the history of nutrition yields any guidance, it's probable that nutrition paradigms will continue to change and evolve as new knowledges become available.

Second, by decentralizing nutricentric food truths, we can recentralize social, cultural, familial, ecological, relational, and contextual food truths. While nutricentric understandings of food

32. Garland 2014, 367.

33. DuPuis 2015, 137–144.

worked well to mitigate deficiency diseases of the early 20th century, the same model does not equally apply to the many chronic health concerns affecting Western societies in record numbers today.³⁴ The *increase* (not decrease) in diet-related diseases of the 21st century indicates shortcomings of a strictly nutricentric food paradigm. Such a paradigm fails to account for the social conditions affecting human health, including but not limited to the accessibility and affordability of healthy food, affordable housing, a secure neighbourhood, a guaranteed minimum income, job security, air quality, access to clean water, stress care and mental health, and social inclusion. (Many of these factors are considered social determinants of health.) In focusing too intently on what we eat, we overlook other questions of healthy eating relevant to contemporary food and social inequality. As we move towards new food paradigms, I hope we learn to better balance social determinants of health alongside nutricentric food truths, to create a more complete picture of the role of food and eating in our lives.

CONCLUSIONS

Before looking into the history of food, I did not fully consider why we eat the way we eat. Before studying food as a social object, I did not think that intently about the social or historical contingency of what I routinely found on my plate. The more I studied food and its history, the more I saw how much of what we eat, when we eat, and how we eat is inextricably linked to how we see, understand, and ultimately know food. As history has shown, how we understand nutrition profoundly affects our orientation to it—what we consume, how much, and in what combinations. Organ (or offal) meats, for example, used to be a routine food item on the plates of many Canadians, but are much less popular today. History has also shown that what we eat and con-

34. Mayes & Thompson 2014, 160–161.

sider healthy is continually shifting, not only because our contexts of health are likewise shifting, but also because our food paradigms are in themselves in flux, reflecting dominant ideas of the time. As we continue to move towards new nutritional paradigms, refining and augmenting what we already know about food, health, and the human body, my hope—to borrow from Geoffrey Cannon³⁵—is that we continue to maintain one piece of nutrition’s long history: to value it as science *as well as* a philosophy.

Discussion Questions

- Do you agree or disagree with Lisa Heldke’s statement that the “unexamined meal is not worth eating”?³⁶ Justify your answer. What does a historical analysis of food provide?
- Take a moment to consider how scientific understandings of food affect how, what, and why you eat. What patterns or trends do you notice in your own life? Can you identify elements of food and eating not captured by a nutritionism paradigm?
- What are some examples of *humoural medicine* or the *doctrine of signatures* that remain in circulation today? How do these paradigms encourage a different relationship to food that the scientific paradigm of modern nutritionism?
- What factors do you think would be important to highlight in the next regime of nutritional knowledge? How might these factors augment previous

35. Cannon 2002, 503.

36. Heldke 2006.

understandings of food and healthy eating?

Exercise

Pick a meal you've recently eaten, or perhaps one you eat often. This can be an everyday meal or a festive/ceremonial one. What do you notice most about the meal? How is the meal usually organized, presented, or served? What language do you use to describe the meal to others? How do you understand the foods included? Which of the three historical food paradigms helps you best understand or describe your selected meal?

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