

## MEDICINE AND SOCIETY

## “Witchcraft, a fad or a racket?” Food allergy in historical perspective

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When most people think of food allergy, they think of peanuts — and rightly so. Peanuts are among the most common food allergens and can trigger fatal anaphylactic reactions. In addition, rates of peanut allergy are increasing, although no one understands why.

Because of their potency, peanuts have been banned from many public spaces, including schools, child care facilities, airplanes and food production facilities. Even sports stadiums are not immune: once a fixture of Edmonton Eskimo games, peanuts are now banned from Commonwealth Stadium. Peanut butter sandwiches are similarly unwelcome in many schools today, with one Florida school enlisting peanut-sniffing dogs to prevent accidental exposure. Such bans, along with legislative measures to stock schools with epinephrine injectors, show just how serious peanut allergy — and food allergy more generally — is taken in 2015.

This was not always the case. Thirty years ago, food allergy was very nearly peanut-free. Writing in 1981, the New York allergist Joseph Fries (1902–1982) could not think of a single peanut allergy fatality, despite peanuts being “potent antigens.”<sup>1</sup> Although one or two media reports of peanut allergy fatalities can be traced, it was not until the late 1980s — and in *CMAJ* — that the first fatality was reported in the medical literature.<sup>2</sup> It was not the last.

So, how was food allergy understood and experienced before the emergence of peanut allergy? Simply, very differently. Although the term “allergy” (defined by Austrian pediatrician Clemens von Pirquet [1874–1929] as “any



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form of altered biological reactivity”) dates back to 1906, reactions to food were nothing new.<sup>3</sup> Hippocrates stated

[C]heese does not harm all men alike; some can eat their fill of it without the slightest hurt, nay, those it agrees with are wonderfully strengthened thereby. Others come off badly.

Subsequent physicians, from Galen (130–210) and Maimonides (1138–1204) to John Floyer (1649–1734) and William Cullen (1710–1790), described similar reactions.

To a degree, such reactions (typically called idiosyncrasies) fit neatly into the humoural medical philosophy of Hippocrates and Galen. Recognition of individual difference was central to humouralism, as was the role of food as both a cause of and a remedy for the

humoural imbalances that precipitated disease. However, by the time of von Pirquet’s definition, medicine had changed, not only in becoming more professionalized and specialized, but also in the way it saw disease. Germ theory and laboratory medicine mostly replaced the tenets of humoural medicine, and with these developments came demands for more precise diagnoses, explanations and treatments.

For the emergent field of allergy, the clinic transformed into a kind of laboratory. Skin testing for allergy, which von Pirquet, Isaac Chandler Walker (1883–1950) and John Freeman (1876–1962) all helped to develop during the 1900s and 1910s, brought laboratory experimentation into clinical practice. Suspecting an allergy to crabgrass pollen,

for example, an allergist would inject crabgrass extract under the skin. If the surrounding area erupted in a wheal, the diagnosis was confirmed. Such testing also led many allergists, self-described as orthodox allergists, to adopt a limited definition of allergy, eschewing von Pirquet's original, far-reaching definition. If immune system involvement could not be shown through the telltale wheal, according to orthodox allergists, the patient's symptoms could not be allergic. In contrast, later food allergists, such as Theron Randolph (1906–1995), would downplay the need to confirm immune system involvement in the diagnosis of allergy.

Although skin testing provided a relatively reliable, though somewhat unconventional, procedure for detecting most allergens, its accuracy in cases of food allergy had begun to be questioned by the 1930s.<sup>4</sup> Not only did skin testing cause too many false-positive and false-negative results, it could be dangerous and trigger anaphylaxis. Other diagnostic procedures were required.

The preferred test that emerged was the elimination diet, designed by Albert Rowe (1889–1970) during the late 1920s. Patients prescribed elimination diets would consume a bland, hypoallergenic diet and then ingest suspect foods to see if a reaction followed. Unlike a skin test, a quick procedure that occurred in an allergist's office, diagnosis via an elimination diet could take months. Elimination diets also required the active participation of the patient, who was responsible for following the diet, adding test foods, recording symptoms in a diet diary and then eventually avoiding the problematic food. As Rowe described, correct diagnosis and, ultimately, treatment depended on “the intelligent and understanding cooperation and analysis of the patient.”<sup>5</sup> Partly because of their sympathetic, symbiotic relationship with their patients, food allergists adhered to von Pirquet's broad definition of allergy, arguing that proving immune system involvement was secondary to helping patients control their symptoms.

By the 1930s, food allergists, including many leaders of the nascent allergy associations, were convinced

that food allergies caused many of the otherwise undiagnosed, chronic symptoms suffered by their patients. Foods were suspected of causing everything from asthma and eczema to migraine and psychiatric symptoms, and few foods were off the list of potential culprits. A survey by Virginia allergist Warren Vaughan (1893–1944) listed dozens of foods known to cause allergy and suggested that 60% of Americans were allergic to one food or another.<sup>6</sup> Others, including Arthur Coca (1875–1959), who founded the *Journal of Immunology*, reasoned that such estimates were “somewhat conservative.”<sup>7</sup>

Orthodox allergists, however, rejected such claims, which they thought were emblematic of why allergy was often depicted as “witchcraft, a fad, or a racket” by other physicians.<sup>8</sup> Reflecting contemporary interest in psychosomatic medicine, orthodox allergists argued that many patients' symptoms were psychological and that these patients were better off seeing a psychiatrist. Such debates intensified after World War II and the rise of the environmental movement. Many of the new synthetic dyes, preservatives and flavours introduced to the food supply were blamed by food allergists for an array of symptoms, including psychiatric disorders, thus adding an ecologic tenor to the debates over food allergy. By the 1960s, the friction between food allergists and their orthodox colleagues was such that some physicians, led by Theron Randolph, abandoned the study of allergy altogether, forming the even more controversial discipline of clinical ecology in 1965. Food allergy had split allergy asunder.

And then came the peanut. When peanut allergy fatalities began to be reported, allergists were forced to reconsider the clinical importance of food allergy. But, whereas food allergists had focused on foods that caused chronic, lingering complaints in which the role of the immune system was unclear, the anaphylactic symptoms caused by peanuts were immediate and unquestionably immunological, leaving no doubt as to their cause. Soon, and much to the relief of orthodox allergists, food allergy came to be symbolized by anaphylactic peanut allergy reactions

and, more importantly, was treated as a legitimate public health issue.

That does not mean, however, that the chronic complaints treated by food allergists have disappeared. They still exist, but they are now often dismissed as self-diagnosed intolerances. Left to their own devices, patients have fended for themselves, which resulted in, for instance, a gluten-free industry valued at US\$9 billion in the United States alone. The debates have not gone away either: although 41% of Americans think that gluten-free diets are beneficial to health, 44% of Americans believe they are a fad.<sup>9</sup>

The ongoing disputes about food allergy simply reflect the obstinacy of the condition, its definition, diagnosis, treatment, causes and epidemiology. In addition, these disputes indicate how understandings of food allergy have been shaped by external factors, ranging from the quest for allergy to be seen as a legitimate medical science to the influence of environmental or psychoanalytical theory. Perhaps by acknowledging their complex and divisive history — and by adopting a more pluralistic, imaginative and open-minded approach — allergists might be better placed to address more fundamental questions about allergy, such as why it exists and why its rates appear to be increasing.

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This article has been peer reviewed.

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