



Obesity and the vitality of food in Finland, ca. 1950–1970

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ABSTRACT

Mainstream and alternative nutrition doctrines have crucially shaped our understanding of the vital aspects of and forces in human nutrition. Drawing upon a diverse array of sources, this article delves into cultural, social, and scientific conceptions of vital nutrition and how they evolved in relation to the Finnish obesity discourse from the 1950s to the 1970s. The Association to Combat Obesity (ACO), which brought together nutrition scientists, food faddists and laypeople, was the driving force of these debates. In the context of this article, food was perceived to influence the vitality of individuals and nations through its effect on body weight. Obese bodies seemed to conflict with both utopian visions of bodily transcendence and the ideals of wellbeing in modern health sciences. This work highlights the ideological continuities between interwar and postwar nutrition debates as well as the persistent tensions between scientific advancements and alternative nutrition philosophies. They have molded the conceptions of vitality and attitudes towards obesity. Concludingly, we suggest that the social responses to obesity have been influenced by the condition's perceived adverse relationship to vitality, in which fat has acted as a persistent reminder of corporeality, death, and decay.

1. Introduction

In the 1950s, the Finnish people had barely left the years of war-time food rationing behind. However, this did not stop a heterogeneous group of nutrition chemists, physicians, agronomists, and laypeople from forming the Association to Combat Obesity (ACO) in 1950. Led by the magistrate Yrjö Similä (1884–1961), the ACO claimed to be the first anti-obesity association of its kind in the world,¹ but the ensuing diet discourse was not restricted to telling people to eat less and to exercise more. Instead, the ACO paid a great deal of attention to the quality of what you ate and ranked nothing higher than “vital” food. However, attempts to define it opened a can of worms where nutrition research, food fads and modernization criticism intersected. The discussion on the

vitality of foods revolved around the supposed qualitative difference between industrially processed “dead” food and unprocessed, natural and “living” nutrition. In other words, the ACO repurposed ideas of the nineteenth- and the early-twentieth century life reform movements² to tackle overweight³ in the mid-twentieth century context. This article examines how the idea of the vitality of foods played out in Finnish obesity discourse from the 1950s to the 1970s. By focusing on vitality, we want to emphasize the ideological and theoretical continuities between interwar and postwar nutrition debates, instead of assuming violent ruptures with the past.

The ACO had no interwar predecessor but it aspired to continue the tradition of “great public health work” established by the Finnish Antituberculosis Association.⁴ Partly thanks to such role models, the

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¹ Similä (1960a), p. 12.

² E.g., the German life reform movement was a loose cluster of groups and associations that emerged in the latter half of the nineteenth century. It was claimed that exercise, natural diet, and natural therapies would ensure health and happiness in the age of industrialization and urbanization. Hau (2003), pp. 9–10; Treitel (2017), p. 10.

³ The concept of ideal body weight first emerged in the nineteenth century with the European interest in statistics and determining the characteristics of average population. These attempts of classification yielded different indices to describe body weight, such as the Quetelet index and the Broca index. The former was adopted by international conferences on overweight in the 1950s. Oddy & Atkins, 2009, 6–7. The Finnish definition of overweight also varied during the period considered in this article. From the 1930s to the 1950s, recognizing overweight was mostly based on the subjective evaluation of the doctor and conditional on the patient's individual constitution, although rules of thumb – such as the so-called Gärtner's table, according to which the ideal weight in kilograms equaled the person's height (cm) subtracted by 100 – were also commonly mentioned.

⁴ Lehtonen (2023), p. 43. On the Finnish antituberculosis associations, see Hakosalo (2018).

Finns were internationally compared quick to address obesity.⁵ They took their original cue to from the US, where the obesity crisis was also recognized in the early 1950s.⁶ However, the Finnish ideational context resembled more closely the German one, where interwar arguments for natural food had been adapted to suit the postwar abundance by the end of the decade.⁷ As such, Finland was a melting pot for international influences. Its position as a European periphery, where the change from an agrarian to urbanized diet happened late but dramatically,⁸ make it a relevant case study for creating stronger historical and cultural understanding of obesity.

Existing international scholarship has acknowledged the significant cross-fertilization between the ideas of alternative nutritionists and nutrition scientists in the twentieth-century nutrition discourse.⁹ In Finland, the communication between different groups has been facilitated by a consensus-seeking atmosphere, a product of fairly uniform education, small circles and an appreciation of collegiality.¹⁰ Operating in a small country with fewer discussion platforms and funding opportunities brought scientists and so-called food faddists closer to each other. Debates over obesity and diet are no exception. Scientists like the chemist, professor and Nobelist (1945) Artturi I. Virtanen (1895–1973) published alongside food faddists for example in the journal *Terveys* [Health], which was an organ for vegetarianism strongly associated with the Finnish life reform movement. The role of the journal as a platform for both scientists and life reformists (although with a more modest readership) is perhaps comparable to the German *Hippokrates*. Our source material consists of materials produced by the ACO but also includes scientific and popular articles, books, and other publications by authors who commented on obesity.¹¹ These texts demonstrate that ensuring the vitality through food was a recurrent topic in the obesity discourse and even considered a tentative answer to the emerging public health problem.

These kinds of emphases also opened the obesity discourse to vitalist speculations. Vitalism, which maintains that living and inanimate matter are fundamentally different, is commonly viewed as the eighteenth- and nineteenth-century counterpart to mechanistic philosophy.¹² For example, the connection between nutrition science and vitalist ideas showed in the work of the German chemist and pioneer of modern

nutrition science, Justus von Liebig (1803–1873), who, despite his quantitative approach to chemical analysis, often expressed a belief in a “seemingly unscientific” “vital force” (*Lebenskraft*).¹³ But as with this reading of Liebig, any mention of vitalism immediately evokes the word “unscientific”, especially in the twentieth century.¹⁴ Vitalism, eventually shunned from the scientific discourse, lived on in life reformist circles and formed a cornerstone in their conceptions about the origin of illness.¹⁵ “Life force” was believed to be an important regulator of bodily functions and the goal of many natural therapies was to restore this quality.¹⁶ Possibly because vitalism has been labelled as unscientific, the topic has been mostly neglected in Finnish histories of science and medicine.¹⁷

Debates over vitalism have often intersected with those concerning *vitality*, which is a key concept of this article. Having vitality is essential for the organism’s capacity to live, grow and develop. In contrast to the vitalist outlook, which divides matter categorically into living and nonliving, we regard vitality as a measure that can be quantified – lost, gained, added, or reduced. According to the sociologists Mikko Jauho and Ilpo Helén, the definitions of vitality change over time to reflect the prevailing social and political context. Importantly, science and medicine have held key roles in defining the vital features of and forces in humans. Additionally, they propose ways to measure and restore these features.¹⁸

These cultural, social, and health political connotations of vitality, in our case drawing from nutrition science and its alternatives, also bore heavily on the perceived relationship between vitality and fat. Fat has, according to the historian Christian E. Forth, been historically connected to vitality to the extent that it could be termed “the stuff of life”. However, with life comes its potential negation. Forth underlines this ambivalence by suggesting that fat has been constituted as “a vital substance closely connected to organic processes of growth and decay [and] is implicated in life as well as death”.¹⁹ Fat, when described as “excessive vitality”, indirectly magnifies the negative aspects of organic life. Therefore, the recurrent disgust at fat may exist because it reminds us of our corporeal and hence precarious existence.²⁰ In the context of this article, vitality predominantly appears as a desired quality. Obese bodies seemed to conflict with both utopian visions of bodily transcendence indebted to life reform and with the ideals of health in modern medicine and the nutritional sciences. With this in mind, we examine how conceptions of vital nutrition evolved in relation to the obesity discourse and what they reveal about historical conceptions about the stuff that makes up our bodies. We argue that the vitality of food was perceived to influence the vitality of individuals and nations through its effect on body weight and that attitudes towards fat have partly been shaped by its adverse relationship with vitality.

⁵ Hyrkäs and Myllykangas (2024).

⁶ See Rasmussen (2019).

⁷ See Treitel (2017), pp. 234–236; Spiekermann (2008), p. 39. Germany was an important source of influences for Finnish scientists prior to World War II, to the extent that German was the main foreign language of Finnish scientific world at this time. The advances of German science were followed closely through literary exchange and research visits.

⁸ Between the 1930s and 1970s, Finland urbanized and industrialized rapidly about a century after most Western European nations. This and the new global food distribution led to significant changes in the Finnish diet, previously reliant on homegrown foods. For example, wild lingonberries, once the main source of vitamin C, were gradually replaced in this regard by imported fruits and vegetables. The shift towards a more global food system coincided with local advancements, including the introduction of large supermarkets, improved road networks, and new household technologies that facilitated the use of frozen foods. Pelto and Pelto (1983), pp. 321–323.

⁹ See e.g. Treitel (2017); Hau (2003).

¹⁰ For an analysis of these phenomena in Finnish medical discussions, see Aalto (2010), pp. 108–118.

¹¹ In addition to relevant health guides and diet books, we have perused the leading medical journal *Duodecim*, the health reformist magazine *Terveys*, and the magazines *Terveystieteiden ja Suomen Kivalehti*.

¹² Bechtel and Richardson (1998). The commonly held history of vitalism in science ends with the biologist and philosopher Hans Driesch’s (1867–1941) concept of “entelechy”. Driesch believed that *entelechy*, a nonphysical agent, drove the development of a fertilized egg. See e.g. Bolduc (2023), p. 37. However, vitalism continues to reemerge in the life sciences, which makes it continued analysis worthwhile. See Normandin and Wolfe (2013); Donohue & Wolfe, 2023, p. 4.

¹³ Lipman (1967).

¹⁴ To illustrate the point, the molecular biologist and a Nobel laureate Francis H. C. Crick (1916–2004) claimed in the mid-twentieth century that chemistry and physics would eventually make biology obsolete. Those who did not agree, Crick dubbed “vitalists”. Peterson (2023), pp. 176–181, 183.

¹⁵ However, the view that vitalism in heterodox science was simply a diluted version of yesterday’s orthodoxy is somewhat simplified. See Cooter (1988), pp. 70–75.

¹⁶ Hau (2003), pp. 102, 227n; see also Fritzen (2006). For Finland, see Rytty (2021).

¹⁷ The significance of vitalism for life reformers is mentioned in passing in Rytty (2021), p. 115. However, vitalism has been discussed to an extent in art history. See e.g. Kokkinen (2019), pp. 169–175.

¹⁸ Jauho and Helén (2023), p. 468.

¹⁹ Forth (2019), p. 32.

²⁰ Forth (2019), pp. 11–13.

2. Vitality qualified

Even before obesity came under the radar of nutrition scientists, most of them were preoccupied with the quantity of food. By the turn of the twentieth century, investigations in the physiology of nutrition and quantitative chemistry had established that health depended on sufficient energy intake. Building on Lavoisier's 1780s argument that respiration in the animal body was a form of combustion and the identification of basic foodstuffs in the 1820s and the 1830s, von Liebig's "animal chemistry" laid the groundwork for the modern parlance on carbohydrates, fats, and proteins. In the 1870s and the 1880s, Max Rubner (1854–1932) showed experimentally that energy nutrients are interchangeable in terms of calories, consolidating the view that the human body was a kind of "heat machine" that obeyed the laws of thermodynamics.²¹ One of the most famous Finnish scientists of all time, the physiologist Robert Tigerstedt (1853–1923) concurred with the ideas of tissue oxidation and calorie theory and wrote in 1903: "... [T] here is a continuous combustion going on in the body, when the material of the body combines with air. As the matter of the body so gets consumed, we constantly need new ingredients Due to this constant combustion, we can express the body's energy needs in terms of the thermal unit."²² The scientific knowledge of calories and metabolic physiology was a necessary steppingstone for defining obesity by substance intake that exceeded the body's natural limits.²³

The attentiveness towards nutrition that emerged in the latter half of the nineteenth century combined scientific effort with biopolitical concerns. For Tigerstedt, providing the Finnish masses with enough calories at a minimum cost as the most pressing issue for food politics.²⁴ The concern over feeding the population was connected to the concept of health citizenship, which, following Jauho and Hélen, has since Tigerstedt's times entailed "two sets of rationales and practices": health education and public hygiene as well as the medical classification of population.²⁵ We might add that nutrition research was imperative in shaping the hygienic practices that attempted to ensure the vitality of the people.

The quantity over quality mentality persisted in the teens. In 1917, complications in the import of cereal products from Russia caused by World War I once again aggravated the hunger problem.²⁶ However, soon after the war came the first signs of disintegrating "calorie consensus". They were articulated by the Finnish physiologist and professor of agriculture Georg von Wendt (1876–1954), who in his 1923 book *Laihdunko vai lihon?* [Losing or Gaining Weight?] elaborated the new, "mostly American" findings of physiological science.²⁷ Despite this explicit scientific framework, von Wendt's conflation of Hippocratic medicine and the studies of metabolism, the attention he gave to mineral salts, and openness to the vegetarian diet suggest that he was affected by alternative nutrition doctrines. Von Wendt cited, for instance, the Swedish-born food chemist Ragnar Berg (1873–1956), who was the spokesperson for a mineral-rich diet. Berg, influenced by the German naturopath Heinrich Lahmann (1860–1905), believed that the dietary imbalance of acids and bases generated conditions like rheumatism, anemia, gout, and obesity.²⁸ Von Wendt agreed that heartily foods, such

as meat, grain, butter, cream, and so forth promoted both acid formation and the accumulation of fat. "Gorging" on these high-purine foods caused the buildup of uric acid, which, among other things, disturbed the combustion of fat.²⁹ Alternative nutrition dogmas therefore challenged the role of the calorie as a comprehensive method for assessing nutritional value and the food's effects on the body.

Although the antagonism between orthodox and heterodox practitioners may have contributed to the slow acceptance of the vitamin concept to the canon of nutrition science, its widespread adoption by the 1920s worked to validate research on dietary factors beyond energy nutrients.³⁰ The very name "vitamin" underlined that these substances were essential to health and life, and their discovery had broad consequences.³¹ In popular perception, vitamins replaced calories as "the life of the food".³² Governmental health policies came to include nutritionally fortified foods, and advocating for fresh fruit and vegetables, once viewed with suspicion, gained new respectability.³³ The latest knowledge of nutrition made modifying the nutritional value of foodstuffs a promising avenue for combatting Finnish deficiency diseases, such as rickets, goiter, and tooth decay.³⁴ That nutrition could cause disease directly paved way for regarding obesity as an issue related to overnutrition, instead of a result of glandular dysfunction or constitutional proneness. This difference is important, since overnutrition could potentially be counteracted through a centralized intervention, whereas little could be done to correct inborn flaws.

The vitamin concept was, as the historian Ulrike Thoms has called it, an "interdiscursive collective symbol". For chemists, it signified the newly attained chemical precision; for life reformers, a confirmation of their preexisting ideas about the biological value of plant foods; and for doctors, new therapeutic opportunities.³⁵ The versatile symbolism of vitamins showed also in the obesity discourse, where the idea that vitamins were essential to life was applied to weight loss advice. By the virtue of being nonfattening, vitamins could help dieters to sustain themselves during weight loss.³⁶ Come the 1930s, vitamin-rich foods, especially vegetables, had become necessary parts of reducing diets,

²⁹ Von Wendt (1936), pp. 33–34, 101–105. The attention given to uric acid dates back to the British physician Alexander Haig (1853–1924) and the nineteenth-century "uric acid fetish". For this history, see Whorton (1982), pp. 239–269.

³⁰ Ehrenberger (2004), p. 56. In Finland, the reserved attitude was evident with von Wendt, who endorsed the raw food diet for its vitamin content yet criticized life reformers' "poetic" and vague descriptions of it. A clear example of such misrepresentations was the Swiss nutritionist Maximilian Bircher-Benner's (1867–1939) claim that vitamins were carriers of solar energy and hence vitality, despite that most vitamins were unaffected by sunlight. Von Wendt (1933), pp. 7–8. Bircher-Benner, a figurehead of the European raw food movement, held that cooking in anything but the sun destroyed the "vital substance" of plants and hence diminished their food value. Barnett (1995), p. 163. On Bircher-Benner's raw foodism, see also Wirz (1993).

³¹ In the early 1900s, animal feeding experiments had revealed that there were substances—amino acids or essential minerals—that the human body could not produce independently. The observations that a pure diet of macronutrients could not sustain life and the 1912 experiments by the biochemist Frederick Gowland Hopkins (1861–1947) led to the development of the vitamin concept, which gradually garnered support among nutrition scientists. On the history of vitamins, see e.g. Apple (1996); Horrocks (1995); Kamminga (2003); Thoms (2007).

³² Schwarz (1986), p. 228.

³³ Horrocks (1995), p. 238.

³⁴ In the previous centuries, the constitution of an adequate diet had been evaluated in penal institutions and with regard to children's health. The "modern" nutrition issue emerged in Finland when the bourgeoisie became concerned over the diet of the lower classes. Good and cost-effective nutrition came to reflect the educational state of the nation. Jauho (2003), pp. 149–150, 171–172.

³⁵ Thoms (2007), p. 77.

³⁶ Schwarz (1986), pp. 229–230.

²¹ Treitel (2020), pp. 185–188.

²² Tigerstedt (1903), pp. 44, 58.

²³ Cf. Spiekermann (2018), pp. 196–200.

²⁴ Tigerstedt (1903), p. 59.

²⁵ Jauho and Hélen (2023), p. 475.

²⁶ Rautavirta (2020), p. 372.

²⁷ Von Wendt (1923), pp. 7–8.

²⁸ Ehrenberger (2014), pp. 150–151.

challenging earlier recommendations for meager “starvation” regimens. This development also led to a new kind of juxtaposition of the food’s energy value and vitamin content, making milk a potentially problematic foodstuff. It was regarded a cornerstone of the Finnish diet because it contained fat-soluble vitamins but fat itself, with its high calorific value, could not well be recommended to overweight people.³⁷ Given that safeguarding the year-round supply of fat-soluble vitamins was one of the most topical nutrition issues of time – even inspiring Virtanen’s Nobel-prize-winning invention of AIV fodder in 1929 – such tradeoffs between weight and vitality were not simple to make.

Furthermore, in the 1920s and the 1930s, vitamins were widely connected to resistance to disease and to improving national prowess.³⁸ As von Wendt argued in the 1936 book *Kost und Kultur* [Food and Culture], only a vitamin-rich diet could ensure bodily resistance (*Widerstandskraft*) by supporting the proper functioning of protective and defense cells.³⁹ Overweight also played a part here. Von Wendt believed that because excess fat was deposited in the mesenchymal cells, which were an important part of the body’s defense system, fat impaired the overnourished person’s resistance to disease, including the stress caused by overeating itself.⁴⁰ In addition to being a physiologist, von Wendt was an active politician and race hygienist. His talk about resistance was hence connected to a broader agenda to bring nature back to the diet of cultured peoples – a category to which the Finns desperately wanted to belong. Von Wendt insisted that a natural diet, filled with fresh ingredients, was vital to national “resistance” and as important as the armed forces.⁴¹ Finnish efforts to determine the optimal soldier’s diet prior to World War II – originally calculated by Tigerstedt and corrected for vitamins by von Wendt – followed this ethos and were modelled after German nutrition science.⁴²

By the 1940s, fat and obesity came to have equivocal meanings. Fat tissue itself had long represented a useful energy storage that improved the individual’s chances of survival in the face of disease, accidents, and other hardship.⁴³ A certain degree of corpulence was still associated with desirable qualities, such as good health or affluence. Although such endorsements were never given to massive obesity, being overweight could even signify a state of “superabundant health” or excessive vitality, especially among the lower classes.⁴⁴ However, fat had become a relevant part of a broader discourse in which the vitality of citizens was thought to determine the vitality of the nation. For example, while von Wendt’s concept of “resistance” did not postulate a distinct “life force”, it recast fat storages as something that could endanger individual and national vitality.⁴⁵

After World War II, the overweight issue became much more acute as the availability of foodstuffs in Finland improved quickly together with the real income, which exceeded the prewar level in 1948. This reflected on the Finnish diet, in which the role of fat, sugar, and convenience

foods increased at the expense of natural products.⁴⁶ Hereby followed an everyday observation, not based on any epidemiological evidence: the Finns were quickly putting on the pounds.⁴⁷ The newly topical obesity discourse preserved the concern over the quality of food, but added a twist. In 1958, Virtanen gave a lecture at the Lappeenranta summer university, where he emphasized that obesity, now plaguing countries with a high living standard, was caused by the overuse of fat and sugar. However, Virtanen contrasted this point with warnings of nutritional deficiencies – a human being needed around 40 different nutrients, and a lack of any of them could be fatal. Striking the balance between quantity and quality was the true challenge, to which the ACO’s commentator playfully pleaded: was there anyway that the famous professor could just develop an AIV fodder for humans?⁴⁸

3. Matters of life and death

Come the 1950s, disputes over the quality of food acquired new accents. Once again, Finnish experts took their cues from Germany and the Anglo-Saxon countries, where the potential health threats caused by food processing had become a topic of ardent debate. Antibiotics, food additives, and traces of plastic in food packaging were considered harmful, even lethal to humans.⁴⁹ Nutritional abundance and concomitant overeating became associated with new kinds of dangers, as they potentially promoted the buildup of harmful substances in the body. For instance, the German hygienist and food scientist Werner Kollath–1970) insisted in the 1950s that the abundant foods of the postwar period carried health risks in the form of toxic residues.⁵⁰ Fat, too, became a tentative toxic reservoir, adding to the urgency of the emerging obesity problem.

This kind of rhetoric was used by Teo Snellman (1894–1977), a Finnish Nazi and food reformist, whose writings on diet were touted by the ACO with no mention of Snellman’s political past. During the war, Snellman had led the Finnish National Socialist Labor Organization. When the organization was shut down and Snellman was sentenced to house arrest in 1944, he was compelled to look for a new career. And like some of those sharing a similar fate in Germany, Snellman found his calling in promoting life and diet reform, now ostensibly stripped of Nazi ideology.⁵¹ Snellman’s primary source of influence was the Finnish-born health philosopher Are Waerland (née Paul Henrik Fager, 1876–1955), whose works, originally written in Swedish, Snellman translated and published in Finnish in the late 1940s and early 1950s.⁵² In the ACO-endorsed book *Sairauksien surma* [Death to Diseases], Snellman

⁴⁶ Kylli (2021), pp. 181–182, 255, 258, 278.

⁴⁷ Hyrkäs and Myllykangas (2024). The first comprehensive mapping of the prevalence of obesity in Finland was conducted by the Social Insurance Institution of Finland in the 1960s and the 1970s. Evaluated by the BMI, ca. 10 to 20 per cent of Finns ages 45 to 54 were found to be obese. Suojanen (2003), pp. 51–52. However, the ACO’s founder Yrjö Similä sat on the board of the oldest Finnish life insurance company *Kaleva* from 1943 to 1954, which probably gave him insight into the connection between mortality rates and height to weight ratios. On the history of Finnish life insurance and medicine, see Jauho (2015).

⁴⁸ ACO (1958), p. 2.

⁴⁹ See e.g. Spiekermann (2018), pp. 667–678; Oddy & Atkins, 2009, p. 5.

⁵⁰ Treitel (2017), pp. 243–244. The tentative prohibition of hazardous and often synthetic foreign matters (*Fremdstoffe*) was also on the agenda of the *Internationale Gesellschaft für Nahrungs- und Vitalstoff-Forschung* (IVG), which is discussed at a greater length in the next section.

⁵¹ Kotonen (2018), pp. 73–76. For the German situation, see e.g. Treitel (2017), p. 251.

⁵² Waerland propagated a lactovegetarian diet that consisted mostly of raw vegetables. The central role of vitality was evident in the Waerlandist doctrine, for instance, in its motto “Life is not, it is built” (*Livet är inte, det bygges*). Eklöf (2005), pp. 256–257. While Waerland never identified as a National Socialist, his doctrine of moral revolution through dietary reform as a way to prevent the degeneration of the Nordic race has clear points of contact with Nazi ideology. Kotonen (2018), pp. 73–74.

³⁷ See e.g. Seppänen (1938), p. 287.

³⁸ Kylli (2021), p. 170.

³⁹ Von Wendt (1936), pp. 1–13, passim.

⁴⁰ Von Wendt (1936), pp. 18, 62.

⁴¹ Von Wendt (1936), p. 61.

⁴² Kylli (2021), pp. 223–224; on German nutrition science and war, see Thoms (2016). With the onset of war, the goal of self-sufficiency became acute, leading Finnish diet planners like A. I. Virtanen to maximize the use of domestic products. In 1942, while the wartime food rationing was especially strict, Virtanen conducted an experiment with one of his colleagues to establish the nutritional minimum to subsist on. For a period of time, they lived solely on grounded hay, rye flour, and lingonberry juice with apparently good results. ACO (1958), p. 2. Virtanen was particularly well acquainted with German nutrition research. He published in leading German journals, including *Hippokrates*, where vitalist concepts were discussed time and again. We thank reviewer I for this information.

⁴³ E.g., Taskinen (1928).

⁴⁴ Suojanen (2003), p. 50.

⁴⁵ Cf. Jauho and Helén (2023), pp. 474–475.

asserted that one of the poisons brought about by the modern way of life was “eating too much”, which was connected to the overuse of other “toxins” – such as tobacco, coffee, alcohol, tea, sugar, refined cereal, salt, preservatives, and pharmacological drugs.⁵³ Among all the foodstuffs Snellman deemed harmful, fat received a special mention: by eating “the unnatural fat of a pig”, man became one himself.⁵⁴

Harmful substances were connected to obesity not only by fringe figures but also by one of the ACO’s founding members, the physiologist Alvar Wilska (1911–1987), who, alongside Virtanen, was one of the best known Finnish scientists of the 1950s. Wilska distinguished himself as a developer of research instruments but added national health to his list of pursuits after being appointed as the head of a large Finnish research institute *Wihuri* in 1944. Wilska’s innovative zeal – connected to his fight against bad lifestyles, including those leading to overweight – yielded new diet innovations, such as the whole meal *Wilska* bread, which capitalized on the name of the science celebrity.⁵⁵ For Wilska, the core problem of obesity was in the habit of overeating. It created a host of health issues beyond boosting fat storage, many related to the accumulation of “harmful substances”.⁵⁶

Wilska coined the concept of “mortamins” to study the connection between harmful substances and health problems, such as cancer, which was garnering attention as a cause of death now that life expectancy had increased and infection-related deaths declined.⁵⁷ Wilska juxtaposed “mortamins”, a catch-all term for nutrients gone bad, with “vitamins”—in other words, “death” with “vitality”. He argued that mortamins were formed through cooking, which changed the chemical structure of fats and proteins:

In the whole creation, humans are the only ones who use fire in the preparation of food and there are still tribes, who use fire as a cooking method much less than the Western civilized person does Whatever we cook or scorch, we must remember that [mortamins] may be formed. No chemist can yet say what happens to proteins when we fry a steak. A person with even a limited knowledge of chemistry realizes that the changes in the chemical structure that happen while cooking must be immense. Living nature is categorically pyrophobic, that is, it evades fire, and that also determines the laws of chemistry, and we cannot just crudely change them.⁵⁸

It appears that the crude chemistry of cooking made the “pyrophobic” foodstuffs unnatural and incompatible with the human body. Eventually, digesting mortamins created a state of “carcinophilia”, a tendency to develop cancer.⁵⁹ In other words, mortamins changed the human being profoundly and distorted the body’s natural inclination to life.

Given Wilska’s track record in the fields of physiology and technology, his modernization critical stance, apparent in the unfavorable evaluation of cooking, is rather surprising. His argumentation also closely resembles advocacies of the Apyrotropher diet, articulated by Maximilian Bircher-Benner as well as many American health reformers of the twentieth century. Their basic idea was that any human tampering – such as heating up – only managed to diminish the nutritional value of raw food. Just compare Wilska and the editor of *The Apyrotropher Magazine* George Drews’ statements, when the latter insisted in 1912 that the heating of food “perverted” its natural chemical composition.⁶⁰ However, Wilska makes no attribution to a health reformist genealogy of his ideas, nor is he guilty of a cavalier use of biochemistry common to

this group. In fact, when Wilska first presented his theory of mortamins in a meeting of the Finnish Medical Society *Duodecim* in 1948, his suggestions for further research were received unproblematically. Here, one of Wilska’s research objectives was to study the significance of the products of “pyrolysis” for human metabolism and caloric needs.⁶¹ Virtanen, too, promoted public discussion on the harmfulness of foreign matters in food and brought attention to the potential carcinogenicity of heated up and otherwise processed nutrition.⁶²

In the obesity discourse, the rhetoric of harmful substances was paired with the reevaluation of certain nutrients, such as lipids and proteins.⁶³ This aspect showed perhaps most clearly in the writings of the biochemist and longtime colleague of Virtanen, Henning Karström (1899–1989), who openly linked the scientific and food reform discourses. Karström was not only a respected scientist but also a member of the Finnish Adventist Church, the doctrines of which fundamentally affected his reading of nutritional facts as well as his opinion on the causes of obesity.⁶⁴ In the ACO’s 1950 book *Terveysteni tieteen vaa’assa* [My Health on the Scales of Science], Karström noted that nutrition science had moved beyond vitamins – as important as they were! – and increasingly paid attention to “mortamins” or “harmful substances”. He connected this claim to the at the time prevalent debate over cholesterol, which Karström, echoing alternative medical parlance, called *materia peccans* (excess material causing disease, literally “sin-causing material”). With this and other nutrients, dose made the poison; Karström included carbohydrates, proteins, and fats that went beyond bodily needs to the category of mortamins. These excess nutrients were also the main cause of obesity.⁶⁵ If the buildup of harmful substances was one of the downfalls of obesity, it is not surprising that Karström believed that diet therapy would restore bodily balance by ridding it of fat and other excess material. Karström’s rhetoric therefore reproduced the associations between fat and immoderacy dating back to the life reform movement through the contemporary language of toxins and overindulgence.⁶⁶

It is difficult to draw a line between orthodox and heterodox nutrition discourses as they both display value-laden assessments of foodstuffs and nutrients. As the historian Barbara Orland posits, in this sense, nutrients are more than technical terms⁶⁷; both body weight and values can be weighed on the scales of science. Values, science, and historical contingencies came together in changing the conceptions about the vitality of food and reimagined wrong kind of nutrition as a potential harbinger of death. As early as at the turn of the century, the phenomenon of “death marketing” had connected food and eating paradoxically

⁶¹ Noro (1949), pp. 236–237.

⁶² Virtanen (1957), pp. 135–136.

⁶³ Barbara Orland describes nutrients—essential substances for bodily function—as “precarious” because, although beneficial, they can harm the body in certain amounts: both too little and too much may cause health problems. Moreover, dietary guidance on micronutrients, required only in small quantities (like cholesterol), can change swiftly and dramatically. Orland (2008), pp. 141–143, 150.

⁶⁴ Karström was baptized into the Finnish Adventist Church in 1934 but fully abandoned a scientific career to become the head of the Adventist school and sanitarium *Toivonlinna* in 1946. Määttä (2001). In the 1950s and the 1960s, his writings have clear Adventist undertones. He also assisted Snellman in founding the Finnish Association of Naturopathic Care.

⁶⁵ Karström (1950), pp. 58–61.

⁶⁶ Life reform and weight loss discourse have long gone hand in hand, and the life reformist sanatoria even marketed themselves with the promise of reducing. Hau (2003), pp. 14–15. Yrjö Similä, too, had fallen prey to such promises in the 1930s, when he frequented the Danish Adventist sanitarium in Skodsborg for a fasting treatment. Similä (1960b), pp. 186–187. Skodsborg followed the example of John Harvey Kellogg’s Battle Creek establishment and acted as a model for Finnish sanatoria. On Kellogg, see Wilson (2014); for Finland, see Rytty (2021), pp. 174–175.

⁶⁷ Orland (2008), p. 142.

⁵³ Snellman (1953), p. 24.

⁵⁴ Snellman (1953), p. 56.

⁵⁵ Kaataja (2011), pp. 17–18.

⁵⁶ Wilska (1950), pp. 73–74.

⁵⁷ McAleer (2021), pp. 124–125.

⁵⁸ Wilska (1953), p. 171.

⁵⁹ Ibid.

⁶⁰ On apyrotrophers and for the quote, see Whorton (1982), pp. 267–269.

with death and decay to shock people into buying diet products.⁶⁸ In the 1950s, the connection between food and death acquired a different tone and was strengthened by overeating leading to obesity and increased morbidity. The obesity discourse built on the fear of toxins found in new food products, and by the courtesy of excess, all nutrients could be viewed with suspicion. Against this alarmist backdrop, abundant food no longer self-evidently increased vitality, as the pre-World War II formula that associated thinness with impending death would have suggested.⁶⁹

4. Vitality against fat

As we saw in the previous section, vital food was by implication something free of toxins and minimally altered by humans. This thematic was notably elaborated by the Finnish agriculturist and avid health reformer Toivo Rautavaara (1905–1987) in his vast body of work spanning over fifty years from the 1930s to the 1980s. Already in the interwar era, Rautavaara gained visibility as an advocate for the temperance movement. During the war, he supported nutritional autarky by studying the efficient use of Finnish wild plants, a work which yielded him an unconventional doctorate in the field of agriculture. Rautavaara followed international nutrition research actively. He continued to write about nutritional issues, including obesity, throughout his life, and became one of the best known health reformers to the Finnish public even though his views were generally disregarded in scientific circles.⁷⁰ Rautavaara's significance lay less in the novelty of his ideas than in him making alternative nutrition doctrines known to the Finnish audience.

Rautavaara's 1951 guidebook *Syömällä solakaksi* [Eat Yourself Thin] was part of the ACO's first listings of weight loss literature. It is conceptually interesting, since, unlike most contemporary works, it sidelined the calorie doctrine as the quintessential approach to losing weight. In fact, that weight loss could be achieved without counting calories was one of the book's main promises. Instead of calories, Rautavaara brought attention to effective substances (*tehoaine*) found in so-called "catabolic foodstuffs". They did contain but few calories and a lot of water and fiber, but more importantly, had a high "biologic" value by the virtue of being packed with essential nutrients and "other effective substances".⁷¹ Rautavaara argued that effective substances supported the body's own anabolic and catabolic processes, which, if functioning properly, would lead to a healthy reduction in bodyweight. In other words, Rautavaara regarded weight loss as a systemic phenomenon. This view also hints at the vitalist inclinations that can be found all over his body of work.

However, the credit for above ideas does not go to Rautavaara alone as most of them were appropriated from the German nutrition discourse. For one, Rautavaara's choice to term his weight loss factors "effective substances" was in all likelihood influenced by the German *Wirkstoffe* research, which recognized different biologically active substances as driving forces of human life processes.⁷² For another, by suggesting that effective substances were central to weight loss, Rautavaara seems to

have adapted Werner Kollath's criticism of the inadequacy of calorie theory to the obesity discourse. Kollath had described a full-value diet (*Vollwerternährung*) consisting of nutrient-dense "living" foods (in contrast to overprocessed "dead" foods) in the influential book *Die Ordnung unserer Nahrung* [The Order of Our Food] in 1942. Kollath continued this line of argument in the postwar era by claiming that food abundance had been achieved at the cost to its quality.⁷³ The new "civilization food" contained too few "auxons" – so far understudied nutrition factors – and through this shortcoming allegedly caused a borderline state between health and illness (*Mesotrophie*) in modern humans.⁷⁴ Rautavaara, too, thought that "mesotrophy", the most common condition of the "cultured human", was brought about by eating overrefined foods void of "auxons".⁷⁵ Sugar was the archetypal bad example. By creating a chronic state of half-health and related "metabolic strain", eating sugar made the body susceptible to obesity and diabetes.⁷⁶

In addition to the literary connections with German ideas, Rautavaara frequented the meetings of the International Society of Research for Nutrition and Vital Substances [*Internationale Gesellschaft für Nahrungs- und Vitalstoff-Forschung*, IVG] in the 1950s and the 1960s. Founded in 1954 by the German chemist Hans Adalbert Schweigart (1900–1972), the IVG formed a hybrid network of university-trained scientists, life reformers, and naturopathic doctors (many of whom were former Nazis) who shared an apocalyptic vision of an impending health disaster.⁷⁷ The Finnish members of the IVG included Virtanen as one of the society's honorary members, the director of Finnish Institute of Occupational Health Leo Noro (1915–1980), who held a seat at the IVG's scientific advisory board,⁷⁸ and of course, Rautavaara, who joined the IVG's scientific advisory board in 1958 and its presidency in 1962.⁷⁹ The IVG continued nutrition debates that had begun in the interwar era but applied these ideas to the issues of postwar nutrition, such as abundance, industrial processing, and toxic residues in food, which were thought to cause the proliferation of so-called "diseases of civilization". This category, which first came into use in the German and Anglo-American psychiatric discourses of the nineteenth century, inferred that the result of the civilization process, namely the current state of society, precipitated or caused certain diseases.⁸⁰ In the 1950s and the 1960s, it was used to address cardiovascular diseases, diabetes, vegetative dystonia, cancer, allergies, and obesity—that is, the very chronic diseases that caught the attention of Western medicine midcentury.⁸¹ The critical view of modernization, inbuilt into the "diseases of civilization" concept, implicitly pervaded Finnish obesity discourse, where cultural evolution and shifts in eating habits were frequently cited as clear causes of increasing waistlines.⁸²

⁷³ Treitel (2017), pp. 188, 238–239, 243–244.

⁷⁴ Spiekermann (2018), pp. 709–711. Kollath considered auxons indispensable for cellular renewal. *Die Ordnung's* fully revised second edition's section on "auxon deficiency" cites von Wendt's *Kost und Kultur* to demonstrate how a lack of fresh ingredients in soldiers' diet reduced their resistance to disease. This discussion was followed by Kollath pointing out the dangers of overeating when caloric excess was accompanied with a lack of necessary vitamins and minerals. Kollath ([1942] 1951), pp. 42–43.

⁷⁵ Rautavaara (1954).

⁷⁶ Rautavaara (1957), p. 24.

⁷⁷ Treitel (2017), p. 255. The ethos of naturalness defined most of the IVG's activities. The society promoted nutrition research with the aim of making food as natural as possible, had an antinuclear stance, opposed the use of pesticides and chemical processing of drinking water, as well as the use of chemicals in food production.

⁷⁸ Tiitta (2011), pp. 84–86.

⁷⁹ Mäkinen, 2016 [2006].

⁸⁰ See Roelcke (1999), pp. 11–22; Rosenberg (1998).

⁸¹ Treitel (2017), pp. 235–247, 253–254, 257.

⁸² E.g. Similä (1960a); Virtanen (1957), p. 136.

⁶⁸ Spiekermann (2008), p. 49.

⁶⁹ See Hyrkäs and Myllykangas (2024).

⁷⁰ Tiitta (2011), p. 88.

⁷¹ Rautavaara (1951), pp. 50–52.

⁷² Heiko Stoff has pointed out the difficulties in translating the German concept "Wirkstoffe". A typical English translation from the 1950s, "biologically active substances" does not fully capture the nuances of this German compound word, which combines "agency" with "material". The defining feature of *Wirkstoffe* was their biological activity. At first, they encompassed hormones, vitamins, and enzymes but the category was broadened over time. Stoff (2013), pp. 89, 103. To capture the meaning of the Finnish word "teho" – derived from either "tehoava" or "tehokas" ("to have efficiency" or "to be effective/powerful")—we have translated "tehoaineet" as "effective substances", a term that also Stoff uses occasionally to refer to *Wirkstoffe*.

But perhaps most clearly, the IVG was a source of inspiration for Rautavaara himself. After getting acquainted with the IVG members, Rautavaara changed his terminology from “effective” to “vital” substances (*vitaaliaineet*, *Vitalstoffe*). Schweigart’s reframing of vital substances⁸³ in the 1962 book *Vitalstofflehre, Vitalstofftabellarium* [The Doctrine of Vital Substances] upheld the vitalist tone already infused into Kollath’s “living” food.⁸⁴ Like Kollath, Schweigart criticized the current obsession with macronutrients that came at the expense of life-sustaining food factors.⁸⁵ On a more profound level, the category of vital substances implied a detailed biochemical definition of vitality. As Rautavaara summarized, vital substances included all substances that catalyzed biological events in cells and tissues, such as enzymes, vitamins, hormones, necessary amino and fatty acids, minerals, and aromas, and stood in contrast to antivital substances, conceptually similar to “mortamins”.⁸⁶

Rautavaara regarded the science of nutrition as valuable in discovering new biocatalysts but was vary of its otherwise deficient understanding of human life.⁸⁷ This stance, also found with other advocates of holism, was a reaction to the increasing role of molecular methodologies in the life sciences that surfaced in the interwar period and gained traction during and after World War II.⁸⁸ The criticism applied also specifically to the science of nutrition. Rautavaara stated – in a clear debt to the call for intuitionism in science that characterized Schweigart’s writings – that the interaction between the organism and the “living nutrients” (found in uncooked vegetables) could not be understood by analyzing dead matter in a laboratory.⁸⁹ A similar vitalist take on nutrition was applied to obesity by the German physician Max Otto Bruker (1909–2001), a fellow promoter of the full-value diet and vital substances doctrine. According to him, people ate too much because nutrient-poor food created an unnatural state of hunger which inevitably led to overeating and obesity. Bruker’s bold claim that “the primary cause of obesity [was] the lack of vital substances” was introduced to Finnish readers by Teo Snellman in 1969.⁹⁰

Rautavaara consistently pushed the view that obesity was caused by metabolism gone awry and that it could be corrected by following a diet of vital nutrition put forward by figures like Bircher-Benner and Bruker.⁹¹ The importance of metabolic function had also been emphasized by Schweigart, who believed that vital substances sustained a specific living substance (*Lebendige Substanz*). Without it, the life-sustaining flow in the body would “become violently interrupted, blocked or rigid”.⁹² Rautavaara championed a similar idea that a blocked metabolism was behind obesity in 1978. He claimed that obese bodies were unable to burn body fat at a normal rate due to enzyme deficiency and the resulting slow metabolism. Because vital substances were the building blocks of enzymes, a one-sided diet was usually to blame for the poor metabolic condition that prevented the overweight from hitting their weight loss goals.⁹³

Despite the idiosyncrasy of Rautavaara’s ideas, his was not a voice in the wilderness. Already in the 1950s, the ACO had extolled Rautavaara’s raw food and vegetable-based diets, although these early

communications kept silent about holistic or vitalist themes. They became more prominent in the ACO’s publications when Rautavaara became the chair of the association in 1961. Furthermore, at the end of the decade, Rautavaara gained an opportunity to exploit the resources of a newly established Juho Vainio Foundation to promote his own interests in the field of nutrition through research and publications.⁹⁴ In other words, Rautavaara worked hard to keep alternative nutrition doctrines alive in the obesity discourse. However, their coexistence with the science of nutrition has not always been harmonious. In Germany, both Kollath and Schweigart’s holistic views faced opposition among leading nutrition researchers. They even provoked fears, as the contemporary Karl Maier put it, that the dragon of “enigmatic life force” would once again awaken in the nutrition debate.⁹⁵ The generalizability of Kollath’s mesotrophy experiments was seriously questioned by figures like Konrad Lang and Joachim Kühnau; similarly, Schweigart’s vital substances were attacked by the representatives of the German Nutrition Society (*Deutsche Gesellschaft für Ernährung*) for being too heterogenous (Heinrich Kraut) and for assuming the possibility of intuitive comprehension in scientific work (Dieter Hötzel).⁹⁶ Whereas there was a clear confrontation between vitalist and orthodox ideas of nutrition in Germany, the situation seems to have been different in Finland. Rautavaara’s vitalism was rarely openly criticized. Even the Finnish physiologist Kaarlo Hartiala (1919–2009), a fellow member of the ACO’s board who disapproved of Rautavaara’s unscientific tendencies, painstakingly attempted to balance Rautavaara’s writings by contributing conventional scientific articles to Rautavaara’s *Terveiden Elämäntapojen Edistämistöiminnan Yhteislehti* [Journal for Promoting Healthy Living] while acting as its scientific advisor in the 1960s and the 1970s.⁹⁷

5. Vitality in between process and nature

Even in the latter half of the twentieth century, weight loss has been an area of public discussion lenient with alternative diet doctrines. They have promised to restore the vitality of individuals through a right diet and the associated bodily transformation. With obesity levels picking up and the diet culture becoming more penetrating, the promise of vitality became more forcefully exploited in weight loss marketing. From the 1950s to the 1970s, eating processed foods was increasingly associated with obesity but with the obvious exception of weight loss products, which appeared also on Finnish store shelves at an accelerating rate.⁹⁸ For example, the 1959 innovation of Minimeal, firmly belonging to the 1960s craze of nutrition-packed diet formulas, was advertised all over Finnish popular media. It was a “natural” product that guaranteed rapid weight loss while boosting the dieter’s “zest for life” through its high content of “vital substances”. Given the terminology, it is perhaps not surprising that the product was vouched for by the Finnish Institute of Occupational Health, led by the IVG-associated Leo Noro.⁹⁹ The word choices of Minimeal ads – such as paraphrasing the title of Rautavaara’s weight loss guide “eat yourself thin” – reveal that this old adman was partly responsible for the campaign.

⁸³ The concept of “vital substance” itself has a long history in the discourse on vitalism and was used by, e. g., the seventeenth-century Neoplatonists as well as by the pioneer of chemistry, Robert Boyle. Garrett (2006), p. 4. The term was also commonly used by Apyrotrophers, see p. 9.

⁸⁴ Schweigart (1962).

⁸⁵ Treitel (2017), p. 249.

⁸⁶ See Rautavaara (1958), p. 4; Rautavaara (1963).

⁸⁷ Rautavaara (1959), p. 30; see also Rautavaara (1960).

⁸⁸ On this “molecularization”, see Chadarevian & Kamminga, 2003.

⁸⁹ Rautavaara (1959), p. 31.

⁹⁰ Snellman (1969), p. 26.

⁹¹ Rautavaara (1982), p.80.

⁹² Schweigart (1959), pp. 56, 58.

⁹³ Rautavaara’s presentation held at the ACO’s annual meeting in 1978 was published in a 1982 edition of *Eat Yourself Thin*. Rautavaara (1982), pp. 89–91.

⁹⁴ Juho Vainio (1880–1964), a key figure in Finland’s construction and real estate sector, became a devout Waerlandist after the lactovegetarian diet healed his chronic stomach ailment. In 1960, he recruited Rautavaara to lead a foundation dedicated to promoting healthy living. By 1968, Rautavaara had boldly redefined Vainio’s vision and the foundation’s goals to align with his own priorities. Tiitta (2011), pp. 121–125.

⁹⁵ Stoff (2013), p. 101.

⁹⁶ Spiekermann (2018), pp. 710–711, 713.

⁹⁷ TEE, established in 1968 and funded by the Vainio Foundation, gathered under its umbrella the journals of smaller associations that addressed natural and biologic living (*Terveyttä kohti*), temperance (*Kansalaisrintama* and *Uuttera*), and obesity (*LV*). Tiitta (2011), pp. 248, 252–253.

⁹⁸ Kylli (2021), pp. 294–299; see also Spiekermann (2018), pp. 649–655.

⁹⁹ Jo lähes kymmenen, 1963, September 12); Uusi Minimeal, 1964, April 16).

However, the contemporary diet culture had complex views on what was “natural” and what constituted “vitality”. The very phenomenon of claiming industrially processed diet products “natural” reveals the inherent ambiguity of the idea,¹⁰⁰ and indeed, a competing diet discourse regarded the taste of food higher than its actual substance. According to the historian Hillel Schwartz, at least American cuisine moved towards “the principle of least transformation” where all the processing came to happen behind the closed doors of the food industry. The end products only imitated food in its raw state but still managed to give dieters the impression of being particularly “light” (free of salt, fat, and additives) yet “strong” (full of vitamins and minerals). This shift reflects a fundamental attitude change towards food.¹⁰¹ Just as gaining weight was clearly separated from getting stronger, vitality and naturalness were now also split apart, or evaluated independently. In Finland, ads for weight loss products like Minimeal touting both their naturalness and life-sustaining qualities appeared side-by-side ones for artificial sweeteners, like the cyclamate-containing Sucaryl, which was being scrutinized for its carcinogenic effects.¹⁰² The strong association between obesity and mortality constituted body fat as a potentially bigger threat to vitality than carcinogens, a situation unheard of still in the 1950s.

The promotion of whole meal bread is an interesting case of weight loss advice in which questions of body weight, vitality, and food choices came together. Bread has consistently held a special position in both orthodox and heterodox nutrition dogmas as a “symbol of life”, even though the potential threat to vitality posed by grain processing – milling, kneading and baking with heat – has been ardently debated.¹⁰³ Since the early twentieth century, there has been a steady flow of grain-based breads, crackers, and wafers for dieting purposes that have reproduced the tensions between processing and vitality.¹⁰⁴ In Finland, these included whole meal products like *Ihanne* cookies and *Wilska* bread. The latter, despite its highly processed nature, was purported to contain “all the parts of wheat” that were “essential for life”.¹⁰⁵

In 1966, Rautavaara joined this discussion by praising whole meal bread and condemning the contemporary demonization of all carbohydrates.¹⁰⁶ He asserted that “the grain is one of our most perfect foodstuffs, since it is in itself an independent living organism ...”. Life made the grain special. So fundamental was its role that Rautavaara proposed

¹⁰⁰ Cf. Spiekermann (2018), pp. 701–721.

¹⁰¹ Schwartz (1986), pp. 237, 261.

¹⁰² On Sucaryl, see Schwarz (1986), pp. 264–267.

¹⁰³ Spiekermann (2006), p. 159. See also Spiekermann (2001); Eklöf (2005); Wirz (1993), pp. 72–75. For instance, in the 1930s, German physiologists, doctors, and food chemists claimed that also milled grain could be counted among “living” foods. Spiekermann (2001), p. 101.

¹⁰⁴ For a list of products, see Schwarz (1986), p. 241.

¹⁰⁵ *Wilska-leipä* (1953, January 10).

¹⁰⁶ Rautavaara (1966a), p. 2. Low-carbohydrate diets gained new momentum in the 1950s with Dr Alfred W. Pennington’s duPont diet, which entailed a severe restriction of carbohydrates. It was followed by the physician Herman Taller’s oil supplement diet in the 1960s, and eventually by the cardiologist Robert Atkins’ famous low-carbohydrate diet plan (1972). Goldberg and Buciarelli (2006).

the grain unit (*viljayksikkö*), first introduced by von Wendt and the agronomist and professor of agriculture Lauri Paloheimo (1899–1976)¹⁰⁷, to replace the calorie as a measure of nutritional value. The calorie, a measure of thermal energy, or Joule, a measure of work, were no match to grain unit, which would measure “vitality” (*elinvoima*) itself. Rautavaara put it thusly:

With this unscientific word vitality, I mean the living totality of vital substances ... that sustain the bodily function, which only plants can manufacture from inanimate matter and which animals and humans must obtain in their food to achieve perfect health, performance, and resistance. The whole grain is the perfect unit of vitality, which lives for decades.¹⁰⁸

Here, Rautavaara does not define vitality as naturalness or minimum processing but as an inherent ability to live and grow. However, it was connected to overrefining, because vitality was missing from “purified” foods, such as white bread. This conception of vitality also suggested that the modern person suffering from obesity consumed way too much “empty calories” but was actually lacking in life force.¹⁰⁹ Rautavaara’s beef was with these broad consequences of the declining vitality of food, which, he thought, should be opposed forcefully. In the same year, Rautavaara proclaimed under the auspices of the ACO that avoiding “empty calories”, the “mutilation” of food on the frying pan, drinking nutritious drinks like natural fruit and vegetable juices or teas, and chewing the food properly should form the basis of food reform on a national level.¹¹⁰ Rautavaara also received a chance to put these ideas into action as he sat as the chair of the nutrition committee of a large nationwide Promotion of Healthy Habits (*Terveiden Elämäntapojen Edistämis-toiminta*) project, initiated in the mid-1960s by the National Board of Health.¹¹¹

Rautavaara’s use of the term “resistance” in the above quote was a nod to von Wendt’s *Widerstandskraft* and the related lineage of aspirations to ensure national vitality through nutrition. In the late 1960s, the fight against obesity had become increasingly urgent among these acts of safeguarding. At this time, the prevalence of the condition was already being mapped by Finnish health officials, and large research projects that included body weight as a potential risk factor for chronic diseases were in the works.¹¹² As a result, the obesity discourse was becoming crowded. While vitalist conceptions were a consistent theme in the ACO’s publications, they deviated from the mainstream of weight loss articles now appearing across Finnish popular media. However, this development did not sever the connection between vitality and body weight but gave it additional gravitas as preventing obesity became a widely recognized area of biopolitical intervention. This coincided with the changing ethos of social policy in the 1960s, where “health” and “vitality” transformed from responsibilities to rights of citizens.¹¹³ In obesity prevention, the postwar welfare state was deemed responsible

¹⁰⁷ To be sure, Paloheimo did not suggest the “grain unit” because of its assumed appreciation of vitality. Instead, he thought it would be approachable to the regular, agrarian Finn, who could be expected to be familiar with the fodder unit used in animal feeding but not with the physical concept of the calorie. Paloheimo (1933).

¹⁰⁸ Rautavaara (1966a), p. 7.

¹⁰⁹ Rautavaara (1966a).

¹¹⁰ Rautavaara (1966b), p. 3–5.

¹¹¹ ACO (1965), pp. 3–5.

¹¹² See e.g. Suojanen (2003).

¹¹³ Cf. Jauho and Helén (2023), pp. 476–478.

for ensuring citizens' vitality conditioned by body weight – instead of individuals being tasked with correcting their unfit bodies.

6. Conclusion

The development of nutrition science and biopolitical interventions in the first half of the twentieth century did not solve all nutritional challenges. While the issues changed in character in all Western countries, there were clear continuities between interwar and postwar debates. Vitality persisted as a central theme. It carried over to the postwar era, where conceptions of vitality became colored by growing concerns over abundance and toxic residues in food. At the same time, the accruing biochemical knowledge of nutrients and biocatalysts contributed to a more technical conception of vitality, which was both counteracted and exploited by holistic thinkers. The connection between the vitality of food and national prowess, articulated in the interwar period, was repurposed in the 1960s in the form of social responsibility over the vitality of individuals. All the while, the intensifying obesity debate remained open for and was referred to this convoluted set of perspectives. By giving a voice to experts from scientists to naturopaths and unscrupulously borrowing from international authorities, the ACO reached a broad audience and added to the vigor of the Finnish obesity discourse.

As Christopher Forth has put it, fat has garnered lot of the distrust evoked by embodiment, because it is an “insistent reminder of corporeality”,¹¹⁴ which in our case made it an antimatter rather than the stuff of life. The potential negation of life – death, disease, and error – is part of what Thomas Osborne has called the pathic dimension of vitalism. This *pathos* captures everything that potentially makes human beings weak and powerless and is the antonym for the positive and even celebratory valuations of vitality commonly found with vitalism scholars.¹¹⁵ In our material, the pathic or negative dimension of vitalism was associated with fat and obesity, which were contrasted with vitality as a desirable quality. The symbolism of food as either vitalizing or life-threatening was complicated by its relationship to naturalness and processing and was further underscored by the threat of obesity. Even though the actual locus of concern varied, fat was almost uniformly thought to pose a threat to vitality – be it the vitality of food, individuals, or nations. This idea continues to have pull today, as obesity is persistently perceived as a threat to the life and prosperity of society.¹¹⁶

Promoting vitality through the food's effects on the body was a never-ending task precisely because life itself is inherently ambivalent. Projects to ensure vitality espouse a utopian vision of life that does not have death and decay as its counterpart. Bodies, rather than being just crude matter, are projection surfaces for such hopes, dreams, and wishes.¹¹⁷ If fat connotes corporeality and decay, dieting, by contrast, promises to fulfil fantasies of disembodiment. Ultimately, the obesity discourse arises from deep cultural tensions between the physical realities of our bodies and the aspirational ideals of health and longevity. As such, studying it exposes to us how societal values and scientific perspectives shape the understanding of life's fragility and potential.

CRedit authorship contribution statement

Eve-Riina Hyrkäs: Conceptualization, Funding acquisition, Investigation, Methodology, Validation, Writing – original draft, Writing –

review & editing. **Mikko Myllykangas:** Funding acquisition, Investigation, Methodology, Validation, Writing – original draft, Writing – review & editing.

Declaration of competing interest

No conflicting interests to report.

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¹¹⁴ Forth (2019), pp. 283–284.

¹¹⁵ Osborne (2016), pp. 194, 196–200.

¹¹⁶ Cain et al. (2017), p. 175.

¹¹⁷ See e.g. Schwartz (1986); Barlösius (2020); Spiekermann (2008).

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