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# The mythologization of protein: a Multimodal Critical Discourse Analysis of snacks packaging

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## ABSTRACT

This paper examines how protein snacks are marketed as good food choices through their packaging and how these packages reproduce a discourse – what we see as a myth – of the benefits of high protein intake. Research shows that consumers believe high protein food has a positive impact on physical performance and body composition, although there is very little evidence of this. Protein foods and beverages are nevertheless one of the fastest growing sectors in the food market and we now see food companies exploit peoples' beliefs by adding protein to food that was formerly seen as unhealthy. Adopting a Multimodal Critical Discourse Analysis (MCDA) we look in detail at the packaging of a group of snacks that are usually high in fat and sugar but now appear as good food options, particularly through accentuating the protein content. The analysis shows that the packages market these products as an outcome of scientific modern technology, but this is done in playful and comforting ways. This goes along with neoliberal ideas about wellness and demands of an active lifestyle. From these findings, we discuss the limitations of existing regulations as marketing shape and capitalize on discourses of health.

## KEYWORDS

Discourse; food packaging; food policy; health; marketing; Multimodal Critical Discourse Analysis; protein; Social Semiotics

## Introduction

The food industry is shifting towards a market for products carrying some kind of health or well-being association and this market is forecasted to reach a trillion dollars in sales by 2017 (Hudson 2012). This is happening in a time when national governments and global health organizations are placing public health on top of the agenda and are highly active in advancing food policies for healthier diet habits (Anish and Sreelakshmi 2013; Slavin 2015). A key tool for this work is governments' implementation of nutritional labeling on food packages, aimed at helping consumers to make better choices, and thereby achieve a healthier lifestyle (Food Standard Agency 2009). Research shows, however, that this labeling on food packaging can confuse consumers (Smith et al. 2009; Hersey et al. 2013), for example, due to a lack of guidance regarding how to interpret this information (Hodgkins et al. 2012). Furthermore, regardless of the nutritional labeling, food packaging can be designed so the food appears healthier than it actually is, “Clean washing” is one example (Low and Davenport 2005). It is also important to consider that what constitutes a healthy diet is not always so obvious and consumers hold different ideas, often mythical

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and uncertain, of what is a healthy diet (Rousseau 2012). So, while well-intentioned, governmental policies do not seem to help consumers make better diet choices (Hassan, Shiu, and Michaelidou 2010), they instead appear to help the food producers sell more products (Solomon 1996). In this paper, we will discuss how this is possible. We here take one of the fastest growing health trends, the high protein diet (Sanders 2017), as an example to show how the design of food packaging sustains consumers' mythical beliefs about healthy food for marketing reasons. We particularly study the packaging of a group of snacks usually seen as unhealthy but now sold as good food options by stressing the protein content. To analyze how food packaging conveys meaning is crucial. Previous research has convincingly shown that food packaging plays an important role in consumers' perception of products and purchase decisions (Cf. Celhay, Boysselle, and Cohen 2015; Clement, Kristensen, and Grønhaug 2013; Labrecque and Milne 2012). Such decisions are not just based on nutritional labeling but to a large extent on the design of the packages (Kniazeva and Belk 2007; Silayoi and Speece 2007)

This qualitatively oriented approach employs the theoretical perspective of Social Semiotics (see, e.g., Van Leeuwen 2005; Machin and Myar 2012) and uses Multimodal Critical Discourse Analysis (MCDA) (Ledin and Machin 2018; cf., Machin and Myar 2012) in order to analyze the design of these packages. Discourse is a key concept here and we see discourse as a set of socially constructed beliefs, a form of knowledge, which is significant for how we think and act in particular situations. From a Social Semiotic approach, food packing is regarded as a complex form of communication involving colors, layouts, graphics, shapes, symbols, size, materiality, etc., which can all contribute to communicating something about products. This communication is also situated in a broader context and is both shaping and shaped by discourses circulating in today's society. In this study, we are concerned with how food packages communicate ideas about healthy eating, but also how they at the same time construct the very discourses through which we come to understand what is healthy and the importance of keeping a healthy lifestyle. So far the research interested in food packaging have said very little on these issues. As Kniazeva and Belk (2007) point out, instead of doing what a majority of the studies have done, i.e., analyze from the consumers' perspective, there is a need to go "backward" to understand how packaging messages are constructed by marketers.

Through the analysis of a group of Swedish protein snacks we are able to provide detailed information on the way food companies employ sophisticated and specialized packaging designs to mythologize protein for marketing purposes. These packages help to construct and sustain discourses that suggest that high protein-intake is crucial for a healthy and active lifestyle, although there is no clear scientific evidence supporting that higher intake of a certain nutrient itself is healthy. As a result of food producers shaping the discourse of a healthy diet, consumers, even with the intention to eat healthily, could be misled to consume products that are not particularly healthy.

### **Background: the discourse of the new public health**

We live in what has been depicted as a "new public health era" which stresses health conditions, and the means for achieving and maintaining a good health as absolutely crucial concerns (Petersen and Lupton 1996). This era is permeated by neoliberal ideas and aiming at implementing a self-care regime (Petersen and Lupton 1996; cf., Schneider

and Davis 2010; O'Neill and Silver 2017). People are expected to take responsibility for the care of their own health and to limit the harm and burden they might cause for the society at large through lifestyle changes, such as changing diet (Bunton 1997; Rose 2006). Health has become a value for people's understanding of themselves and their perceptions of others (Rokeach 1979). Crawford (1994, 1353) noted that health as personal value provides individuals "an opportunity to reaffirm the values by which self is distinguished from other". Food choice, therefore, becomes a way to express identity, individuality, and lifestyle. Shugart (2014, 261) contends that "the contemporary discourse around 'good' food is a prominent way in which class is rhetorically recreated and reconfigured, specifically to the end of remaking the myth of the middle class".

The new public health is convincing as it uses a discourse of empowerment to make people believe they can achieve changes (De Souza 2011). Then health becomes strongly associated with, or even a metaphor for, self-control, self-discipline, and willpower (Guttman 1997). But critics say that the new public health regime pressures people to be responsible for their own health while the state withdraws from health care services (ibid). As Cederström and Spicer (2015) discuss, it puts the pressure on people to stay healthy and fit; to be a good person is to follow the perfect diet and be a generally physically active person, but this can easily lead to feelings of shortcomings and bad conscious. From this follows also a widespread stigma. Unhealthy diets and inactivity have become signifiers of weakness, laziness and lack of willpower and people who do not adhere to the norms of healthiness are seen as lacking morals, and as failures in today's society (Sobal 1995; Puhl and Brownell 2001, Rao et al. 2013; Traverso-Yopez and Hunter 2016).

In relation to food, however, the term "healthy" is far from unambiguous. It is, as Rousseau (2012, 14) puts it, "one of the most semantically unstable words in the English language", and can be used to "define anything from low-fat, to low-carb, to thin, to vegetarian, to organic, to not caring about what you eat, to eating [...] more like the French". This confusion about what good and healthy food is, together with the pressure on people to stay healthy and fit enable commercial actors and food producers to act as solutions providers; their products can appear as offering healthy options for a lifestyle that equals success in the neoliberal society.

## **Background: the "mythologization" of protein**

It is in this neoliberal health discourse that the trend of high protein diet takes off, and it seems to be driven by people's desire to maximize the output of their exercise (Hartmann and Siegrist 2016). People adopt a more active lifestyle and with the help of protein, they hope to achieve what equals good citizenship and success in the modern health discourse. The term protein is, therefore, being capitalized on by food producers and is becoming the selling point for increasingly more products, like bread, cottage cheese, and quark. As part of this trend, new brands and companies have emerged to specialize in products such as chocolate bars, puddings, ice-creams, and crisps, that were traditionally seen as unhealthy, but now, with added protein, are marketed as "good food" options.

Interestingly, the findings on the physiological effects of protein supplements are far from straightforward. There is no clear evidence on the benefits of extra protein intake among leisure time exercisers. Some studies claim that higher protein intake for physically active individuals may improve exercise performance and decrease recovery time

(Campbell et al. 2007). It has also been shown by one group of researchers that consuming a high protein diet in conjunction with a heavy resistance-training program may lead to a significant greater fat mass decrease (Antonio et al. 2015). The same group of scientists, however, show that people consuming a high protein diet showed no changes in strength performance or body composition despite a significantly higher caloric intake (Antonio et al. 2016a, 2016b). Others have also shown that the evidence for a physiological effect of protein supplements is uncertain, and that only a small subgroup benefits from protein supplementation (Pasiakos, McLellan, and Lieberman 2015; Churchward-Venne et al. 2016; Hansen et al. 2016). Kreider et al. (2010) comment that protein supplementation is unnecessary for healthy adults participating in general fitness programs.

Consumers nevertheless appear to believe that high protein diet is beneficial in several ways (cf. Heikkinen et al. 2011; Hartmann and Siegrist 2016; Blackburn, Yilmaz, and Boyd 2018; Yarar and Orth 2018). Studies show that people believe protein promotes training effects, reduces risk of injury and illness, improves health and helps with control of body weight (Heikkinen et al. 2011; Royné et al. 2014). It thus seems that people have unrealistic beliefs about extra protein intake and seem to connect it to other health benefits. As Hartmann and Siegrist (2016, 233) explain, consumers evaluation of protein supplements may be influenced by a “halo effect” which makes people “extrapolate from a general impression of the effectiveness of protein supplements to other unknown attributes or attributes with which they have no experiences”. So, there seems to be an overestimation of the overall benefit of protein supplements, what we refer to as the protein myth which food producers enhance and exploit.

### **Background: food packaging**

Food packaging is one important place where the myth of protein can be reinforced and reproduced by food producers. The communication taking place on food packages is complex, although it is highly regulated. Most of the information which producers can provide on food packages in Sweden and many other European countries is regulated, mainly by the EU regulation 1169/2011. This legislation states that there should not be any “misleading labelling” and claims such as “natural”, “traditional”, “fresh”, etc., must be explained. From a health perspective, a key element is the nutrition content panel must contain evidence-based nutritional information. These requirements apply to images used on the packaging. However, images can still be used to inexplicitly communicate what cannot be claimed in text. Moreover, semiotic materials such as colors, fonts, textures, etc., are not regulated and can be used freely to communicate a product’s merits in order to increase sales, which thus add to the complexity of how things like health and nutrition are communicated. A package can use textures and a simple color scheme to suggest “simple” and “handmade”, for example, which can be part of how a product is marketed as a good and “honest” diet choice.

Previous research has also shown that different design elements on food packages, especially through creating health halo effects, can be used to promote healthiness to consumers (Van Trijp and Van der Lans 2007; Scharfer, Hooker, and Stanton 2016; Ogden et al. 2018), even when the nutritional value of the food product is poor (Iles, Nan, and Verrill 2017). Health halo effects have also been found in studies of snack bar packaging stressing the protein content (Fernan, Schuldt, and Niederdeppe 2017).

Fernan, Schuldt, and Niederdeppe (2017) show, among other things, that snack bars with the word protein embedded in the products' title create a health halo effect which makes people believe such bars have other healthful effects.

Although the research on food packaging is extensive, so far relatively little attention has been paid to how all the elements on food packaging interact with each other to communicate a product's certain qualities. The research in this area tends to use experimental designs and focus on how people perceive individual elements of the packaging (see, e.g., Labrecque and Milne 2012; Celhay, Boysselle, and Cohen 2015; Clement, Kristensen, and Grønhaug 2013). For example, studies have shown that the huge array of symbols and logos appearing on food packaging lead consumers to be much less confident in their ability to know what food is healthy (Vyth et al. 2009). In fact, the use of symbols sometimes makes consumers choose less healthy foods.

This research provides interesting results about those particular elements, but it tends to overlook that food packages are complex forms of communication. Food packages convey meanings not only through particular elements as symbols, texts or images, but also through their colors, shapes, and materiality and more importantly how these elements interact with each other to create an overall message to consumers. Extant research also tends to neglect the broader societal context and the discourses surrounding health and food consumption. It has been shown by scholars within anthropology and sociology that food consumption is laden with cultural meanings and values; food consumption is also a means for demonstrating social status (Douglas 1984; cf Bourdieu 1984; Shugart 2014) and expressing group ties (O'Neill and Silver 2017). In other words, food and diet can never be understood solely as regards nutrition, but must always be located in ideas of things like desirability, power, luxury, pleasure and physical sustenance that will be defined in a specific cultural setting at a particular time. Starting off from the ideas of Social Semiotics and using MCDA, we, therefore, aim to start providing such knowledge in this study. We will explore the way protein is imbued with meaning and makes snacks appearing as healthy food options.

## Methodology and data

From the theoretical perspective of Social Semiotics and MCDA (see, e.g., Van Leeuwen 2005; Machin and Myar 2012). Social semiotic is concerned with the nature of the relationship between discourse, power, and ideology. Power is transmitted and practiced discourse. MCDA departs from this perspective and provides a set of analytical tools to study how the semiotic materials are used to construct a certain discourse of a way to understand the world. For example, how the choices made by the communicator embed taken-for-granted assumptions and favor particular ideologies. In line with Ledin and Machin (2018) we adhere to the concept of semiotic materials which stresses that artifacts "have materiality, a physical presence and a design that make them into wholes that we experience" (ibid, 3). The design of a food package is generally a combination of choices as regards elements such as texts, pictures, symbols, colors, materiality (and the texture of this materiality) and shape. A key concept here is that of "new writing" or "integrated design" which points out that different semiotic materials are combined, and so to say intermingled, to communicate a certain point (Van Leeuwen 2005; Ledin and Machin 2018). These choices, therefore, come together to

communicate something about the product, make a point why the consumer should choose a particular item.

In the following analysis, we conduct a systematic analysis of our data in order to demonstrate how the elements of the packages help to create meanings. We treat these elements, and the combination of them, as particular meaning potentials, and then theorize how the food packages with their claims make some consumer understandings and certain consumer positions, more reasonable than others. This part of the analysis is about relating these positions to the ideas and values that circulate in today's societies and through which people understand and manage their everyday lives. In our case, this is about how food packages position consumers as people making good choices showing that they care about their bodies and well-being.

A food package is a three-dimensional object, something we do not just look at but also hold in our hands and thus get a sensory experience from its materiality and shape. We, therefore, use an analytical model which involves analysis of all these dimensions and levels, and their communicative affordances. This model was recently progressed by Ledin and Machin (2018) and focuses on the following elements and dimensions: (1) The kind of materiality used for the package, for example, metal, glass, or plastic, and the finishing texture applied to the materiality; (2) The shape of the packaging. Whether the packaging is for example, thin, short, around, or angular; (3) The color used, including its brightness, saturation and hue, and its connotation; (4) The grammatical and lexical choices of the texts; (5) The kind of typefaces used and the meaning potential of such typefaces; (6) Iconography, which involves analysing the images, symbols and drawings; (7) The examinations of callouts on the packaging, for example, "low fat" and "high protein"; (8) The design and the placement of the nutrition panel.

In the analytical work, we first look at the choices of semiotic materials in isolation. We then move on to look at the sum of these choices – the integrated design, i.e., we see them in its context and what the food package as a totality communicates through its physical appearance, and how this connects to ideas and values of health and an active lifestyle in today's society. In our analysis, we thus consider all the eight elements proposed by Ledin and Machin (2018), but when we present this analysis we will often refer to the particular elements used to construct the discourse we discuss in the paper.

Our data contain protein snack products collected in Summer 2018, from three of the largest supermarket chains in Sweden (Table 1). For this paper, we present three examples from this broader data. Firstly, NJIE protein milkshake (Figure 1). NJIE's products range from energy drinks, sugar-free sodas, to protein-enhanced drinks, puddings, granola, and ice cream. Secondly, LOHILO ice cream (Figure 2). LOHILO sells only ice cream while with more than 10 flavors including their seasonal specials. Thirdly, Gainomax lean quark drink (Figure 3). Most of Gainomax's products are milk-based drinks, alongside some vitamin drinks, energy drinks, and protein bars. These three examples show how very similar kinds of myth of protein are created across different brands, different types of product and different styles of packaging.

The following analysis is thematically organized. It first looks at how these snacks are linked to a scientific discourse and ideas about modern technology. We then demonstrate how this is done in a creative and playful way. The last theme concerns how these packages are designed to fit into neoliberal ideas about an active and healthy lifestyle.

**Table 1.** Overall data.

Brand	Products
NJIE	Protein Ice cream (3 flavors); Protein milkshake (8 flavours); Protein pudding (4 flavours); Protein bars (6 flavours)
Gainomax	Protein drinks (13 flavours); Protein bars (7 flavours)
Lohilo	Protein Ice cream (8 flavours)
Barebells	Protein Ice cream (10 flavours); Protein milkshakes (7 flavours); Protein bars (7 flavours); Hazelnut spread; Protein Pudding (5 flavours); Protein crisps (2 flavours)
Arla	Protein milk drinks (3 flavours); Quark drinks (10 flavours)
Lindahls	Quark drinks (4 flavours)
ICA	Quark drinks (2 flavours)
Skånemejerier	Quark drinks (3 flavours)
Snackbros	Protein crisps (3 flavours)
Rowbar	Protein bars (3 flavours)
Ehrmann	Protein puddings (5 flavours); Protein shots (3 flavours)
Pulsin	Protein bars (2 flavours)
Va'gott	Protein bread (2 types of packages)
Star Nutrition	Protein Hazelnut spread
Nocco	Protein coffee (3 flavours)

**Figure 1.** NJIE Milkshake.

### Protein snack is scientific modern technology

A feature found across the range of protein snack packages is that the exact amount of protein is highlighted. On the one hand, this kind of information seems unsurprising and natural. On the other hand with more careful consideration, this feature communicates broader ideas than the amount of protein a product has. Highlighting this information signals the idea that the nutrient itself is important. Providing the exact milligram of protein gives a sense of mathematics and precision, connoting science. Consumers could think they use measurable information and do a rational comparison to make informed decisions.





Figure 2. LOHILO ice-cream.



Figure 3. Gainomax lean quark drink.

However, if we look closer into the actual amounts of protein that are stated on the packaging, the information is rather confusing and provides little help in choosing the product that contains the highest amount of protein. On the packaging, we see the NJIE milkshake (Figure 4) states “20g protein in the bottle”, the LOHILO ice-cream (Figure 5) states “23 gram of protein”, and Gainomax lean quark drink (Figure 6) states “31g protein per 330ml”. So, here the provided information does not really tell the exact quantity of protein. Instead, it is used symbolically to communicate “high” in protein, but nevertheless gives the idea that it is precisely measured. However, without a standardized measuring unit, these numbers are far from scientific or precise. EU regulation 1169/2011 regulates a standardized unit to be used in the mandatory nutrition panel to “facilitate comparison of products”. But this does not apply to these kinds of voluntary callouts. As we can see from the three examples, the voluntary information is more visible and highlighted on the packaging than the mandatory nutrition panel. It is likely that consumers will rely on the



Figure 4. NJIE milkshake protein contain.



Figure 5. LOHILO ice cream protein contain.

voluntary information and overlook the mandatory nutrition panel, and thus to be misled. So this kind of symbolic information potentially contradicts the EU regulation's intention to facilitate an informed decision.

Geometric patterns used on these packages are also important to make some kind of scientific or technological references. On the top and bottom of the NJIE milkshake bottle, there are hexagon blocks linking together (Figure 7). This looks similar to chemistry cell chain and implies that the milkshake is scientifically analyzed and formulated. The same hexagon block is also used to highlight the amount of protein. With the association between the hexagon and chemistry cell chain, the hexagon block helps consolidate the notion of scientific measuring. In the case of LOHILO protein ice-cream, we see geometric patterns formed in triangles and rhombuses (Figure 8). This



**Figure 6.** Gainomax lean quark drink protein contain.



**Figure 7.** NJIE milkshake geometric pattern.

kind of pattern is the art form of Vorticism, a modernist movement in the early twentieth century. Vorticist art represents energetic imagery that embraces and celebrates modernity, revolution, machine age, and all new things. Although this may not be recognized by the consumers, the designer(s) of the packaging refer to art history on the basis of anticipated effects of conscious design choices and seek to link the product to modernity, and to associate it with advanced technology and science. This kind of art/design reference is also found on Gainomax quark drink bottle. In the background of the packaging design, there are circles that grow bigger from the middle to the top of the bottle (Figure 9). This circle pattern is what is called halftone in reprographic technique. This technique was invented in the nineteenth century and it allowed more efficient printing. Again, we see designer(s), through the choice of semiotic materials,



**Figure 8.** LOHILO ice cream geometric pattern.

embedding the idea of technology, or more precisely in this case, efficiency, a characteristic of advanced technology, into the product.

On the side of LOHILO ice-cream, we can see a bar chart comparing the amount of macronutrients between LOHILO and other brands of ice-cream (Figure 10). The bar chart is represented with numbers, meaning that this is based on some kind of fixed measurement. Here we are told that the product is good as it is based on a statistical comparison. Of course, the bar chart shows that the nutritional values for LOHILO's ice-cream are significantly higher than their competitors and therefore superior. We are however not given information on how they come to the numbers for other brands of ice-cream. There is in fact very little that consumers can learn from this chart. It is important to note that under EU regulation 1169/2011, for comparative claims it is necessary that the products being compared be clearly identified, but this information is missing here. Furthermore, we are not provided with any information about these macronutrients in relation to health or any broader purposes. It is assumed that a product that is higher in protein, lower in carbs and fat, which LOHILO ice-cream is, is better. We see a presupposition here. Presuppositions allow untested assumptions, not the truth, to become beliefs. Here the untested assumption of higher in protein, lower in carbs and fat is a better diet choice is positioned as a belief. Nevertheless, a good choice should depend on different contexts and different dietary needs. Different consumers need different kinds of standards for food

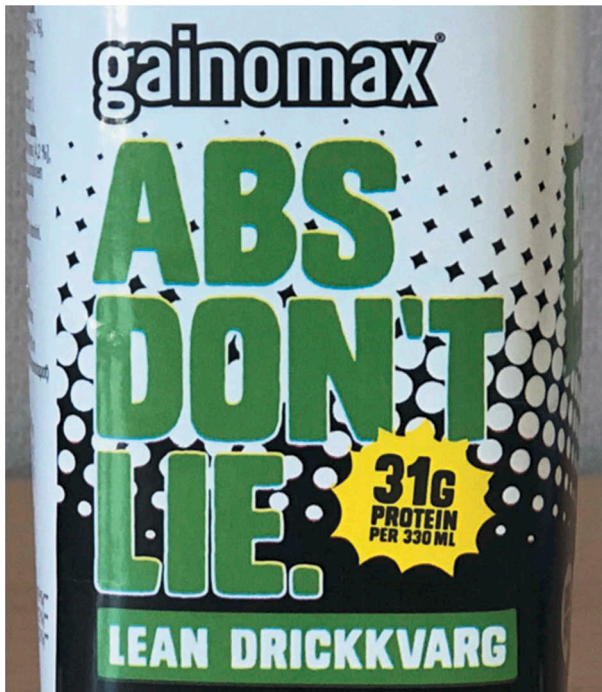


Figure 9. Gainomax lean quark drink geometric pattern.



Figure 10. LOHILO ice cream bar chart.

choice. Here consumers are distracted from these variables and through what appears as something scientific they are instead told that LOHILO ice-cream is a better choice regardless. The bar chart here is used to compellingly suggest that an informed buying decision is done when choosing this product.

So far we can see how marketers and designers communicate the discourse of science, technology, and modernity to consumers, but as demonstrated above, the scientific aspects

of this discourse are questionable. This is lifestyle marketing. Products are more aligned with issues of taste and the ideas people have about themselves. In this case, people believing that they are making informed choices for better food rather than making decisions based on a mythical belief of the benefits of protein. It is also important to note that this science and technology discourse is accompanied by a discourse of protein snacks as comfort and fun. This is what we will explore next.

### Protein snack is fun and comfort healthy food

Consumers have a tendency to associate “healthy” food with boring and tasteless (cf. Gough and Conner 2006; Papadaki and Scott 2006; Schuldt and Hannahan 2013). Ramanathan and Menon (2006) also point out that consumers often experience the implicit tradeoff between hedonic experience and health goals and which consequently influences their consumption decisions. Consumers’ willingness to compromise taste for healthfulness has been reported to decrease over time (Verbeke 2006) and taste plays a more important role than healthfulness in consumers food choices (Jun, Kang, and Arendt 2014). For these reasons, it can be challenging to promote and sell food with healthy perceptions. To overcome this, we see protein snacks also communicate a fun and comfort food message through their packaging.

The LOHILO bar chart discussed earlier is a good example of this (Figure 10). This bar chart is done with crayon drawn bars, handwritten fonts and a color splash in the background. This casual and creative presentation balances the seriousness of science and makes science more approachable. The rough-edged bars and crayon texture are less modernistic but slightly impressionistic or childlike. There is a reduction in the seriousness of hard facts. This kind of representation is unlikely to be used in, for example, a medical research report. This can, however, be familiar for consumers who have seen similar representations, likely on dairy products that comfort babies and help babies grow. The bar chart design here can, therefore, help consumers to associate LOHILO ice-cream with comfort and growth. In addition, instead of formally saying low carb, high protein, and low fat, the callout says “lo carb, hi protein, and lo fat” (Figure 11). This is a play on words with their brand name LO-HI-LO, again a tactic used to give the sense of creativity, fun, and playfulness. We can see also a high number of font styles, font sizes and colors are used. These are used to communicate fun, liveliness, and playfulness, in contrast to monochrome and standard single fonts which will communicate something more reserved and contained.

While positioning themselves as healthy products, the flavor range of LOHILO’s products is far from what is seen as healthy, as for example, double chocolate, caramel chocolate, cookie dough, and chocolate brownie. The images used to signal the flavors neither connote healthy. For instance, the image of chocolate peanut depicts melting chocolate looking creamy, glossy and thickly drizzled on a pile of peanuts (Figure 12). The texture of both the melting chocolate and peanuts looks edited to appear overly smooth and beautified, connoting food being highly processed. This is very different from when a product likes to express natural and healthy, in which case cocoa tree or cocoa seeds in nature can be shown and peanuts can be shown in their shells to signal closest to their natural state. On the contrary, the LOHILO images are used to communicate indulgence and satisfaction. Linked to this is a callout saying “loaded with crunchy peanuts”. “Loaded” implies highly nutritious and satisfying while “crunchy” can lead the consumer to vision the satisfaction while crunching peanuts in their mouths.



Figure 11. LOHILO ice cream callout.



Figure 12. LOHILO ice cream chocolate peanut image.

The Gainomax drinks use an upside-down heart shape, connoting the shape of buttocks, to create a playful design (Figure 13). The font for “squat love” is highly irregular, which can again relate to creativity, playfulness, and liveliness. The symbol highlighting the protein content is a symbol commonly used to convey surprise or shock, especially in the context of marketing and sales. The symbol then not only connotes the amount of protein is surprisingly high but also add to the playfulness of the overall visual effect. The color palette of this package is bright and saturated which connotes fun, energy, and vibrancy. The two flavors, “apple pie” and “pina colada”, of Gainomax quark drinks are also interesting, a dessert and cocktail that are not so much seen as healthy but rather associated with indulgence and fun.



Figure 13. Gainomax quark drink – “squat love”.

The shape of these three products all have less sharp edges and the materiality is plastic or carton, similar to dairy products. This is very different to masculine energy drinks that are packed in bottles with sharper geometric designs and sharp angular fonts, using metal packaging, which tend to communicate pure science and rationality (Ledin and Machin 2018). The duel discourse of science and technology versus comfort and fun, while at first might seem parallel or even contradicting, is actually very important for linking protein to scientific growth and nurturing, but at the same time help the consumer to associate these products with more comforting and satisfying experiences.

### Protein snack is the neoliberal wellness and active lifestyle

In the new public health era, consumers are being coached to believe that eating well and being physically active are essential for being a successful and good citizen (Cederström and Spicer 2015). Here, we will show how the protein products under study are intertwined with these demands, and how these products become contained in a contemporary healthy eating discourse in line with a neoliberal health regime.



The images used on the packaging of LOHILO ice-cream play an important role in creating the discourse of protein snacks being for someone with an active lifestyle. Different images are used on the packaging for different flavors of the ice-cream. One commonality of these images is that they portray active participants (Figure 11). For example, a woman lifting a kettlebell, a woman doing push-ups, a topless man and a woman in a sports bra smiling and looking at each other, a man holding a surfboard by the beach and a close up shot of a person's lower body who is running in an open natural field. Importantly these images are all idealized and decontextualized (Kress and Van Leeuwen 1996). It is idealized through bright and soft lighting, slim and attractive models and the expressions and body language of the models. The iconography creates a sense of optimism towards an active lifestyle. Decontextualisation is also used to maximize the ability of these images to communicate wider associations and symbolize ideas. These images fuse and load the simplified meaning of attractiveness and optimism of being active into the products. Consumers, in turn, hope to claim some of these transferred meanings for their own lives.

The integrated design, how different semiotic materials come together to communicate, on the packaging is important for connoting the idea of protein snacks as something for an active lifestyle. On the LOHILO-packages the images of active participants are accompanied with callouts such as “lo carb”, “hi protein”, “lo fat”, and “chunks loaded with protein” or “protein loaded brownie chunks” (Figure 11). Without saying the real connection between protein and an active lifestyle, the integrated design allows consumers to make sense of the association themselves. It also says on the packaging that “choose your LOHILO time” with bullet points below: “as a healthy snack”, “before/after workout” and “instead of regular ice-cream or frozen yoghurt” (Figure 14). Here we are not given any reasons why LOHILO protein ice-cream should be consumed at these specific times. But through the communication style of bullet lists, it can come across as the information has been broken down to core points of presenting the key information (Ledin and Machin 2018). If the information was presented in running text, consumers might sense the lack of logic and notice that information, in fact, does not link so well together. It is also through this “new writing” style that the symbolic meaning of images is most effective (ibid). As a result, the design allows consumers to more easily accept the idea of having the protein ice-cream before/after a workout is good as a fact without questioning the logic behind it. The font for all

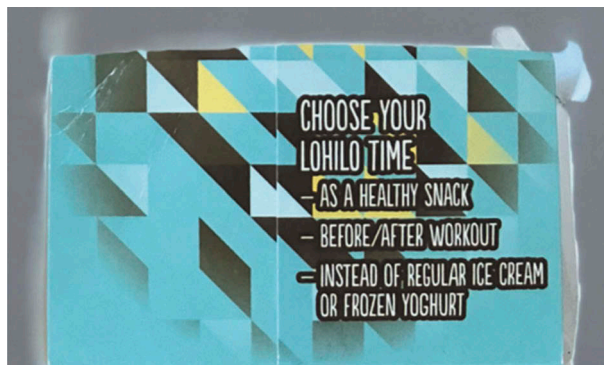


Figure 14. LOHILO ice cream “choose your LOHOLO time”.

the texts mentioned above is tall, slim and narrow, which also helps associate the product with the body traits physically active people often aspire to. If the active images, callouts, sell copies and font style were used separately by itself in different contexts, they may not communicate the same message, but it is the way they are used together here the idea of a healthy active lifestyle can be signaled.

The shape of the packages is also of importance for linking protein to an active lifestyle. The shape of the NJIE protein milkshake bottle is common among the same type of products (Figure 1). The base of the bottle gradually becomes slimmer towards the middle of the bottle and then connects to an oval shape at the top. On the functional level, the thinner middle creates a shape that you can grab on. On one symbolic level, it can give the connotation that it is a grab and go product; the shape tells the consumer that this is something to choose when in a hurry and on the go. For example, when you are on the way and need something quickly to energize yourself before or after your workout. Besides, many of these protein snacks come in relatively small sizes. The portions are what one person can usually finish at once. They are not something you sit down to consume and share with your friends. On another symbolic level, the shape can imply a body with a slim waist – a physical characteristic that is generally desired. The bottle can connote the idea that the protein milkshake is a product that helps you achieve a slim waist. Research has shown that while the positive benefits of extra protein intake are inconclusive (cf. Blackburn, Yilmaz, and Boyd 2018; Yazar and Orth 2018) consumers have associated protein with a training outcome, improved body composition and helping weight control (Maughan, Depiesse, and Geyer 2007; Heikkinen et al. 2011; Royné et al. 2014). Here we see how marketers and packaging designers can, without stating a health claim which is only allowed if there is sufficient scientific evidence, use the shape of the packaging to signal ideas that reinforce the mythical benefits of protein.

Gainomax drinks' packaging also uses integrated design to create a seemingly coherent message of an active lifestyle. The most dominant semiotic materials on the packages are the callouts, "abs don't lie", "recover or don't bother!" and "sip now, sweat later". These callouts are like maxims which connote that there are truths and principles that consumers should follow. The short form of the texts gives a sense of urgency. Most of them start with directives that signify activeness and can-do attitude. The decontextualization of the callouts also make it easier for consumers to make an association with workouts. These callouts help consumers to understand the idea that the product is for someone who has an on-the-go and active lifestyle. This idea is further reinforced by other symbolic elements on the packaging, for example, through the upside-down heart shape symbol discussed in the previous section. The text in it – "squat love" – does not make linguistic sense. There is no cohesion or conjunction that codes the relations between the two words or ideas. The words are more like buzz words used as symbolic components of the design. "Squat" again signals to workout. "Love" links to the heart symbol, and the fondness of workout. But the heart symbol being upside down resembles the shape of buttocks and relates to what can be achieved through this kind of workout; i.e., getting a nicely shaped body. Furthermore, underneath the callouts, there is a sell copy saying "lean quark drink" ("Lean drickkvarg") (Figure 6). Using the word "lean" to describe the drink also signifies the outcome of being active and/or consuming the product. Importantly, EU food packaging regulation has certain criteria for claiming a product as "light", "lite" and/or any claim likely to have the same meaning for the consumer, and the claim shall also be accompanied by an indication of the characteristic(s) which make(s) the food "light" or "lite". On this packaging, consumers are not given an explanation on what

makes the product lean and it is, therefore, impossible to assess if the product, in fact, meets the criteria. The same color is used across the callout, the text “love” in upside-down heart symbol and the highlighted banner of “lean quark drink” to create overall coherence and link together all symbolic ideas of activeness on the packaging.

One underlying concept of the discourse of neoliberal new public health is that one’s identity and success are highly associated with his/her body shape, the food he/she consumes and the lifestyle he/she has. This, consequently, provides an opportunity for food producers to market their products. From the analysis above we can see how protein snacks, via their packaging, communicate and associate products with a physically active lifestyle, which equates to being a successful and good person in contemporary society. On the packaging of Gainomax drinks, we identify more elements that play on consumers’ conscious of being “good citizens”. The callout “recover or don’t bother” is permeated with the self-care regime. It implies that if you cannot be bothered to consume this, something good for your recovery, you are not being responsible for your own wellness. This potentially leads to the association of oneself being lazy and not adhering to the norms of healthiness. This is seen as lacking moral and as a failure in today’s society. In addition, on the side of the bottle, above where the mandatory ingredient information, the heading text says “WHAT YOU PUT IN YOUR BODY” (Figure 15). The heavy, all capital fonts and the flat pure color suggest this is something very important. On the one hand, it connotes that what you put in

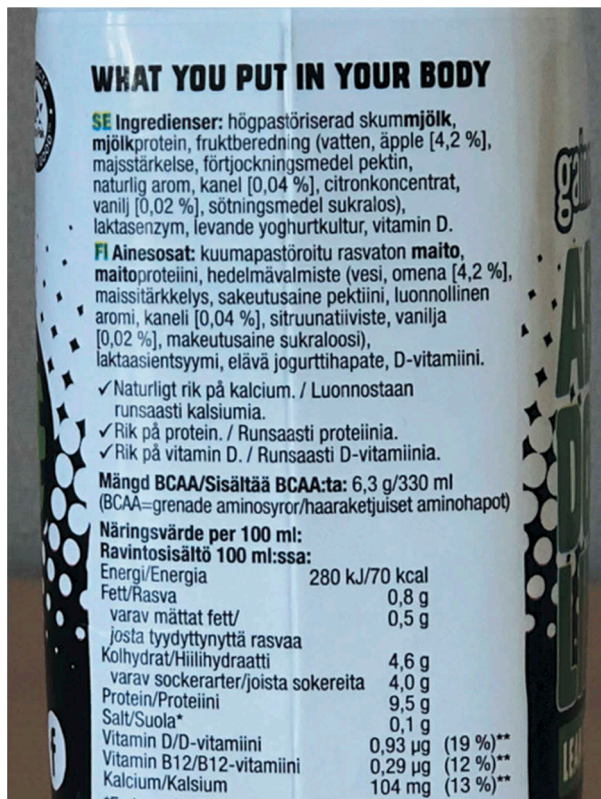


Figure 15. Gainomax quark drink ingredient information.

your body is important. This is in line with the Contemporary health discourse that good dietary habit is the answer to being healthy. On the other hand, placing the text above mandatory ingredient information implies that there is nothing to hide about the ingredients. Consumer can interpret this as the ingredients are good. Altogether, it communicates the message that you are being a good citizen, paying attention to what you consume and the product which is full of good ingredients is here to help and fulfill your intention.

We have shown that by using various semiotic materials and their affordance on the packaging, food marketers and packaging designers are able to connect the protein snacks to the cultural values of physical activeness and personal wellness, and thus to embed these values into the product. At no point are these links communicated explicitly in language. It is by using the shape of the packaging, symbolic images, and integrated design, these values are conveyed. Again, we see that the benefits of a high protein diet are created without scientific evidence or nutritional research but merely by symbolically linking it to wellness and lifestyle values. The packages help to sustain a discourse of protein having benefits on training effects, injury risk reduction, recovery, and body composition. This myth goes hand in hand with the new public health regime and its demands of the consumers. It is a myth which is rooted in neoliberal ideals of self-control and self-discipline.

## Conclusion

In contemporary western society, food has become a cultural item that signals a person's identity and lifestyle. The concept of healthy also has become not merely about being healthy per se but a social status and personal value. This context has created a good opportunity for food producers and marketers to profit from the cultural value of healthiness. In this paper, we have shown that protein snacks are one such example. The producers of these snacks, which are marketed through claims of high protein content as healthier options for consumers, do profit from the fuzziness of the concept of health. Instead of clear endorsement of scientific evidence, they promote these products through the protein's cultural value, and certain lifestyle connotations which are in line with neoliberal ideals. Through the conscious choice of semiotic materials and the communicative characteristics of integrated design and new writing, the shape, colors, texts, fonts, and images used on the packaging work together to communicate mythical ideas of protein to appeal to consumers in the neoliberal health context. Protein snacks are marketed as scientifically healthy products, while comforting, for active people when there is, in fact, limited evidence in the benefits of high protein intake for leisure time exercisers. Through symbolic and integrated design food producers and marketers are able to implicitly communicate claims that are otherwise not allowed by food packaging regulations. As a result, consumers buy into the lifestyle and the cultural value the products promise and choose products which may or may not necessarily be a good choice for them.

This also indicates the limitation in current food packaging regulations. The EU regulation 1169/2011 states that the principle of the food packaging regulation is "to provide a basis for consumer to make informed choices in relation to food they consume to prevent any practices that may mislead the consumer". However, in the case of the protein snacks we examined, food packaging does not best serve the interest of consumers' right to not be misled nor to help them make informed choices. On the contrary, packages are used by

commercial parties to (re)create and reinforce the myth of protein and to maximize the products sales potential. This points to the importance of understanding how all elements of packaging come together as a whole to communicate ideas to consumers. Further studies focusing on the multimodal communicative characteristic of food packaging are needed to help compose more robust food packaging regulations that can protect consumers and empower consumers to make informed choices without being misled.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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## References

- Anish, T., and P. Sreelakshmi. 2013. "Revising Public Health Challenges in the New Millennium." *Annals of Medical and Health Sciences Research* 3 (3): 299–305. doi:10.4103/2141-9248.117923.
- Antonio, J., A. Ellerbroek, T. Silver, L. Vargas, and C. Peacock. 2016a. "The Effect of High Protein Diet on Indices of Health and Body Composition - A Cross Trial in Resistance-Trained Men." *Journal of the International Society of Sports Nutrition* 13: 3–9. doi:10.1186/s12970-016-0114-2.
- Antonio, J., A. Ellerbroek, T. Silver, L. Vargas, and C. Peacock. 2016b. "A High Protein Diet Has No Harmful Effects: A One-Year Crossover Study in Resistance-Trained Males." *Journal of Nutrition and Metabolism* 2006 (1): 1–5. doi:10.1155/2016/9104792.
- Antonio, J., A. Ellerbroek, T. Silver, S. Orris, M. Scheiner, A. Gonzalez, and C. Peacock. 2015. "A High Protein Diet (3.4 G/Kg/D) Combined with Heavy Resistance Training Program Improves Body Composition in Healthy Trained Men and Women - A Follow-Up Investigation." *Journal of International Society of Sports Nutrition* 12: 39–47. doi:10.1186/s12970-015-0100-0.
- Blackburn, K. G., G. Yilmaz, and R. L. Boyd. 2018. "Food for Thought: Exploring How People Think and Talk about Food Online." *Appetite* 123: 390–401. doi:10.1016/j.appet.2018.01.022.
- Bourdieu, P. 1984. *Distinction: A Social Critique of the Judgement of Taste*. London: Routledge.
- Bunton, R. 1997. "Popular Health, Advanced Liberalism and Good Housekeeping Magazine." Chap. 12 in *Foucault, Health and Medicine*, R. Bunton and A. Petersen edited by, 223–249. London: Routledge.
- Campbell, B., R. B. Kreider, T. Ziegenfuss, P. La Bounty, M. Roberts, D. Burke, J. Landis, H. Lopez, and J. Antonio. 2007. "International Society of Sports Nutrition Position Stand:

- Protein and Exercise.” *Journal of the International Society of Sports Nutrition* 4: 8–14. doi:10.1186/1550-2783-4-8.
- Cederström, C., and A. Spicer. 2015. *The Wellness Syndrome*. Cambridge: Polity Press.
- Celhay, F., J. Boysselle, and J. Cohen. 2015. “Food Packages and Communication through Typeface Design: The Exoticism of Exotypes.” *Food Quality and Preference* 39: 167–175. doi:10.1016/j.foodqual.2014.07.009.
- Churchward-Venne, T. A., A. M. Holwerda, S. M. Phillips, and L. J. van Loon. 2016. “What Is the Optimal Amount of Protein to Support Post-Exercise Skeletal Muscle Reconditioning in the Older Adult?” *Sports Medicine* 46 (9): 1205–1212. doi:10.1007/s40279-016-0504-2.
- Clement, J., T. Kristensen, and K. Grønhaug. 2013. “Understanding Consumers’ In-Store Visual Perception: The Influence of Package Design Features on Visual Attention.” *Journal of Retailing and Consumer Services* 20 (2): 234–239. doi:10.1016/j.jretconser.2013.01.003.
- Crawford, R. 1994. “The Boundaries of the Self and the Unhealthy Other: Reflections on Health, Culture and AIDS.” *Social Science and Medicine* 38: 1347–1356.
- De Souza, R. 2011. “Local Perspectives on Empowerment and Responsibility in the New Public Health.” *Health Communication* 26 (1): 25–36. doi:10.1080/10410236.2011.527619.
- Douglas, M. 1984. “Standard Social Uses of Food: Introduction.” Chap. 1 in *Food in the Social Order: Studies of Food and Festivities in Three American Communities*, M. Douglas edited by, 1–39. New York: Russell Sage Foundation.
- Fernan, C., J. P. Schuldt, and J. Niederdeppe. 2017. “Health Halo Effects from Product Titles and Nutrient Content Claims in the Context of ‘Protein’ Bars.” *Health Communication* 30: 1–9.
- Food Standard Agency. 2009. *Comprehension and Use of UK Nutrition Signpost Labeling Schemes*. London: Food Standards Agency.
- Gough, B., and M. Conner. 2006. “Barriers to Healthy Eating Amongst Men: A Qualitative Analysis.” *Social Science and Medicine* 62 (2): 387–395. doi:10.1016/j.socscimed.2005.05.032.
- Guttman, N. 1997. “Ethical Dilemmas in Health Campaigns.” *Health Communication* 9 (2): 155–190. doi:10.1207/s15327027hc0902\_3.
- Hansen, M., J. Bangsbo, J. Jensen, M. Krause-Jensen, B. M. Bibby, O. Sollie, U. A. Hall, and K. Madsne. 2016. “Protein Intake during Training Sessions Has No Effect on Performance and Recovery during Strenuous Training Camp for Elite Cyclists.” *Journal of the International Society of Sports Nutrition* 13: 9–19. doi:10.1186/s12970-016-0120-4.
- Hartmann, C., and M. Siegrist. 2016. “Benefit Beliefs about Protein Supplements: A Comparative Study of Users and Non-Users.” *Appetite* 103: 229–235. doi:10.1016/j.appet.2016.04.020.
- Hassan, L. M., E. Shiu, and N. Michaelidou. 2010. “The Influence of Nutrition Information on Choice: The Roles of Temptation, Conflict and Self-Control.” *Journal of Consumer Affairs* 44 (3): 499–515. doi:10.1111/j.1745-6606.2010.01180.x.
- Heikkinen, A., A. Alaranta, I. Helenius, and T. Vasankari. 2011. “Dietary Supplementation Habits and Perceptions of Supplement Use among Elite Finnish Athletes.” *International Journal of Sport Nutrition and Exercise Metabolism* 21 (4): 271–279.
- Hersey, J. C., K. C. Wohlgenant, J. E. Arsenault, K. M. Kosa, and M. K. Muth. 2013. “Effects of Front-Of-Package and Shelf Nutrition Labeling Systems on Consumers.” *Nutrition Reviews* 71 (1): 1–14. doi:10.1111/nure.12000.
- Hodgkins, C., J. Barnett, G. Wasowicz-Kirylo, M. Stysko-Kunkowska, Y. Gulcan, Y. Kustepeli, S. Akgungor, et al. 2012. “Understanding How Consumers Categorise Nutritional Labels: A Consumer Derived Typology for Front-Of-Pack Nutrition Labels.” *Appetite* 59 (3): 806–817. doi:10.1016/j.appet.2012.08.014.
- Hudson, E. 2012. “Health and Wellness the Trillion Dollar Industry in 2017: Key Research Highlights.” *Euromonitor International*, November 29. Accessed 2 December 2017. <https://blog.euromonitor.com/2012/11/health-and-wellness-the-trillion-dollar-industry-in-2017-key-research-highlights.html>
- Iles, I. A., X. Nan, and L. Verrill. 2017. “Nutrient Content Claims: How They Impact Perceived Healthfulness of Fortified Snack Foods and the Moderating Effects of Nutrition Facts Labels.” *Health Communication* 18: 1–9.

- Jun, J., J. Kang, and S. Arendt. 2014. "The Effect of Health Value on Healthful Food Selection Intention at Restaurants: Considering the Role of Attitudes toward Taste and Healthfulness of Healthful Foods." *International Journal of Hospitality Management* 42: 85–91. doi:10.1016/j.ijhm.2014.06.002.
- Kniazeva, M., and R. W. Belk. 2007. "Packaging as Vehicle for Mythologising the Brand." *Consumption Markets & Culture* 10 (1): 51–69. doi:10.1080/10253860601164627.
- Kreider, R. B., C. D. Wilborn, L. Taylor, B. Campbell, A. L. Almada, R. Collins, M. Cooke, et al. 2010. "ISSN Exercise & Sport Nutrition Review: Research & Recommendations." *Journal of the International Society of Sports Nutrition* 7 (7): 2–43. doi:10.1186/1550-2783-7-2.
- Kress, G. R., and T. Van Leeuwen. 1996. *Reading Images: The Grammar of Visual Design*. New York: Psychology Press.
- Labrecque, L. I., and G. R. Milne. 2012. "Exciting Red and Competent Blue: The Importance of Color in Marketing." *Journal of Academy of Marketing Science* 40 (5): 711–727. doi:10.1007/s11747-010-0245-y.
- Ledin, P., and D. Machin. 2018. *Doing Visual Analysis*. London: Sage.
- Low, W., and E. Davenport. 2005. "Has the Medium (Roast) Become the Message?: The Ethics of Marketing Fair Trade in the Mainstream." *International Marketing Review* 22 (5): 494–511.
- Machin, D., and A. Myar. 2012. *How to Do Critical Discourse Analysis: A Multimodal Introduction*. Los Angeles: SAGE
- Maughan, R. J., F. Depiesse, and H. Geyer. 2007. "The Use of Dietary Supplements by Athletes." *Journal of Sports Sciences* 25 (1): 103–113. doi:10.1080/02640410701607395.
- O'Neill, K., and D. Silver. 2017. "From Hungry to Healthy." *Food, Culture & Society* 20 (1): 101–132. doi:10.1080/15528014.2016.1243765.
- Ogden, J., C. Wood, E. Payne, H. Fouracre, and F. Lammyman. 2018. "'Snack' versus 'Meal': The Impact of Label and Place on Food Intake." *Appetite* 120: 666–672. doi:10.1016/j.appet.2017.10.026.
- Papadaki, A., and J. Scott. 2006. "Process Evaluation of an Innovative Healthy Eating Website Promoting the Mediterranean Diet." *Health Education Research* 21 (2): 206–218. doi:10.1093/her/cyh057.
- Pasiakos, S. M., T. M. McLellan, and H. R. Lieberman. 2015. "The Effects of Protein Supplements on Muscle Mass, Strength, and Aerobic and Anaerobic Power in Healthy Adults: A Systematic Review." *Sports Medicine* 45 (1): 111–131. doi:10.1007/s40279-014-0242-2.
- Petersen, A., and D. Lupton. 1996. *The New Public Health: Health and Self in the Age of Risk*. Thousand Oaks, CA: Sage.
- Puhl, R. M., and K. D. Brownell. 2001. "Bias, Discrimination, and Obesity." *Obesity Research* 9: 788–905. doi:10.1038/oby.2001.108.
- Ramanathan, S., and G. Menon. 2006. "Time-Varying Effects of Chronic Hedonic Goals on Impulsive Behavior." *Journal of Marketing Research* 43: 628–641. doi:10.1509/jmkr.43.4.628.
- Rao, M., A. Afshin, G. Singh, and D. Mozaffarian. 2013. "Do Healthier Foods and Diet Patterns Cost More than Less Healthy Options? A Systematic Review and Meta-Analysis." *BMJ Open* 3 (12): e004277. doi:10.1136/bmjopen-2013-004277.
- Rokeach, M. 1979. "Value Theory and Communication Research: Review and Commentary." *Annals of the International Communication Association* 3 (1): 7–28. doi:10.1080/23808985.1979.11923751.
- Rose, N. 2006. *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century*. London: Routledge.
- Rousseau, S. 2012. *Food Media. Celebrity Chefs and the Politics of Everyday Interference*. London: Bloomsbury.
- Royne, M. B., A. K. Fox, G. D. Deitz, and T. Gibson. 2014. "The Effects of Health Consciousness and Familiarity with DTCA on Perceptions of Dietary Supplements." *Journal of Consumer Affairs* 48 (3): 515–534. doi:10.1111/joca.2014.48.issue-3.
- Sanders, L. 2017. "Food & Health Survey." *Global Food Forum*, April 2. Accessed 2 March 2018. <https://www.globalfoodforums.com/2017-food-health-survey/>

- Scharfer, D., N. H. Hooker, and J. L. Stanton. 2016. "Are Front of Pack Claims Indicators of Nutrition Quality? Evidence from 2 Product Categories." *Journal of Food Science* 81 (1): 223–234. doi:10.1111/1750-3841.13150.
- Schneider, T., and T. Davis. 2010. "Fostering a Hunger for Health: Food the The Self in 'The Australian Women's Weekly'." *Health Sociology Review* 19 (3): 285–303. doi:10.5172/hesr.2010.19.3.285.
- Schuldt, J. P., and M. Hannahan. 2013. "When Good Deeds Leave a Bad Taste. Negative Influences from Ethical Food Claims." *Appetite* 62: 76–83. doi:10.1016/j.appet.2012.11.004.
- Shugart, H. A. 2014. "Food Fixations." *Food Culture & Society* 17 (2): 261–281. doi:10.2752/175174414X13871910531665.
- Silayoi, P., and M. Speece. 2007. "The Importance of Packaging Attributes: A Conjoint Analysis Approach." *European Journal of Marketing* 45 (11/12): 1495–1517.
- Slavin, J. L. 2015. "The Challenges of Nutrition Policymaking." *Nutrition Journal* 14: 15–21. doi:10.1186/s12937-015-0001-8.
- Smith, V., M. Søndergaard, C. J. Ohm, P. Møgelvang-Hansen, S. H. Selsøe, and G. Gabrielsen. 2009. *Fair Speak: Scenarios of Misleading Conduct on the Danish Food Market*. Copenhagen: Ex Tuto Publishing.
- Sobal, J. 1995. "The Medicalization and Demedicalization of Obesity." Chap. 4 in *Eating Agendas: Food and Nutrition as Social Problems*, D. Maurer and J. Sobal edited by, 67–90. New York: Aldine de Gruyter.
- Solomon, M. R. 1996. *Consumer Behaviour*. London: Prentice-Hall International Editions.
- Traverso-Yepez, M., and K. Hunter. 2016. "From 'Healthy Eating' to a Holistic Approach to Current Food Environments." *SAGE Open July-September* 6 (3):1–9.
- Van Leeuwen, T. 2005. *Introducing Social Semiotics: An Introductory Textbook*. London: Routledge.
- Van Trijp, H. C. M., and I. A. Van der Lans. 2007. "Consumer Perceptions of Nutrition and Health Claims." *Appetite* 48 (3): 305–324. doi:10.1016/j.appet.2006.09.011.
- Verbeke, W. 2006. "Functional Foods: Consumer Willingness to Compromise on Taste for Health?" *Food Quality and Preference* 17: 126–131. doi:10.1016/j.foodqual.2005.03.003.
- Vyth, E. L., I. H. M. Steenhuis, S. F. Mallant, Z. L. Mol, J. Brug, M. Temminghoff, G. I. Feunekes, L. Jansen, H. Verhagen, and J. C. Seidell. 2009. "A Front-Of-Pack Nutrition Logo: A Quantitative and Qualitative Process Evaluation in the Netherlands." *Health Communication* 14 (7): 631–645. doi:10.1080/10810730903204247.
- Yarar, N., and U. R. Orth. 2018. "Consumer Lay Theories on Healthy Nutrition: A Q Methodology Application in Germany." *Appetite* 120: 145–157. doi:10.1016/j.appet.2017.08.026.