Anorexia: A perverse effect of attempting to control the starvation response

Randolph M. Nesse
School of Life Sciences, Arizona State University, Tempe, AZ 85745
nesse@asu.edu
http://randolphnesse.com

Abstract: Starvation arouses evolved protective mechanisms including binge eating and increased metabolic efficiency and fat storage. When aroused by dieting, the experiences of out-of-control eating, increased appetite, and increased fat storage arouse greater fears of obesity, spurring renewed attempts to restrict intake severely. The resulting positive feedback cycle escalates into bulimia for many, and anorexia in a few.

Nettle et al. provide a long-needed integration of behavioral ecological research on the costs and benefits of fat storage with data on rates of obesity in humans. The logic is convincing, the model helps to specify the exact argument, and the data on birds document that experiencing unreliable access to food shifts the fat-storage set point upward. One study on a mammal is mentioned (Li et al. 2010), but supporting data are also available from multiple species (Dionne et al. 2016; Wilson & Cantor 1987). Nettle et al. note the unfortunate neglect of such behavioral ecological models in the social science literature, although there is some relevant work, especially from economists (Bellisari 2008; Smith 2009).

The authors’ meta-analysis supports their insurance hypothesis, but I was surprised that the effect was not larger and more generalizable. Food insecurity increased the risk of obesity by only 21% and only for women in high-income countries. The authors are admirably restrained in their conclusions, emphasizing that factors other than the insurance hypothesis are also important. I wonder, however, if the limited strength of the results might be partly accounted for by measurement problems related to relying heavily on the questionnaire by Radimer et al. (1990) and its derivatives.

Examination of the specific questions on these questionnaires reveals that they measure only food insecurity resulting from lack of money, not from other causes. The first question is, “I worry that my food will run out before I get money to buy more.” Out of the 13 questions, 12 refer explicitly to not having enough money for food. Not surprisingly, food security on this measure is achieved for 50% of families with incomes over $25,000 but less than 12% of families with household incomes...
Using food insecurity in health prevention to promote consumer’s embodied self-regulation

Olivia Petit* and Charles Spenceb
*INSEEC Business School, 33070 Bordeaux Cedex France; †Crossmodal Research Laboratory, Department of Experimental Psychology, Oxford OX1 3UD, England.
opetit@inseec.com
www.researchgate.net/profile/Olivia_Petit
charles.spence@psy.ox.ac.uk
www.psy.ox.ac.uk/team/charles-spence

Abstract: Health messages designed to address obesity are typically focused on the long-term benefits of eating healthy food. However, according to the insurance hypothesis, obese people are food insecure, and this causes them to be overly concerned about short-term consumption. As such, it is necessary to rethink public health messaging and consider how to reduce short-term insecurity by eating healthy food. Although high-calorie foods are constantly available in contemporary environments, the evolutionary mismatch hypothesis suggests that people overconsume because their behaviour is optimized for the ancestral environment (e.g., McNamara et al. 2015; Nesse & Williams 1995; Prentice & Jebb 1995). Consumers can satisfy their immediate needs by making choices between different foods. Considering this might help explain why it is that health prevention messages are often focused on the long-term consequences of those choices. However, the recently developed insurance hypothesis by Nettle et al. leads to the suggestion that, even in contemporary environments, obese individuals may be living under the cloud of food insecurity. Although this hypothesis is certainly not the only explanation for the distribution of obesity in the population, it does at least provide a new perspective for understanding food behaviour with a view to changing health communication.

Nettle et al. start by discussing the shortcomings of the literature, which suggests that “people who are obese or eat unhealthily place a high motivational value on getting food soon” (target article sect. 2, para. 4; e.g., Guerrieri et al. 2012; Nederkoorn et al. 2006; Weller et al. 2008). According to the authors, this literature fails to describe the processes that lead(s) people to place a high motivational value on immediate consumption. According to Nettle et al., a plausible explanation for this is that obese people living under food insecurity would like to acquire food as soon as it becomes available. The insurance hypothesis might also help explain why it is that obese people are more sensitive to the expected pleasure of high-calorie food consumption (Pursey et al. 2014; for a review, see Spence et al. 2016). Indeed, the expected pleasure is generally associated with the likely inflow of nutrients that is higher for high-calorie foods (de Graaf 2012; Herman & Polivy 1983; Redden & Haws 2013). Thus, the unhealthy=tasty intuition (UTI), which might lead people to make unhealthy food choices and which could in turn affect their body mass index (BMI), could actually be attributable to the lack of nutritive expectations associated with healthy food consumption (Mai & Hoffmann 2015; Raghunathan et al. 2006). The UTI was initially tested on U.S.-American participants (Raghunathan et al. 2006). Interestingly, however, Werde et al. (2013) observed that the French had a healthy=tasty intuition, due perhaps to their less utilitarian approach to eating (e.g., as compared to U.S.-Americans, see Rozin et al. 1999).

The nutritional aspect of consumption appears important for those individuals suffering from obesity. This interest can be justified by uncertainty in terms of acquiring nutritionally adequate foods in the future, as suggested by the insurance hypothesis. However, as pointed out by Block et al. (2011, p. 7): “No one sits down to eat a plate of nutrients.” Thus, promoting the sensory pleasure (rather than nutritional quality) of eating healthy food might constitute a better way in which to reduce both food insecurity and the overconsumption of high-calorie foods (Petit et al. 2016b). This strategy would also be in keeping with an embodied vision of self-regulation, according to which “being more conscious of one’s bodily states (and their simulation) in response to appetitive stimuli may be beneficial to pursuing healthy goals” (Petit et al. 2016a, p. 612). For instance, consumers should replace their food intake when they feel a decline in enjoyment during consumption, signaling them that they will soon be full (de Graaf 2012; Herman & Polivy 1983; Redden & Haws 2013). Focusing their intention on the multisensory experiences (e.g., on the smell, taste, and mouthfeel of the food) while eating would inform the consumer’s brain of the likely inflow of nutrients, thus reducing both their food insecurity and their consumption (de Graaf 2012; Ramaekers et al. 2014). By contrast, when consumers are more focused on health goals than on their physical sensations, they would be likely to underestimate the calorific content (Petit et al. 2016a). For instance, they are more sensitive to the health halo of fast-food restaurant health claims, leading...