

# Can Food and Addiction Change the Game?

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Being mindful of risks and benefits surrounding food and addiction will play a key role in determining whether the full potential of this topic is realized in efforts to address major public health issues (e.g., obesity, diabetes). It is essential to evaluate whether certain foods have addictive potential, but much more will be required to translate this science into game-changing realities, changes in the national discourse about food, and in decisions made by policy makers (Table 1). Here we consider the opportunities and costs of food addiction as a framework and suggest key questions to help translate science into policy.

## The Impact of Framework on Policy

Often in the history of addiction, overuse of a substance is framed initially as a problem of self-control. Individuals who struggled with alcohol were considered weak willed, and cigarette smokers were considered unable to break a bad habit (1). This framework typically stalls effective policy responses because the focus lies on educating, imploring, or shaming individuals into more appropriate substance use.

Scientific enquiries into how addictive substances are capable of hijacking the brain has reduced stigmatization of addicted individuals and led to more substance-focused policy approaches (e.g., taxation of cigarettes, restrictions in marketing) (1). In the case of tobacco, these substance-based strategies have created significant changes in the environment, altered public opinion about the addictive products and the companies that sell them, and generated widespread improvements in public health (2).

The popular focus on a lack of personal responsibility as the cause of obesity harkens back to the ineffective early conceptualizations of addiction as solely a deficit in self-control. As with other addictive substances, policy attempts to educate or cajole individuals into reducing consumption of calorie-dense foods has shown little evidence of impact and could never have enough financial support from government to compete with food marketing done by industry. If scientific evidence suggests that certain foods have addictive properties, the case for more food-focused policy approaches would be strengthened.

For policy efforts to commence, it is essential that research focus on the identification of what types of food and/or ingredients in foods (e.g., sugar) may have the greatest addictive potential. Stated another way, it is our belief that a focus on the substance will be more important to policy and social change than emphasizing individual difference variables or investigating how obese and non-obese individuals differ. Individual difference approaches may be helpful in developing clinical interventions but will touch the lives of far fewer people than will policy changes that affect entire populations.

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## High-Risk People Versus High-Risk Substances

Even among substances that are widely acknowledged as addictive, public perception of the role of the substance in problematic use has an impact on policy. Alcohol is often approached as a substance that is safe for the majority, causing problems only for an extreme few. This perception is linked with greater public support for policies that focuses on education and greater access to treatment but less support for more environmental approaches (e.g., taxation, access restriction) (3). This framework has led to limited alcohol-focused policy approaches, and the rates of alcohol-related problems have remained relatively stable over time (4).

In contrast, nicotine-containing products are viewed by the public as dangerous substances that have the capacity to affect many (rather than a small percentage of at-risk individuals). This perception is related to greater support for substance and environmentally focused policy initiatives, such as increased taxes, smoke-free designations, and marketing restrictions to minors (5). Unlike alcohol, tobacco use in the United States has decreased dramatically and could be the greatest public health victory of the last century (2).

To optimize the policy impact of food addiction research, it will be important to examine the effect of potentially addictive foods on the many rather than just the few. A major focus of the literature on food addiction is to evaluate whether some individuals exhibit clinically significant addictive eating patterns. Although this is essential research, it will be important to look at the widespread subclinical impact of potentially addictive foods through the use of public health approaches. Like alcohol, if certain foods are addictive, it is likely that a significant minority will meet the clinical threshold for addiction, but many more will experience subthreshold symptoms that lead to the overconsumption of foods with poor nutrient values that undermine health. Because a surplus of only a few hundred calories a day is sufficient to lead to significant weight gain, widespread negative effects of addictive food on the brain may contribute significantly to rising obesity rates (6). Focusing on the societal cost of an environment replete with inexpensive, accessible, heavily marketed foods that interact with the brain in harmful ways may lead to greater public support for more food-focused policy approaches (Table 2).

## Industry Approaches to Block Policy

As the potential policy impact of food addiction research becomes clear, it is likely that the food industry will place a greater effort on trying to refute research on addictive foods. The tobacco industry used variability in the literature to confuse the public and to delay policy approaches based on nicotine's addictive properties. The food industry will likely use any inconsistency in the food-addiction literature to plant doubt, attack scientists' credibility, or fund negative studies (7).

## Policy Questions Unique to Food Addiction

### Shifting Substances

There are policy factors that may be relatively unique to addictive foods. Eating is a behavior that is necessary for survival, whereas many other addictive behaviors (like smoking) can be entirely stopped without impacting health. Policy efforts for these

addictions would not focus on shifting this behavior to another substance but rather to abstain from the behavior entirely.

With food, one goal would be to increase consumption of foods with nonaddictive constituents while reducing the ingestion of calorie-rich, nutrient-poor foods with greater abuse potential. Certain food-policy initiatives may be helpful in promoting this dietary shift, such as a focus on making nonaddictive foods more affordable and accessible (e.g., increasing subsidies for fruits, vegetables, and whole grains or providing incentives for groceries stores offering fresh produce to open in economically challenged neighborhoods). Policies that reduce the availability and increase the price of potentially addictive foods through the use of zoning restrictions designed to decrease the number of fast food restaurants in low-income neighborhoods or near schools or taxes on sugared beverages could also be implemented. It will be important to evaluate how consumption of foods that have addictive properties alters the reinforcing impact of healthier foods. Previous animal-model research suggests that elevated consumption of potentially addictive foods may shift the hedonic set point (6). In other words, greater consumption of ultraprocessed foods with elevated reward potency (e.g., ice cream) may reduce the appeal of foods that were previously considered rewarding (e.g., watermelon). Thus, if more nutritious foods were available in the environment (but potentially addictive food options were still numerous), dietary choices may improve only minimally because of the increased salience and reinforcement of the addictive foods. The most effective ratio will be an important empirical question and may suggest that policies that restrict addictive-like foods could be more effective than those that only encourage greater access to more nutritious options.

**Early Childhood**

If certain foods are addictive, it is reasonable to ask whether children consuming these foods earlier in development and in greater quantities respond similarly to children exposed to other substances (e.g., alcohol, nicotine). Younger ages of exposure to addictive substances are related to a greater risk for the development of future substance dependence and impaired executive cognitive function (8). Although the mechanism is not entirely understood, the impact of addictive substances on the developmentally vulnerable brain appears to play a role (9). It will be essential to evaluate whether addictive-like eating contributes to childhood obesity via permanent or short-term alteration of the developing brain. To address these issues, it will be necessary to develop new paradigms to identify indicators of addiction early in the life-cycle. If ultraprocessed foods are found to have an addictive potential, the case for more aggressive policy initiatives to protect children will likely be warranted, such as restricting children’s exposure to calorie-dense food advertisements, reducing access points (e.g., vending machines), and increasing prices (10).

**Table 1.** Potentially Effective Food-Based Policy Approaches

Reducing availability of supersized portions.
Taxing addictive foods.
Restricting access (e.g., nutritional standards of foods in school vending machines).
Limiting marketing of addictive foods to children.
Providing financial incentives for groceries in low-income neighborhoods.
Subsidizing healthier food options.
Eliminating addictive foods from schools and school lunch programs.
Zoning that limits the number of vendors selling addictive foods.

**Table 2.** Future Food-Addiction Research Questions for Effective Policy Change

Are certain foods (or ingredients in food) addictive?
What is the widespread subclinical impact of addictive foods?
What is the effective ratio of nonaddictive to addictive foods in the environment to encourage healthier dietary choices?
Are children showing signs of addictive eating? How can this be assessed in developmentally appropriate ways?
How do marketing practices trigger addictive eating?
What are the most effective economic strategies to reduce consumption of addictive foods?
Is greater access to ultraprocessed foods associated with addictive eating behavior?

**What If We Ignore the Food Addiction Question?**

If certain foods do have an addictive potential but this reality is ignored, it is likely that both treatment and policy progress will be stalled. Imagine if tobacco research had stopped at the time that cigarettes were considered habit forming but not addictive. Policy initiatives might have focused solely on education and attempts to strengthen the resolve of those with a bad smoking habit. Education and treatment were important to reducing the impact of nicotine products and should be included as part of the approach to decreasing eating-related problems, but the enactment of substance-focused initiatives were essential to lessening the nicotine-related public health crisis (6). If scientific evidence identifies that certain foods are also capable of hijacking the brain in an addictive manner, it would likely be a landmark change that would support bold policy approaches that focus on improving the food environment.

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