BEHAVIORAL SCIENCE FOR FOOD ADVOCATES

A PRIMER

By: Karina Mudd & Pauline Miller
University of California, Berkeley

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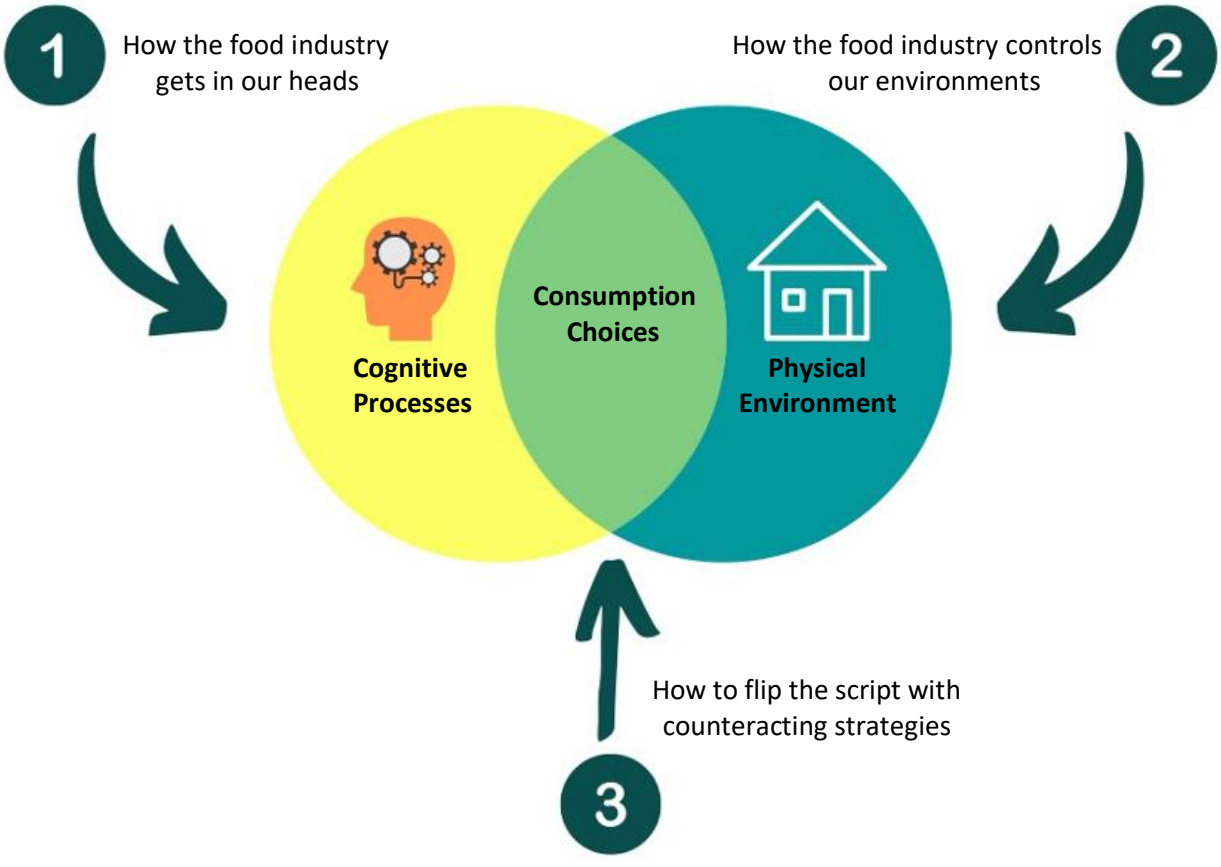
WHAT EVERY CONSUMER SHOULD KNOW

Over the course of a day, we face a barrage of decisions related to food consumption alone. To manage so many decisions, we take mental shortcuts to conserve mental energy. Our brains conduct quick assessments—often shaped by cognitive biases—which result in decisions that don't always serve our best interests.[1]

This primer aims to highlight how our food environments are designed to take advantage of our cognitive biases, which are very difficult to change and impossible to get rid of entirely. The corporate food industry leverages our biases by making unhealthy products more convenient, salient, and recognizable (among other tactics), which leaves us especially vulnerable to making poor dietary choices. The consequences are grim: obesity prevalence rates in the United States have more than tripled since 1980, resulting in approximately $400 billion in annual health care costs.[2] Low income populations and communities of color are disproportionately targeted by the food industry tactics we outline in this primer[3]—pushing back against the industry's outsized power over our consumption choices is not only paramount for better public health outcomes, but also a necessary step toward greater health equity and social justice.

In a political system that prioritizes corporate profit over public health, it's crucial for us as consumers to understand how we are influenced so we can advocate for counteracting strategies. The most effective tactics draw insights from behavioral science, which helps to explain why relying on nutritional information or self-control alone often fails to shift consumption behavior.[4] We need more advocates to fight for policies that reshape our food environments in recognition that our consumption decisions are a result of our cognitive processes responding to those environments. This is something the food industry knows well, and we can pull from their own bag of tricks to encourage healthier consumption habits.

As illustrated below, this primer highlights some prominent tactics used against us in the first two sections, followed by a third section with examples of policies designed to protect our health as individuals and society as a whole.



How the corporate food industry gets in our heads

Adapted from Dual Process Theory, System 1 and System 2 thinking refers to two types of cognitive processes that we use every day.[5] System 1 thinking is fast, automatic, and often reactive, while System 2 involves careful, more reflective reasoning.[6] Our eating habits are usually driven by System 1. Marketing and promotional advertising take advantage of System 1 thinking through repeated exposure to simplified information[7] (think catchy commercials that make you want to drink Pepsi like Beyoncé). In contrast, most food information (e.g. labels, calorie counts, and certifications) speaks to System 2 reasoning. This means healthier, more sustainable consumption decisions often require greater thought and effort, while less healthy products cater to our impulsive tendencies.[8]

Below are a few cognitive biases that help us conserve mental energy and play a role in decisions related to food and beverage consumption:

Cognitive Biases[9]

- **Salience bias:** We tend to focus on information that's most prominent. This bias helps explain why we are drawn to items listed at the top of restaurant menus or foods with striking packaging or displays. Salient placements require higher slotting fees, which are often only affordable for big corporate companies, so the most salient cues we receive from our food environments draw us toward items that are higher in sugar, calories, and fat.[10]
- **Decision Fatigue:** Decisions become harder the more choices we have to make. This bias helps explain why we pick up items we did not intend to purchase after a long shopping spree at the grocery store—research suggests we can shop with a rational mindset for up to 40 minutes, at which point we start to make more emotionally-driven, impulsive purchases.[11]
- **Status Quo bias:** We are more likely to leave things in their current state, or stick with the default option, even when better options are available. This bias helps explain why we are likely to accept the less healthy default beverage offered with a meal rather than taking on the extra effort of actively opting for a healthier alternative.[12]
- **Anchoring Bias:** We tend to use the first piece of information we receive about a particular topic as an anchor, or reference point, to which we compare new information. This bias helps explain why portion sizes significantly influence our perceptions of how much we eat.[13]
- **Mere Exposure Effect:** We tend to prefer what is familiar to us. This bias helps explain why consumers are influenced by food product placement in the media.[14]
- **Present Bias:** We over-value immediate gains and exercise more restraint over future decisions.[15] This bias helps explain why it's so difficult to choose healthy options in the short term, yet relatively easy to imagine making healthier consumption choices in the future.[16]
- **Bandwagon Effect:** Our decisions and beliefs are influenced by the preferences of those around us. This bias helps explain why we consume the same products as our peers or reference groups.
- **Framing Effect:** Our decisions are influenced by the way information is framed; the same information about a product can be more or less attractive depending on how it's presented. This bias helps explain why marketing that emphasizes characteristics like "75% lean" elicits more interest from eaters than the same item advertised as "25% fat."[17]
- **Health halo effect:** We tend to attribute the health benefits of one featured characteristic like "low-sodium" or "high-fiber" to the whole product. This bias helps explain why we might be more likely to overlook the high sugar content of a snack labeled "protein-packed sports bar" and assume the product is healthy overall.
- **Moral Licensing:** We are more likely to give ourselves permission to do something 'bad' after we've done something 'good.' This bias explains our inclination to indulge in an extra dessert after eating a big salad.[18]

How the corporate food industry controls our food environments

Our decisions are also influenced by our physical surroundings. This phenomenon is central to the concept of *choice architecture*, which emphasizes how the design of our external environments shapes our behavior.[19] Choice architecture in our food environments influences our consumption choices in many ways, including through the size of our plates, the order food is presented in a buffet, the layout of grocery stores, and the physical location of stores within a town or city.[20]

One of the most prevalent tools used in choice architecture is *nudging*, which encourages people to act in a certain way, while still allowing them full freedom of choice. In general, we are most likely to take the path of least resistance, so we are drawn to what's perceived as convenient and accessible. In our food environments, that tendency often leads us to consume fast food and less healthy—but more prevalent—options propagated by corporate food franchises (e.g. Coca Cola, McDonald's, etc.). Below are a number of examples of how our food environments are designed to capitalize on our cognitive processes and biases.

Unhealthy Defaults

- **Vending machines offer convenient snacks, often in places with few other options, which makes it difficult to opt out of the default food and beverages provided.** Vending machine placements continue to increase across schools, office buildings, hospitals, and retail spaces, yet only 7% of vending machine sales come from healthy products.[21]
- **Many families rely on school lunches for their children but have little or no control over the menu.** Many school lunches still include highly processed foods such as french fries, corn dogs, and pizza.[22] It's difficult to opt out of these defaults when there are no alternatives offered.
- **Over the last few decades, corporate food franchises have increased default portion sizes and pushed a trend of 'supersizing' beverages and meals.** In 1995 when McDonald's first partnered with Coca Cola, the only beverage size offered was a 7-ounce cup. Today most franchises offer drinks that are 42 ounces or more.[23]

Choice Architecture prioritizes profit over health

- **Choice architecture is prevalent in grocery stores and many techniques are used to influence our shopping habits.** Shopping carts have tripled in size from the original version introduced in 1938 and store layouts are strategically designed to guide our shopping experience.[24] Retailers place dairy sections at the back of the store so shoppers have to walk through certain aisles on their way[25] and make certain items more visible by placing them at eye-level or featuring them on freestanding displays.[26] Strategic placement of mirrors, lighting, and music can also influence purchasing patterns.
- **Fast food restaurants are strategically placed to make them more accessible to specific populations.** There is a higher density of fast food restaurants and convenience stores in low-income neighborhoods[27] and the majority of fast food restaurants are located within walking distance from schools where kids are more likely to buy food without their parents' supervision.[28] In areas with few healthy alternatives, this makes it extremely difficult to maintain a healthy diet and puts more children at a higher risk for obesity.[29]

Millions spent on manipulative advertising

- **We are inundated with extensive marketing and advertising from the corporate food industry.** Junk food and beverage companies spend an estimated $14 billion a year on marketing.[30] The majority of these funds are dedicated to advertisements on TV[31] because viewers are more likely to snack excessively when watching programs with food advertisements.[32]
- **Corporate food franchises use celebrity endorsements to influence product preferences for nutrient-poor foods and sugary beverages.** Celebrity advertisements targeting children shape early food preferences and brand loyalty yet they rarely promote healthy products[33]—for example, the

healthiest product endorsed by top 100 music artists in 2013 was pistachios.[34] Food and beverage companies also hire social media influencers and "kidfluencers" who use peer-to-peer persuasion to normalize the consumption of unhealthy foods.[35]

- **Corporate brands use tactics like coupling toys with food to create emotional attachments to their products.** Beyond a pure incentive, McDonald's includes toys in happy meals to create an emotional connection to the brand; children learn to associate the fun they derive from toys with McDonald's.[36]
- **Food producers use "health halo" labeling strategies to confuse consumers.** Marketers deceive shoppers by highlighting nutrient contents like "high-fiber" when the product taken as a whole may actually have a high fat content.[37]

How to Flip the Script with Counteracting Strategies

Despite all of these tactics, consumers are far from powerless. There are a number of ways we can fight back against the corporate food industry. Our strategies should reflect the same multidimensional approach the industry itself has used for decades. We should target stakeholders at different levels of the food system, including consumers, retailers, and policymakers. The most effective strategies impact both upstream and downstream actors, guiding healthier consumption choices and simultaneously pressuring producers to design food and beverage products that meet healthier standards. Below are a number of policy examples to get you started. Pick the strategies that best fit your community, join forces with fellow advocates, and get to work!

Set standards for healthy defaults

- **Pass laws that require healthier food and beverages offered as the default in kids' meals.** When Disney theme parks changed the default offerings for kids' meals to healthier beverages and sides of fruit or vegetables, two-thirds of families stuck with the default option.[38]
- **Implement health standards for school vending machines.** In 2014 CDC Healthy Schools required foods in vending machines to meet federal Smart Snacks in School nutrition standards.[39]
- **Create policies that limit the serving sizes of unhealthy food & beverages.** In 2012, Mayor Mike Bloomberg & the NY Board of Health tried to restrict soda sizes over 16oz in New York City but the super-size soda ban was struck down.[40]

Redesign choice environments

- **Nudge through the design of cafeterias in schools, offices, and hospitals.** When healthy items are presented first in a buffet line, people are less likely to add more sweets to an already full tray. Cafeterias can be designed to increase the accessibility of healthy foods, decrease the accessibility of unhealthy foods, and set healthier defaults.[41]
- **Regulate or ban food placed in high-traffic areas such as checkout aisles.** In 2020, the city of Berkeley, CA passed a "Healthy Checkout Ordinance," banning candy and junk food from checkout aisles.[42] Other strategies include setting nutrition standards for any foods or beverages featured in checkout aisles;[43] prohibiting any type of food or beverage from being sold in check out aisles; or entirely banning the sale of food and beverages in non-food retail settings such as toy stores.[44]
- **Redesign supermarket choice architecture to prioritize health over profit.** Studies have shown that people buy more fruits and vegetables when they are more prominently placed within stores.[45]
- **Reduce the purchasing power of slotting fees.** Food suppliers pay retailers slotting fees to have their products featured in stores, which small businesses with healthier products often cannot afford. But retailers demand slotting fees because 80-90% of new products fail when first introduced.[46] To reduce reliance on slotting fees, retailers need protection from the potential loss of revenue from failed products, which could take the form of subsidies or insurance programs.
- **Use zoning regulations to ban or limit the placement of fast food restaurants and allow for healthier alternatives.**[47] Strategies include establishing quotas or regulating the density of fast food restaurants in a certain area; preventing fast food franchises from establishing new locations within a certain distance

of schools, hospitals, and churches; and banning fast food drive-throughs.[48] Policymakers need to ensure there are alternative places to buy food in the same area, and should allow for more zoning designations for farmers markets and community gardens.[49]

Encourage pre-commitment strategies

- **Encourage retail consumers to use pre-commitment strategies.** Retailers can offer discounts to incentivize customers to pre-order groceries online and require orders to be placed a few days in advance, which helps to reduce impulse purchases.[50,51]
- **Encourage pre-ordering for school or workplace meals.** Research suggests that preordering student lunches can increase the selection of fruits, vegetables, and milk, especially with nudging notifications that encourage additions of more healthy foods.[52] This strategy also holds promise for workplace meals.[53]

Mandate transparent labeling or rating systems that make health hazards more salient

- **Mandate informative, easy-to-read warning labels.** A number of countries[54] have successfully mandated consumer-tested, culturally appropriate warning labels on unhealthy food items such as stop signs in Chile[55] and red/green traffic lights in the UK.[56] Not only do these strategies help consumers make better choices, but they also encourage producers to reformulate their products with healthier ingredients.[57]
- **Strengthen regulations against deceptive marketing.** The U.S. Food and Drug Administration should be given more authority to regulate misleading claims regarding nutrient value—which can exacerbate the health halo effect—such as the use of terms like "refined starches" instead of sugars. The Federal Trade Commission should also require more health disclosures on food labels.[58]
- **Implement a government-sanctioned restaurant health rating system modeled off of the restaurant health and hygiene system.**[59]

Increase regulations of deceptive marketing and advertising targeted at children

- **Implement marketing restrictions in schools through school wellness policies or legislation at the local, state, or federal level.**[60] More recommendations related to the USDA Smart Snacks in School nutrition standards can be found **here**.
- **Regulate advertising of junk foods and beverages targeting children through prominent media forums.** An overview of international advertising policies can be found **here**.
- **Ban the coupling of cartoon characters or toys with food items or set nutrition standards for foods that come with toys.**

Familiarize consumers with healthy food through exposure and relatable messaging

- **Frame public health messages in relatable terms.** Tailoring health messages to specific audiences can help reduce the consumption of unhealthy foods and beverages. Framing junk food marketing as manipulative has shown to decrease consumption of unhealthy snacks among adolescents by tapping into developmentally relevant values such as a heightened sense of fairness and desire to rebel.[61]
- **Use celebrity endorsements in public health campaigns.**
- **Invest in community and/or school gardens to increase exposure to healthy foods at an early age.** School gardens have been shown to influence kids' attitudes about and preferences for vegetables.[62]
- **Subsidize healthy samples and provide in-store cooking demonstrations at grocery stores.**[63]

These examples just scratch the surface of policy tools that will help us reclaim control over our health. Especially in the face of powerful corporate lobbying, it's critical for us as consumers to understand how we are being influenced on a daily basis so we can demand policymakers put health before corporate profit. Check out your local food advocacy organizations to get involved with current policy efforts! If you're in the Bay Area, the **Berkeley Food Institute** is a great place to start.

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