

The End of Overeating

By David Kessler

What draws us into addictive relationships with food? David Kessler examines animal and human studies and collects his own information on modern food science and the marketing of processed food to come up with suggestions about how to deal with our national compulsion to overeat.

The obvious answer, one that anyone with the problem would be able to identify, is that foods that combine sugar, fat and salt just right are “highly palatable”, and the vulnerable among us will eat them in spite of the known consequences of doing so to excess.

How addictive are they? Animal experiments on the addictive nature of fat and sugar showed that the animals were willing to work almost as hard for fat and sugar combined as for cocaine. At the level of the physical body, salt, fat, and sugar pull us to eat them for reasons related to evolutionary pressures that formed our tastes. (We were rewarded with good mood chemistry when we ate essential things that were short in supply: salt, fat, sugar.) Now, our culture is loaded with “reinforcers” – circumstances of the environment that invite us to overeat:

Reinforcers (Invitations to Overeat)

- * Location is a big one. Drive past your favorite fast food place and see what happens to how you feel.
- * Quantity. If you perceive that greater quantity is available or served to you, you will eat more.
- * Concentration. Up to a point. There seems to be an ideal combination and concentration of salt, fat, and sugar that makes the item irresistible.
- * Variety. Like adding chocolate chips to ice cream. “Dynamic contrast”, like the Oreo cookies’ bitter chocolate wafer with sweet cream filling.

- * Novelty. Appetite is taste-specific (Think of the full child who has room for dessert.) Invites us to overeat because the brain chemicals of reward attached to one food are different from those connected to another. So you could, for example, habituate to and lose your appetite for salty peanuts but be stimulated to eat again if chocolate appears.
- * Primer: Betcha can't eat just one (having some leads to more).
- * The experience of reward (positive emotional response to eating something).
- * Anticipation of reward because the brain already knows from the last time you ate it there will be a reward.
- * Effective marketing that drives us to pursue rewarding foods.

How Eating Habits Form:

What is a habit: Behaviors that are learned slowly through repetition. Once in place, they are difficult to break; they "resist extinction". The repetitions of cue are followed by urge followed by reward. When you experience stimulation of desire (ex: you see the bowl of M and Ms, you get the urge to eat them), your neurons are firing. What you are creating is *feelings*. In terms of both firing of neurons and your biochemistry, we are talking about something that you perceive as emotion.

The positive ones associated with immediate reactions to food are said to be "encoded for palatability." Encoding means the neurons show a preference for something by firing more when it's perceived. The most dominant is taste; it has the strongest connection to the reward system. It prompts the strongest emotional response. The neurons that are stimulated by highly palatable foods are connected to the opiate circuitry in the brain. That means they operate in the same system as morphine or heroin. You may know them as endorphins.

p 37.

If you want to stop overeating, it's important to understand that eating and the desire to eat are separate in terms of the brain mechanisms that govern them. p. 41. Having once been exposed to the opiate

effects of eating rewarding foods, you will experience another powerful emotion-mimicking brain chemical: dopamine, the brain chemical of anticipation. It is dopamine that enhances desire and anticipation so that we will pursue a food (or whatever we are hunting, etc.) Dopamine draws our attention toward the desired item and away from other stimuli. So whatever the food is that “calls to you” (Say, that bowl of M & Ms) is given prominence in your mind.

The rewards can be measured as “transient bursts” of dopamine when an animal is stimulated by a reward food. You don’t have to see the actual food to get the desire. You can be triggered for wanting by locations where you were rewarded before (like passing golden arches), red aluminum cans or the tinkling of ice cubes dropping into a glass.

Then cues bring with them body memories of pleasure (memories of opioid responses) and memory of pleasure triggers desire (dopamine production). In evolutionary terms, the biological value of dopamine comes from its action of activating the animal’s brain to pursue food.

There are two basic ways we are moved to action. One is by some form of motivation, the other is by habit p. 63. Once habitual eating is wired in, even feeling sick on the food doesn’t break the habit. “The more rewarding the food, the stronger the learning experience that creates the automatic behavior”. This is why habits around addictive foods are so hard to break. The good news is new habits can be formed that attach to healthier rewards.

Kessler gives examples of businesses that cash in on the brain’s reward circuitry and human vulnerability to foods that light it up: Chili’s, Cinnabon, and popular restaurant chains that employ food scientists to study the effects of specific foods on all of the five senses. p.88. Their purpose, of course, is to design foods that will make it in the marketplace. The ones that do tend to have multisensory affects, most often through the brilliant combining of “layers” of salt, fat, and sugar, and varying combinations of “mouth feel”, texture, temperature and viscosity.

The food industry takes advantage of the biology of our brains by making a science of studying the “drivers” of our appetites. p.97. The industry word for this is “cravability”. They have found that people will

repeatedly eat foods that have two winning characteristics – unique sensory attributes (like dual textures, chocolate on the outside and soft and fruity on the inside) and positive mood change.

Another aspect of the food industry is that nothing is real. Chemical flavorings have become an essential weapon in the arsenal of items that force you to buy them. p.118. The purpose of chemicals in food was originally to increase shelf life and lower food cost. But more recently, the use of chemicals has been directed toward producing sensations. p. 138. The pleasure of eating these engineered foods acts as a substitute for other emotions. It occupies working memory, and the brain can only focus on a limited amount of stimuli at any given time. (So for example, you may find it hard to keep your mind on the book if you're distracted by the bowl of M & Ms.)

We were designed by famine and limited food supply for food to be salient, that is to say, to command our attention. Now that food is plentiful, it's salience is a problem because it leads so many of us to overeat. p. 138. Salient cues (like seeing those candy bars at the check out line) can trigger problems with impulse control.

The more multisensory, the greater the reward and the stronger the emotional reaction. The more potent the memories, the more springing into action. The habit of pursuit becomes firmly established. p.139.

"Once our behavior becomes automatic the emotional component – the desire to feel better – is no longer required." p 140. (So, for example, the habit continues even if you stop feeling good in response to a food, much the same as with drugs). p.140. The progression goes cue-urge-reward-habit, at which point it becomes mindless.

"The reward circuits targeted by highly palatable food are also the reward circuits targeted by drugs." p. 143. The reason phen-fen worked so well for dieters was it increased the level of serotonin (the chemical of calm, sense of well being and sound sleep) which shuts down the action of dopamine (the chemical we experience as pleasure in anticipation, a more jazzed up feeling). Phen-fen reduces the urge to experience reward.

Terms Related to Eating Stimuli

Priming – the taste that triggers conditioned hypereating (Betcha can't eat just one). When we relied on nature as a food source, it made evolutionary sense to be cued to get hungry once you found some food.

Cue – that which stimulates us to pursue a food.

Taste -- strongest pull comes from salt, fat, and sugar, the strongest of the three. Just right combining of them is the most stimulating.

Sensory characteristics (like the site of that bowl of M & Ms).

Location

Certain emotions are more powerful than others for driving the desire to eat. Sadness and anger drive loss of control and send people looking for food. And it works. A cookie does temporarily provide relief, but of course the feeling comes back. It's not this way for everybody, just conditioned overeaters, whose drive for reward becomes even harder to control because the eating does relieve the emotions.

Some people also eat for relief from anxiety. Some eat to quiet "transition emotions", or the feeling you get when something is over and you aren't yet immersed in the next thing. Of course, the effect is very brief. The next cue will lead to more eating and a spiral of wanting.

"Feeling deprived only increases the reward value of food." p. 156. In order to break the habit of overeating, Kessler says you need to understand the functions of the brain, what drives conditioned hypereating and figure out what you can eat without triggering the reward-based behavior that leads to habit.

Salience – it's important to understand that the brain pathways that helped us survive by making us pay more attention to things in our environment that related to survival – salient stimuli-- are the same pathways captured by highly stimulating foods.

On the question of nature versus nurture: it depends on which study you look at whether nature or nurture has the greater influence, but it's clear that both genetics and the environment you grow up in play a role. Though the research is inconclusive, one point is clear. A vulnerability in one's genes can only express as hypereating in the presence of highly rewarding foods. p. 168.

Children

Patterns of conditioned hypereating are showing up at younger and younger ages. A healthy child will compensate later if at some point in the day they eat more than they need. But research on children using high calorie foods and beverages is showing that the natural capacity to compensate declines with age. There is also a trend toward loss of control, that is, children are increasingly eating and eating until some external mechanism shuts it off (like an adult removes the food).

Availability

Food is available in most places around the clock. Consumption is promoted by the breakdown in the structure of mealtime and the increasingly blurred lines between snacks and meals. Previously, families sat at the table and ate meals together. Only growing children ever had snacks. Adults just didn't have them. Even among the French, with their reverence for savoring meals at tables, the trend is toward a breakdown in meal patterns; their incidence of childhood obesity is rising.

Elements of Treatment

1. Reduce exposure to cues and triggers because it's harder to stop yourself once exposed (for example, drive a different way so you don't pass the doughnut shop).
2. Understand that you do have a moment of choice once exposed to a stimulus, but ONLY a moment, to recognize you are being cued and to choose to do something else. Kessler calls this an "invitation to the brain".

3. Understand that old habits don't go away, you just learn a new habit on top. This means accepting we can't cure the vulnerability but we can learn to manage it effectively.
4. It's hard in the beginning, but it gets easier to alter your reactions to stimulation.
5. A sense of powerlessness is a big obstacle to success.

You need to develop a sense of your own capacity for control. p.188.

There are five components to gaining control over eating: awareness, competing behaviors, competing thoughts, support, emotional learning.

Awareness: catalogue all the stimuli that lead to overeating: sensory signals, stressful situations and forceful memories.

Competing Behaviors: Change routines. Take a different route. Plan a different response to cues. Operate more from the decision-making part of your brain than the part that makes automatic choices.

Competing Thoughts: Use words, change the script. In stead of, "I'll just have a bit or two," try "I know a bite will lead to 20".

Don't' think about the pleasure but how you'll feel 5 minutes after eating it.

Support: Be careful from whom you seek support. Social networks can work either way, pull you into behaviors that include eating more or eating less.

Knowing the right behavior is not enough. You have to have a plan to deal with all the stimuli in the environment. Rely on rules, not will power. Will power pits stimulation against determination to resist and causes a lot of discomfort. p 191.

Rules are guided by higher brain function and displace unconscious action. The easiest ones to follow are categorical ("I don't eat gluten" as opposed to "I try not to eat much bread.") They don't leave wiggle room.

Have action plans. Give yourself credit each time you do the plan – like take a different route, avoid the doughnut shop. Good experiences accumulate. If the brain knows no reward is coming, it will occupy itself in another way (rather than anticipation and desire). Over time, following your own rules will carry its own reward.

Deal with euphoric recall (selectively remembering only the reward, not the consequences) by “playing the tape” to the end. (“I can’t wait to tuck into that chocolate cake; that was the best frosting I ever ate. And in 10 minutes I’ll regret all the calories and before long I’ll feel bloated and disgusting.”)

Food Rehab

These principles of food rehab were taken verbatim from the book, page 206.

- * Conditioned hypereating is a biological challenge, not a character flaw. Recovery is impossible until we stop viewing overeating as an absence of willpower.
- * Treating conditioned hypereating means recognizing it as a chronic problem that needs to be managed, not one that can be completely cured.
- * Every time we act on our desire for sugar, fat, and salt, and earn a reward as a result, it becomes harder for us to act differently the next time. Effective treatment breaks the cue-urge-reward-habit cycle at the core of conditioned hypereating.
- * The loss of control that characterizes conditioned hypereating is magnified by diets that leave us feeling deprived.
- * New learning can stick only when it generates a feeling of satisfaction. We can’t sustain a change in behavior if it leaves us hungry, unhappy, angry, or resentful.
- * Restoring control over eating requires us to take a comprehensive approach, one that has many interlocking steps. To gain the upper

hand, we need strategies that address the multiple behavioral, cognitive, and nutritional elements of conditioned hypereating.

* Lapses are to be expected. Most of us are never fully cured of conditioned hypereating. We remain vulnerable to the pull of old habits, although with time and the rewards that accompany success, they do lose some of their power. With practice, we can find ways to use “slips” to our advantage, as tools for recognizing where we might stumble and reminders of the need to develop new learning.

* Eventually, we can begin to think differently about food, recognizing its value to sustain us and protect us from hunger and denying it the authority to govern our lives.

Things to Know

A “just right” meal holds hunger away for about four hours.

For most people, protein is the most satiating. p. 213

High fiber foods are fairly satisfying. Fat is more complicated; it can be satisfying or it may cause problems when combined with salt and sugar.

Sugars and foods from refined carbohydrates have no carrying power.

Since you can't abstain from food, the only option is harm reduction. Kessler sees this as a means of avoiding sense of deprivation. The key is to allow only the treat foods you can control -- maybe biscotti or frozen yogurt or a small piece of chocolate. If it's not something you can control, there is no room for it in your structure.

Seizing Conscious Control

- * Pay attention to signals from your body.
- * Name how you feel.
- * Ask “Will eating this truly help me deal with this feeling?”

- * Be prepared with alternate responses like walking around the block or calling a friend.

From page 219, getting out of the path of cues:

- * Figure out what leads to overeating, what hijacks your behavior. Be especially alert to the power of location.

- * Refuse everything you can't control and avoid eating with friends whose habits set your eating spiral in motion.

- * Have an alternate plan, a different route.

- * Limit your exposure, as in social situations where you're just around food too long. Go somewhere else.

- * Remember the stakes, remember how you feel after.

- * Direct your attention elsewhere and crowd out cue-generated responses.

- * Learn active resistance. Reframe well intentioned gestures as hostile. It's OK to get angry at the marketing and advertising strategies that pull you in.

Dealing with Urges, p. 221

Industry tactics are reinforced by new social norms. Appealing to the senses, advertising, and availability are stacked against you, along with the recent cultural permission to be eating all the time.

There are many techniques to try:

- * Thought stopping, like simply changing the channel. You have to do it fast once cued or you miss your chance.

- * Conditioning cues with negative associations. "If I eat this, how will I feel about myself in 10 minutes?"

* Talking down the urge. Find the talk down logic that works for you, for example: Eating this will keep me trapped. I'll weigh less tomorrow if I don't eat this.

*Use physical exercise as an alternate reward.

Long term success includes avoiding certain traps, like becoming obsessed with food.

Kessler recommends that we fight back with an attitude similar to that taught at AA: Your disease is not your fault, but you are stuck with the responsibility of changing your behavior. The key to success is to stop making automatic choices and start eating in a planned and controlled way. It's something we can practice and we can get better at it. Some day, new social norms reinforcing smaller portions will evolve, but for now, we each have to set and follow our own rules.