



Sylvia R. Karasu M.D.
The Gravity of Weight

Food Cravings: Those "Torments of Expectation"

"Subdue your appetites, my dears and you've conquered human nature."



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Charles Dickens postage stamp from Dubai.
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In chapter five of Charles Dickens' *The Life and Adventures of Nicholas Nickleby*, Nicholas observes the brutal schoolmaster Wackford Squeers: "Smacking his lips" in obvious enjoyment, Squeers "calmly" breakfasts on milk, bread and butter, and beef while he cruelly tantalizes his five young charges who watched him eat and "remained with strained eyes in torments of expectation." "Speaking with his mouth quite full of toast and beef," Squeers says to these starving little boys, "Subdue your appetites, my dears and you've conquered human nature." This vivid depiction is about abject hunger and the unfortunate mistreatment of unwanted children, but Dickens' phrase "torments of expectation" made me think of the intense desire or yearning people commonly experience with food cravings.

What differentiates food cravings from ordinary hunger, though, is their particular specificity and intensity (Meule and Kubler, *Eating Behaviors*, 2012). The word "craving" comes from Old English *etymological roots*, "to demand" or "require." It denotes an urgent desire or longing and even may

connote "to force or exact," according to the *Oxford English Dictionary (OED.)* The *biological roots* of cravings, though, are less well understood.



Pregnancy is common time for cravings among women. Source: istock.com, Zwolafasola, used with permission

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Food cravings, from an evolutionary perspective, can be seen as beneficial as they may lead to an interest in and search for a variety of foods (i.e., food seeking) and hence to a greater tendency to meet our body's nutritional requirements, particularly in times when resources were scarce. Carbohydrate craving, in particular, "appears to be part of a biologically conducive system...to sustain life," say Ventura et al, in a comprehensive review article (*Nutrition*, 2014) that explores five theories for the neurobiological basis of carbohydrate cravings. These researchers note that there is speculation that the wanting and liking of food evolved separately. The "like" aspect is reflective

of a food's palatability and the hedonic or pleasurable aspect of eating that stems from the opioid system. The "want" aspect reflects a motivational desire to obtain food and is dopamine-driven. Mela (*Appetite*, 2006) distinguishes not only liking a food from desiring (craving) it now or in the near future, but also from preference, i.e., comparison and selection of food from alternative choices.



Chocolate is most commonly craved in U.S. Source: looby/iStock.com/used with permission

Hormes and Rozin, in a 2010 issue of *Addictive Behaviors*, note that not all languages have a concept of "craving." In our culture, though, almost everyone has cravings for certain foods now and then. Cravings are more common in women generally and may exhibit a cyclic pattern during the days prior to menstruation or during certain stressful times such as pregnancy. Studies by Hormes and her colleagues (2014, *Appetite*) have found that chocolate (which typically has fat and sugar as well as chocolate in various proportions of cocoa itself) is the most craved substance especially among women in North America, but not necessarily worldwide and conclude that chocolate craving may be a "culture-bound syndrome." These researchers have found that

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U.S. women are more likely to think of chocolate as both "pleasurable and forbidden"

simultaneously, and they found that there were differences between men and women in their study: women were more likely to have more frequent and intense cravings and have heightened responsiveness to the food environment than men. Men reportedly are more apt to crave savory foods. Hormes et al conclude, "...although physiological or biochemical hypotheses regarding the reasons for craving are appealing, individual and contextual factors appear to play a more significant role." Restricting intake can lead to increases in cravings, and cravings can be conditioned by particular cues of sight or smell. Advertisers (and restaurants) use this to our disadvantage when they use overt or covert images of delicious-looking food to instill cravings in their customers.

Food cravings are typically considered benign, particularly when contrasted with cravings for alcohol, drugs of abuse, or cigarettes, though some people may experience guilt when they succumb to their cravings. Furthermore, cravings can become out of control and have been connected to less dietary restraint in general, disordered patterns of eating, and more specifically, binge eating disorder and even obesity. They have also been associated with those who report higher levels of so-called "food addiction," a controversial concept developed and measured by the *Yale Food Addiction Scale* of Gearhardt and her colleagues (2009, *Appetite*).

In their 2014 article in the journal *Frontiers in Psychiatry*, Potenza and Grilo note that though often thought of in terms of drugs or alcohol, as well as food, the concept of craving entered psychiatric nomenclature as a criterion for addiction (i.e., the uncontrolled, compulsive seeking and use of a substance despite negative health and social consequences) only in our most recent *Diagnostic and Statistical Manual (DSM-5)*. DiLeone et al (2012, *Nature Neuroscience*) describe drug addiction as 'hijacking' the reward pathways in the brain. They acknowledge that there are similarities in compulsive food seeking and drug addiction, but "important pieces of the story are still missing" and "we have a greater understanding of the detailed neural and behavioral basis of drug intake and seeking than we do of food intake and seeking." There are also clear differences: after all, we cannot be completely "food abstinent." Craving has been studied by neuroimaging, and the anterior cingulate cortex (ACC), an area related to reward and cognitive control seems one (of many areas) to be implicated, but as Wilson and Sayette explain in a 2015 issue of *Addiction*, "intensity of the urges matters." Brain responses during MRIs require further study as they are often done during only mild states of desire rather than the "overpowering desire" such as when a person cannot think of anything else.

Bottom line: The concept of craving, whether for particular foods or substances of abuse, is a complex one that needs "further refinement." (Wilson and Sayette) "Subduing your appetites," as Dickens wrote, may lead to conquering human nature. There are, however, neurophysiological variables as well as those involving measurement, definition, and even culture to understand before we can do so.

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About the Author



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In Print: *The Gravity of Weight: A Clinical Guide to Weight Loss and Maintenance*

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