

### **Cravings What Are They?**

Food craving is defined as an intense desire to eat a specific food that is difficult to resist.

It may be distinguished from the sensation of hunger, which can be relieved by consumption of nonspecific foodstuffs. A craving is one of four components of addictive behaviour. Some scientists believe that an addiction to a particular food or foods is plausible because brain pathways that evolved to respond to natural rewards (e.g. food) are also activated by illicit drugs (Avena et al., 2008). Indeed MRI scans show that the same parts of the brain that are involved in illicit drug addiction are also involved in food 'cravings', namely the hippocampus, insula and caudate (Pelchat et al., 2004). Other scientists though, believe the majority of self-reported cases of food addiction should not be viewed in that way (Rogers and Smit., 2000)

Sugar is a substance singled out as highly likely to have addictive potential due to the release of opioids and dopamine (Avena et al., 2008). Evidence from animal studies, examining the four components of addiction (bingeing, withdrawal, craving and cross-sensitization), shows that under certain circumstances neurochemical changes occur in the brain, that also occur with addictive drugs, causing sugar dependence (Avena et al., 2008). They describe changes in dopamine and opioid receptor binding, enkephalin (an opioid-like neurotransmitter) mRNA expression and dopamine and acetylcholine release in the brain.

These findings are supported by the earlier work of Mercer and Holder (1997) who examined research in various clinical conditions (e.g. pregnancy, menstruation, bulimia, stress, depression) which are associated with altered endogenous opioid peptide (EOP) levels, intensified food cravings, and increased food intake. Specifically, they argue that altered EOP activity may elicit food cravings which in turn may influence food consumption.

In the popular press and on dieting websites, cravings are reported to last anywhere from 4 to 30 minutes (i fit and healthy, 2008) (Environmental Nutrition, 2001) (Missico, 2004). No evidence, from the scientific literature, has been uncovered to support the claims made about the duration of cravings.

We may perceive cravings as being behavioural or entirely emotional but there is good evidence that physiological and hormonal changes in the body may also contribute to food cravings. The physiological effects of low blood sugar and/or stress are linked to food cravings by many who have examined the phenomenon.

### **Cravings and blood sugar levels:**

When the level of sugar in the blood drops, there is a tendency to crave foods which replace blood sugar quickly (hence the 'sweet tooth'). However, the rise in blood sugar caused by eating these foods is relatively short lived, and before too long blood sugar levels plummet and thus the cycle of craving begins again.

The key to keeping blood sugar levels more stable is regular meals and snacks including more foods with a low or medium glycaemic index. These foods replenish blood glucose levels more slowly and the effect lasts longer – so no more blood sugar highs and lows which mean less cravings.

### **Cravings and serotonin:**

Serotonin is the brain's happy hormone – inducing feel-good emotions. Serotonin is manufactured in the brain from an amino acid called tryptophan, which is found in foods like meat, fish, dairy products, eggs, nuts and seeds. Vitamin B6 (also found in meat and fish) is

**GDA**Guru.com does not accept responsibility for the adequacy or accuracy of this information. Copyright GDAGuru.com 2009. All rights reserved. No copying, downloading, publishing or republishing without written permission from GDAGuru.com. authorised representatives. Full details of GDAGuru.com licence details are at <http://gdadiet.com/factsheets/ndb3bdcad2e42fb0fd8306cf93578cf4/>

required to manufacture serotonin from tryptophan. Finally glucose, present in the blood, is required to transport tryptophan into the brain – which enables serotonin production to take place. If blood glucose levels are low, less tryptophan will enter the brain and be converted in to serotonin. Thus when blood glucose levels are low, mood might also be low due to low serotonin production. Again low blood glucose levels can trigger cravings for foods which raise blood glucose levels quickly and start the chemical and hormonal cascade of serotonin manufacture. This phenomenon has been observed in type I diabetes during a hypoglycaemic episode (Strachan et al., 2004).

**More research:**

The neurochemical changes in the brain reported by Avena et al (2008) are supported by the earlier work of Mercer and Holder (1997) who examined research in various clinical conditions (e.g. pregnancy, menstruation, bulimia, stress, depression) which are associated with altered endogenous opioid peptide (EOP) levels, intensified food cravings, and increased food intake. Specifically, they argue that altered EOP activity may elicit food cravings which in turn may influence food consumption.

A study of 108 female dieters found that there was no relationship between dietary restraint, oestrogen levels and the number, frequency or types of food cravings (Rodin et al., 1991). Whilst an earlier study by Bancroft et al., (1988) found that craving was affected by stage of the menstrual cycle but not by mood. Another study confirmed chocolate as the most commonly craved food during menstruation, the craving of high or low carbohydrate foods was not affected by the stage of the menstrual cycle (Tomelleri et al., 1987).

Seeing media images of chocolate, increases the craving for chocolate, but only in women who are dieting (Fletcher et al., 2007). The researchers suggest that dietary restriction increases desire for forbidden foods, in the form of craving, and may induce negative affect such as guilt, anxiety and depression (Fletcher et al., 2007). Whether media images of chocolate caused women to act on increased cravings was not measured.

In a small study of 15 women with bulimia nervosa, cravings leading to a binge were associated with higher tension, lower mood and lower hunger than those cravings not leading to a binge (Waters et al., 2001). These findings fit well with the low blood sugar and serotonin theories proposed earlier.

The most commonly craved foods by women are chocolate (Pelchat, 1997; Rodin et al., 1991), sweets (Pelchat, 1997) and ice-cream (Rodin et al., 1991).

Three studies of the eating patterns of over 150 obese subjects have shown that carbohydrate craving occurred at specific times, that is, at 4 p.m. and 9 p.m (Wurtman, 1988). A later study by Pelchat (1997) also confirmed that cravings tended to occur in the late afternoon and early evening.

A number of studies, some reporting anecdotal evidence, have found that cravings decline with increasing age (Pelchat 1997).

A study of overweight women confirms that blinded consumption of a carbohydrate beverage improved mild dyphoric mood more so than a protein-rich energy matched beverage (Corsica and Spring 2009).

Taking a 15 minute walk reduced chocolate cravings and attenuated the urge to act on those cravings following 3-days of abstinence in habitual chocolate eaters (Taylor and Oliver, 2008).

Many anecdotal reports support the theory of dieting and food avoidance/restriction causing an increase in food cravings, especially for the restricted food. This theory is dispelled by Harvey et al., (1993) who found that a balanced low calorie diet (1000-1200 kcals) including all foods and a very low calorie diet (400kcals per day) including only lean meat, poultry and fish had no effect on cravings for restricted foods. A later study by Martin et al., (2006) also arrived at the same conclusion.

**Bibliography:**

Environmental Nutrition. (2001, Sept). Are food cravings all in your head? Retrieved Nov 15, 2008, from [http://findarticles.com/p/articles/mi\\_m0854/is\\_ai\\_n18612338](http://findarticles.com/p/articles/mi_m0854/is_ai_n18612338)  
i fit and healthy. (2008, Jan 18). How long do food cravings last. Retrieved Nov 15, 2008, from <http://ifitandhealthy.com/how-long-do-food-cravings-last/>