

## Additional Factors in Overweight Syndrome

### Types of Foods Are Linked to Addictive Brain Centers

A number of studies have identified an activity center located in the forefront of the brain called the *nucleus accumbens* that is linked with the “drug high” from people addicted to cocaine, amphetamines, nicotine and other addictive substances. Stimulation to receptors in this center in the brain are instrumental to the release of high levels of opioids (natural morphine-like substances) as well as dopamine, a neurochemical identified as the motivating force behind drug-seeking urges.

In addition to harmful drugs, that taste of certain foods such as sugar, fat, ice cream, cake also stimulate this brain center to produce opioid compounds, forming the pleasure reward of junk food eating. Food binging is also a stimulus to this pleasure-center, as the release of dopamine and opioids all at once is similar to receiving a small injection of amphetamine and morphine. To verify that taste was the stimulus, rats fed saccharin (no calories or fat) showed the same results.

### Stress Triggers Other Cravings

Researchers have found that stress can trigger the consumption of high-starch foods like pasta, potatoes, and bread, which, in turn, stimulates the release of serotonin, a mood hormone that induces a happy, relaxed state of being. In similar fashion, dairy products contain L-tryptophan – an amino acid that our body converts into that same feel-good biochemical serotonin, which gently eases tension and anxiety and promotes feelings of wellbeing.

### Even a Small Reduction in Blood Sugar Has Significant Benefits

High blood sugar levels are a crucial symptom of type 2 diabetes, insulin resistance and metabolic syndrome, along with medical complications leading to heart disease, kidney failure, blindness and amputations. And the obvious source of elevated sugar levels comes from bad food intake – sweets, heavy starches, alcohol and sugary sodas.

Now new findings from the *University of Washington* in Seattle offer strong encouragement for the benefits of reducing blood sugar (hemoglobin A1 C) readings. In a study of over 4,700 diabetics aged 18 years and older (published in the *Journal of the American Medical Association*) has found that those who lowered their readings (consistently over one year) by only one percentage point saved between \$685 to \$950 in medical costs over two years time! This is due to these patients (who kept their hemoglobin A1 C stable) had fewer doctor visits, fewer hospitalizations or emergency room visits. For those patients who did not lower the 1% mark, they experienced more complications such as stroke, heart disease and foot ulcers. These results underscore how improvements in glycemic control through diet and exercise are literally life saving and also improve the quality of one’s life.

### Visceral Fat, Inflammation and Percentage of Body Fat

Additional research regarding visceral fat expands what was previously reported (See *Deadly Dangers of Fats and Sweets*). New research published in the *American Journal of Clinical Nutrition*, details how scientists found that individuals (specifically women) who are not overweight yet possess over 30% body fat, showed dangerous low-level inflammation levels.

While obese and overweight women did exhibit the highest negative readings – levels of inflammatory chemicals, LDL (“bad”) cholesterol, and triglycerides (a type of blood fat) – women with body fat over 30% (but were not overweight and had normal body mass index), did show elevated levels of inflammatory chemicals, which are associated with heart attacks, arthritis and other serious conditions. Providing more incentive to reduce body fat for a long, healthy life.

### **Social Stress Linked With Overeating and Gain Weight**

Scientists at the Center for Behavioral Neuroscience at Georgia State University conducted experiments using Syrian hamsters (which are normally solitary) and induced social stress by subjecting them to live in a group environment. As part of a study on stress-induced obesity, the researchers are using this tactic to explore the complex factors that cause people to eat when under stress. The study was not looking at why people overeat due to food cravings, etc., rather it is specifically focusing on the usual stress people encounter each day (termed non-traumatic stress) like getting caught in traffic jams or struggling to complete a large work project, which is considered more difficult to control.

In the experiment, subordinate hamsters are forced to suffer a “social defeat” by a dominant hamster, then the subordinate subjects are monitored to determine if social defeat increases food intake, body weight and body fat. The results showed that the stressed hamster ate significantly more, gained more body weight and more visceral fat. These outcomes happened when the subordinate hamsters were placed in the foreign cage as little as four times (totaling 28 minutes) over the 33-day experiment. In addition, some subordinate hamsters were placed in foreign cages at random times and they showed the most overall weight-fat-gaining results. Illustrating that in both hamsters and humans, unpredictable stress events produce greater aversive reactions causing larger changes in homeostasis (natural balance) and higher stress levels. These results also verify that cortisol stress responses are directly linked to increases in belly fat.

*(Social defeat increases food intake, body mass, and adiposity in Syrian hamsters, published in the American Journal of Physiology-Regulatory, Integrative and Comparative Physiology.)*

### **Night Eating Syndrome Due to Stress**

New research has found that night eating syndrome – identified through a lack of appetite in the daytime, insomnia and increased appetite at night – may be triggered by an abnormal response to stress, not hunger.

It seems that night eaters under stress exhibit a different hormonal pattern than the rest of us. In one study, published in the *American Journal of Physiology-Endocrinology and Metabolism*, monitored the stress hormone secretion patterns in five women night eaters and another five women (without the condition) as a control group. They injected the night eaters with 100 micrograms of corticotrophin-releasing hormone (CRH). After the injection, the night eaters showed a gradual increase in their stress hormones. Meanwhile the control group following the same injection showed a rapid, high increase in stress hormones (the normal response).

These findings point to an abnormally disturbed relationship between the adrenal glands (which release cortisol stress hormone), the hypothalamus (containing the appetite center) and the pituitary (source of many hormones) that is out of balance. More study is needed to understand how to correct this dysfunctional pattern.

### **Chemical Pollution**

Research suggesting that exposure to synthetic chemicals like gaseous pollutants, pesticides, dyes, perfumes, plastics, resins and solvents and chemical additives that we swallow, inhale or absorb through the skin can cause extra weight gain. As we all are aware that our daily life is filled with harmful by-products that we are constantly exposed to, there is an underlying need for compensation not only with proper diet and sufficient exercise, but also with employing stress relief techniques that prevent excess cortisol surges and protect your body from the ravages of the modern world we live in.