



# Wellness News Network™

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## Hormones, Exercise and Weight Loss

Presented by: **Total Health Systems**

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Someone once said: “I keep trying to lose weight.... but it keeps finding me!” Certainly one of the most frustrating aspects of weight loss is that after you reach your goal, you often find it difficult to maintain your new weight. This seems to be especially true for those who are defined as obese. According to medical research, approximately 80 percent of obese people who drop pounds are unable to sustain their reduced weight. Scientists believe hormones play a key role in both weight reduction and weight gain.

### Hormones: Loss and Gain

In a study published in the New England Journal of Medicine, 50 overweight or obese patients underwent a 10-week low energy weight loss program. After the diet, they were found to have an increase in appetite-producing hormones and the levels of these hunger hormones remained consistent for a year after the initial weight loss. This result is believed to be a main reason why it is difficult for people to maintain their reduced weight level, as study participants regained about 11 pounds (5 kgs) within a year.<sup>1</sup>



One of the most studied hunger hormones is ghrelin, which is produced in the stomach and stimulates appetite. Scientists presented interesting research at the Endocrine Society’s 92<sup>nd</sup> Annual Meeting. In their study, the researchers administered either a salt water (placebo) injection or a ghrelin hormone injection to a small group of healthy adults – none of whom knew which type of injection they received. The study participants were shown pictures of high calories foods (chocolate, cake, pizza) and low calorie foods (salads, vegetables, fish). The participants who received ghrelin hormone injections were more likely to rate high calorie foods as appealing than those who received the placebo injection.<sup>2</sup>

Another study published by the Endocrine Society revealed the amount of appetite hormones present in the body prior to dieting may be vital to predicting the likelihood of dieters’ regaining weight. Scientists measured body weight and appetite hormone levels on a group of participants before, during and after dieting. Those study subjects who had higher plasma levels of leptin and lower levels of ghrelin before they started the diet were more likely to regain weight.<sup>3</sup> This knowledge could be used to develop better techniques to treat post-diet weight gain.

### QUESTION:

**Which of the following hormones increases hunger?**

- A) Peptide YY
- B) Ghrelin
- C) Estrogen

### ANSWER:

B) Ghrelin

### TRUE OR FALSE:

**Weight loss may actually increase pro-hunger hormones**

### ANSWER:

True

### QUESTION:

**People injected with ghrelin hormones found...**

- A) High calorie food more appealing
- B) Junk food nauseating
- C) Food had no flavor

### ANSWER:

A) High calorie food more appealing

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However, appetite hormones may have a much wider impact than just promoting or suppressing hunger. They may actually impact neurological disorders.

Scientists at UT Southwestern conducted investigations that showed the hormone ghrelin may actually reduce symptoms of stress-induced depression and anxiety. When a person is hungry, his or her body produces more ghrelin and this could explain why some people eat more when feeling overwhelmed or sad. Scientists used two types of mice in the research. A test group of mice that were put on a calorie restricted diet displayed lower levels of anxious or depressive behavior when exposed to stress - such as navigating mazes. Another group of mice also had a calorie restricted diet but they had been genetically engineered not to respond to ghrelin. The genetically altered mice showed higher levels of anxiety and depression when exposed to stress.<sup>4</sup>

## Orexin Spurs Fat Burning

The brain-produced hormone orexin may provide an alternative way to treat obesity. Instead of controlling appetite, orexin appears to help a type of body fat, known as brown fat, to burn calories. Obese people are often deficient in orexin.

Researchers conducted experiments on mice and discovered a group of overweight mice that were orexin deficient actually ate less than a group of normal weight mice. This leads to the theory the overweight mice were heavier because of inefficient burning of calories rather than overeating.<sup>5</sup>

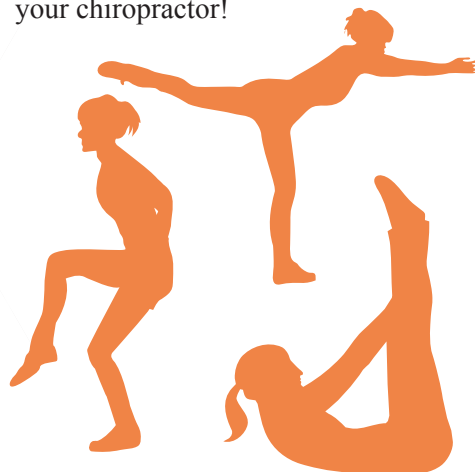
While the results are promising, the research has only been conducted on rodents. Human trials would need to happen before any orexin treatments could become available.

## A Powerful Ally to Battle Hunger

While some hormones may make losing weight and keeping it off a challenge, you do have a friend in this hormonal battle: exercise.

A study that appeared in *AJP Regulatory Integrative and Comparative Physiology* indicates aerobic exercise seems especially beneficial because of its influence over the appetite hormones ghrelin (promotes hunger) and peptide YY (suppresses hunger). The test subjects participated in both treadmill running and weight training but at different times. Researchers tested the participants' levels of appetite hormones and found that after the aerobic treadmill exercise participants had lower amounts of ghrelin and higher amounts of peptide YY. After the strength training session, the researchers discovered only levels of ghrelin were affected.<sup>6</sup>

Need advice on exercise? Talk to your chiropractor!



## Quote to Inspire

*"The one way to get thin is to re-establish a purpose in life."*

*Cyril Connolly*

## References and sources:

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