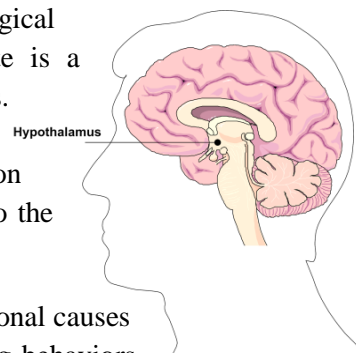


## Insight on Appetite Control

Understanding the difference between hunger and appetite and how to control the latter is a key component to weight management. Hunger is a physiological perception of energy needs directly regulated by the brain while appetite is a physiologically-driven, but psychologically-based perception of energy needs.

When hunger is not properly managed, appetite will present itself and greatly increase the risk for overconsumption of calories as the psychological perception of energy needs typically outweighs true needs. Appetite is essentially tied to the old adage, “he ate with his eyes and not with his stomach”.

Regulatory Center for Hunger



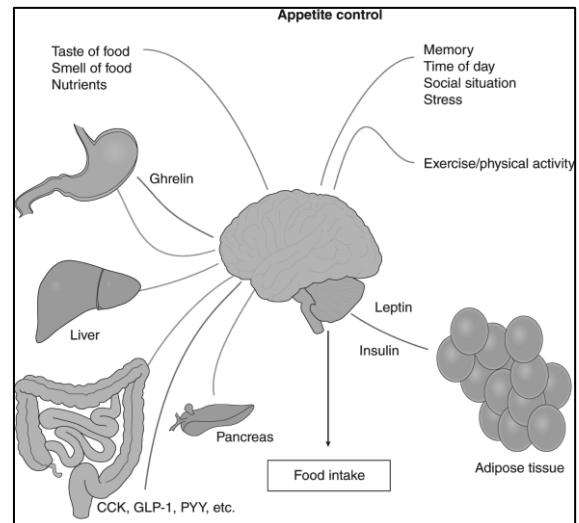
Therefore, personal trainers must identify and help clients recognize their personal causes for psychologically-triggered eating. It is well known that appetite and eating behaviors are centrally regulated by the hypothalamus via the reception and processing of hormonal and neural signals within the body; understanding these factors may (in part) help an individual develop strategies to properly manage eating behaviors.

There are numerous hormonal factors that can have a part to play in the influence of eating behaviors throughout the day. First off, there are various hormonal signals released from the gastrointestinal (GI) tract itself. These hormones are released in response to feeding to regulate appetite and subsequent nutrient consumption via the sensation of satiety/satiation. Examples of hormones released from the GI tract include cholecystokinin (CCK), glucagon-like peptide (GLP-1) and peptide YY (PYY). Secondly, endocrine signals are released from specific glands/organs throughout the body. For instance, the stomach produces ghrelin to stimulate hunger before eating a meal; after meal consumption the hormone returns to baseline concentrations to reduce perceived appetite. Ghrelin is often referred to as the “hunger hormone” as high levels are found among individuals in a fasting state. Other organs that also have a subtle influence on food intake include the liver, pancreas and intestines.

Hormonal signals from adipose tissue have a relatively greater influence on food intake. Insulin dynamics can significantly impact satiety and the quantity of food ingested during a given meal. Leptin, also referred to as the “starvation hormone”, is released from storage fat to expedite nutrient consumption when in a negative caloric balance long enough to notably increase lipolysis. When blood glucose and energy storage in adipose tissue are re-established via appropriate nutrient intake, leptin signals the brain to reduce appetite and resume normal metabolic processes. A few examples of these include (1) normal food consumption to satisfy hunger rather than overconsumption to indulge appetite, (2) engagement in exercise without the promotion of notable catabolic effects and (3) anabolic processes such as tissue growth.

The following neural-driven factors are understood to exert the strongest relative influence on eating behaviors; trainers should be sure to educate clients on these variables:

- Memory
  - Certain memories may promote emotional eating or stimulate appetite due to an association with food
- Social situations
  - Parties or other gatherings where food is an integral component of the entertainment often drives the desire to eat more than necessary
- The time of day
  - A person may be inclined to eat because it is “dinner time” even when they do not need calories at that time
- Stress
  - Stressful situations may cause a “hyperphagic-like” response in some individuals even though clinical hyperphagia is frequently caused by damage to the hypothalamus itself
- Taste or smell of food
  - Stimulation of the senses quickly increases appetite if deemed desirable; many restaurants employ this knowledge by allowing potential customers to smell what is being prepared outside of the building
- Nutrient content in a given meal
  - Savory and sweet foods tend to create pleasure responses in the brain to promote extra consumption
- Exercise or physical activity
  - May or may not promote hunger or appetite based on a number of variables



As seen above, exercise or physical activity in itself can impact perceived hunger or appetite. Research shows that this impact can be dictated by the intensity, duration and/or mode of training. High-intensity exercise does appear to suppress appetite for a short period following a training bout, but does not reduce daily caloric intake long-term. The training duration can have an impact on perceived hunger, but only following (and during) long-duration, high-intensity exercise. Research suggests 60 min of training, or longer, working at an intensity equal to or greater than 70% of  $\text{VO}_2\text{max}$  is necessary to have this effect. As it relates to the training mode, treadmill running and cycling demonstrated no difference on appetite suppression, but anecdotal evidence seems to suggest that swimming increases appetite more than other activities. One specific study compared cycling submerged in cold (20°C) water with cycling in neutral-temperature (33°C) water; and the participants experienced heightened appetite from the cold conditions; suggesting that the training environment may also have a part to play.

Considering the above concepts, trainers should well understand that appetite and overconsumption of food can be driven by hormonal-, metabolic-, activity- and neural-based factors. Understanding the potential risk factors for appetite-driven overeating should be well complemented by practical strategies for tackling the problem. On that note, trainers should be familiar with the following practical tips to help manage healthy eating behaviors on a daily basis:

- Make sure to consume plenty of water
  - 64 ounces daily, plus 8-10 ounces per 15 minutes of activity
- Eat small meals and snacks throughout the day rather than 2-3 large ones
  - Grazing is optimal for maintaining blood glucose and optimizing fat use throughout the day
- Choose snacks that are high in fiber and protein (e.g., almonds with an apple)
- Don't shy away from heart-healthy fats (e.g., peanut butter and avocado)
- Plan your meals and snacks for the next day to ensure glucose balance, even during hectic schedules
- When cravings for unhealthy foods occur, engage in distracting activities (e.g., go for a walk, run an errand or calling a friend)
- Eat a small snack before going out to eat with friends or a social gathering that emphasizes food consumption