

Research shows that high intensity exercise increases neural responses in reward-related regions of the brain in response to images of low-calorie foods and suppresses activation during the viewing of high-calorie foods.

## The effects of high-intensity exercise on neural responses to images of food

Short bouts of intense exercise are known to suppress hunger through appetite regulating hormones. In a study published in the *American Journal of Clinical Nutrition*, researchers aimed to determine the effects of high-intensity exercise on central (brain) response to visual food stimuli.

The study included 15 healthy men of normal weight that completed two 60 minute trials: exercise (running at 70% maximum aerobic capacity) and a resting control trial. After each trial, images of high- and low- calorie foods were viewed and the brain response to the foods was measured using an MRI.

After the bout of exercise, thirst and core body temperature were increased while appetite response was significantly suppressed. Exercise significantly suppressed ghrelin (an appetite stimulating hormone) and enhanced the release of peptide YY (an appetite reducing hormone). When compared to the resting control, neural (brain) response in the brain's reward related regions were stimulated in response to viewing the images of low-calorie foods but suppressed upon viewing images of high-calorie foods.

This study shows that high intensity exercise increases neural responses in reward-related regions of the brain in response to images of low-calorie foods and suppresses activation during the viewing of high-calorie foods. These central responses are associated with exercise-induced changes in peripheral signals related to appetite-regulation and hydration status.

Daniel R Crabtree et al. The effects of high-intensity exercise on neural responses to images of food. *Am J Clin Nutr*. 2014 Feb;99(2):258-67