

The Effects of Exercise On Appetite

The effects of exercise on appetite have been a topic of intense debate over many decades. Interest in this area has increased since the turn of the century, with the discovery in 1999 of the appetite-stimulating (“hunger hormone”) ghrelin. This area has obvious implications for the role of exercise in maintaining a healthy weight and for inducing weight loss in those who are overweight and want to lose weight. Unfortunately, there is widespread misunderstanding about how exercise affects appetite. One such misconception is that exercise enhances appetite and food intake and thus undermines attempts to lose weight. This view is often propagated by the popular press (e.g., [TIME](#), 9 August 2009, “Why exercise won’t make you thin”).

In contrast to this widespread view that exercise increases appetite, most research suggests that vigorous exercise transiently suppresses appetite. Subsequently, appetite will return but this is usually not sufficient to fully compensate for the energy expended during exercise. However, most of the published research related to this idea has been conducted in males, and an area of existing uncertainty is whether males and females differ in their appetite responses to exercise. Indeed, the [ACSM 2009 Position Stand](#) highlights that there is a potential gender difference in the weight loss responses to exercise and calls for further research to clarify this issue.

Recent research, as reported in the [March 2016 issue of MSSE](#), actually consisted of two studies. One of these examined appetite responses to energy deficits created through diet or exercise. The results showed that appetite perceptions increase robustly when food intake is reduced - but not when energy expenditure is increased via exercise! In concert with appetite perceptions, we found that concentrations of ghrelin were higher during the food restriction trial than during the exercise trial. Furthermore, while concentrations of peptide YY (an appetite suppressing hormone) remained high throughout the exercise trial, these levels were low during the food restriction trial. Taken together, these hormonal responses suggest that food intake is likely to be greater when an energy deficit is created via food restriction than via physical activity. This tended to be reinforced when we observed the participants, as they consumed a buffet meal at the end of the trial days. These findings are consistent with our previous work in men.

In the second of those two studies, they directly compared appetite perception, appetite hormone and food intake responses to exercise in men and women – finding no gender difference in the responses. Appetite perceptions and ghrelin concentrations were reduced during a one-hour run and recovered shortly after the cessation of exercise. Food intake at a subsequent buffet meal did not differ between resting and exercise trials (i.e., exercise did not increase food intake) in either the women or the men.

These findings indicate that females do not respond differently to males in terms of appetite, appetite hormone or food intake responses, in response to energy deficits. This provides new

insight into the relationship between exercise and appetite in women and supports the role of exercise in weight management for both genders. This also substantiates findings published in the February 2013 issue of [MSSE](#) by other investigators, which demonstrated that exercise is a successful approach to weight loss in both men and women.

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