Regular physical activity helps with the regulation of appetite and control of food intake

It is widely known that regular physical activity is a vital component of a healthy lifestyle and weight management. Some studies suggest that regular physical activity is also beneficial for controlling appetite; however, the research has never been reviewed using a systematic protocol. We recently conducted a systematic research review on the appetite regulation differences between physically active and inactive individuals. We screened over 1000 research articles to find 28 that matched our research criteria of studies investigating appetite control, energy intake, and appetite-related hormones. The population of interest was healthy, non-smoking adults aged 18-64 years. The minimal standard used in the included studies for being ‘physically active’ was 150 minutes of moderate-to-vigorous exercise per week.

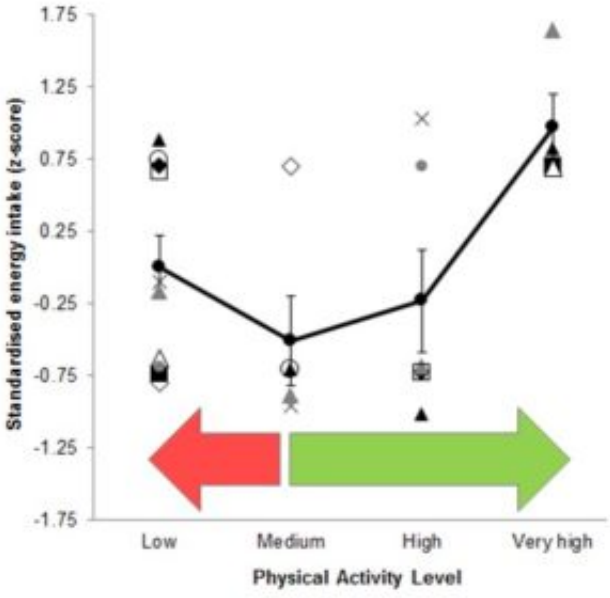

Fig. 1. Relationship between standardised energy intake and physical activity level. Black line represents the mean of the z-scores. Red arrow indicates that decreasing physical activity level leads to an overconsumption of food more than requirements, whereas the green arrow indicates that increasing physical activity level leads to an increase in energy intake to maintain body weight.

The main finding is that physically active individuals are better able to regulate their appetite according to their body’s energy requirements. This means their bodies can detect changes in calories in the foods they eat and adjust their future intake accordingly. For example, in a few studies included in the review, when given a high-calorie morning ‘preload’ snack, physically active individuals ate less during the remainder of the day than when given a low-calorie morning

'preload' snack. Conversely, inactive individuals ate the same amount after the 2 preloads. The more physically active the individual, the stronger this effect seems.

This can be shown by another finding where the relationship between physical activity level and energy intake (standardized scores) was found to follow a J-shaped curve (Fig. 1), where at the lowest levels of physical activity, individuals ate more than their requirements. As physical activity level decreases, so should energy intake, but there appears to be a dysregulation of appetite, leading to overconsumption of food. This suggests that individuals at the lowest level of physical activity are not as good at detecting changes in calories in the foods they eat. On the other side of the curve, as physical activity level increases, so does energy intake, illustrating that the more active you are, the better your body is able to judge how much you should eat to maintain your body weight.

The mechanisms for this 'fine-tuning' of appetite signals (e.g. hunger and fullness cues) are not fully known, but could include differences in body composition (active individuals had greater fat-free mass and lower fat mass) and appetite-related hormones between active and inactive individuals.

It is important to acknowledge methodological issues in the studies included within the review. All the studies did not assess energy intake and physical activity in the laboratory or with physical activity monitors, respectively; some relied on questionnaires, which are not as reliable. In addition, this review did not cover elite athletes or those who expend very high amounts of energy, so this relationship may not be applicable to these individuals.

To conclude, this review supports the theory that physical activity promotes better appetite control and this characteristic of active individuals could reduce the risk of overconsumption in an energy-dense food environment. Our research team is actively investigating this issue.

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Publication

Does Habitual Physical Activity Increase the Sensitivity of the Appetite Control System? A Systematic Review.
Beaulieu K, Hopkins M, Blundell J, Finlayson G
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