

## Abstract

Obesity is a major public health concern that has been associated with the consumption of a high-fat diet and physical inactivity. Recently, there has been debate as to whether or not exercise will actually promote or inhibit weight loss. While it is true exercise burns calories, it may also have a detrimental side effect of stimulating hunger. This introduces the concept of *caloric compensation*; meaning individuals consume enough calories after exercising to negate their caloric deficit created during exercise, and in some cases, consume enough calories to cause weight gain. Similarly, ongoing controversy exists as to whether increased fat consumption would provide additional energy for exercise, or simply make individuals more lethargic. Thus, the purpose of this study was to determine the effect of a high-fat diet on exercise quantity and to determine the effect of exercise on caloric intake. It was hypothesized that a high-fat diet would increase exercise quantity. Additionally, it was hypothesized that exercise would increase caloric intake. 30 male C57BL/6 mice were divided into either a sedentary (SED,  $n = 18$ ) or wheel-running (WR,  $n = 12$ ) group for 12 weeks. These groups were further divided into four weight-matched treatment groups. Of the 18 SED mice, 9 consumed a high-fat diet (HFD), while the other 9 consumed a normal chow (CON) diet. Of the 12 WR mice, 6 consumed a HFD, while the other 6 consumed a CON diet. The results of this study suggest that a trend exists in a HFD leading to decreased exercise quantity. Additionally, it was found that C57/BL6 mice do not compensate their caloric intake to offset the energy utilized during exercise.

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