Physical Activity and Weight Gain Prevention

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Context  The amount of physical activity needed to prevent long-term weight gain is unclear. In 2008, federal guidelines recommended at least 150 minutes per week (7.5 metabolic equivalent [MET] hours per week) of moderate-intensity activity for "substantial health benefits."

Objective  To examine the association of different amounts of physical activity with long-term weight changes among women consuming a usual diet.

Design, Setting, and Participants  A prospective cohort study involving 34,079 healthy US women (mean age, 54.2 years) from 1992-2007. At baseline and months 36, 72, 96, 120, 144, and 156, women reported their physical activity and body weight. Women were classified as expending less than 7.5, 7.5 to less than 21, and 21 or more MET hours per week of activity at each time. Repeated-measures regression prospectively examined physical activity and weight change over intervals averaging 3 years.

Main Outcome Measure  Change in weight.

Results  Women gained a mean of 2.6 kg throughout the study. A multivariate analysis comparing women expending 21 or more MET hours per week with those expending from 7.5 to less than 21 MET hours per week showed that the latter group gained a mean (SD) 0.11 kg (0.04 kg; \( P = .003 \)) over a mean interval of 3 years, and those expending less than 7.5 MET hours per week gained 0.12 kg (0.04; \( P = .002 \)). There was a significant interaction with body mass index (BMI), such that there was an inverse dose-response relation between activity levels and weight gain among women with a BMI of less than 25 (\( P \) for trend < .001) but no relation among women with a BMI from 25 to 29.9 (\( P \) for trend = .56) or with a BMI of 30.0 or higher (\( P \) for trend = .50). A total of 4540 women (13.3%) with a BMI lower than 25 at study start successfully maintained their weight by gaining less than 2.3 kg throughout. Their mean activity level over the study was 21.5 MET hours per week (≈ 60 minutes a day of moderate-intensity activity).

Conclusions  Among women consuming a usual diet, physical activity was associated with less weight gain only among women whose BMI was lower than 25. Women successful in maintaining normal weight and gaining fewer than 2.3 kg over 13 years averaged approximately 60 minutes a day of moderate-intensity activity throughout the study.

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