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Physical Activity Earlier in Life Is Inversely Associated with Insulin Resistance among Adults in Japan

Abstract

Background

It is well-known that people who are physically active are at a lower risk of mortality and morbidity related to ischemic heart disease, hypertension, diabetes, obesity, and osteoporosis. And it is known that physical activity affects glucose metabolism. However, there have been no reports on the influence of physical activity earlier in life on subsequent glucose metabolism. Therefore, we analyzed the influence of physical activity in earlier decades of life on insulin resistance in middle aged and older residents in Japan.

Methods

The subjects were 6883 residents of Okazaki City between the ages of 40 and 79 who underwent physical examinations at the Okazaki City Medical Association Public Health Center between April 2007 and August 2011. They gave informed consent for participation in the study. Data on individual characteristics were collected via a questionnaire and from the health

examination records. Fasting blood glucose and insulin levels were used to calculate the homeostatic model assessment of insulin resistance (HOMA-IR). HOMA-IR > 1.6 was considered to indicate insulin resistance for the purpose of logistic regression models.

Results

The study sample included 3683 men and 3200 women for whom complete information was available. For those who exercised regularly throughout their teens to their 30-40s, the odds ratio for having insulin resistance (95% confidence interval) was 0.75 (0.58–0.96) for men and 0.76 (0.58–0.99) for women after adjusting for other variables, including age, body mass index, and present physical activity. A linear trend was also observed in both men and women.

Conclusions

Subjects who have exercised regularly in the early decades of life are less likely to have insulin resistance later in life.