

Obesity

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AEROBIC EXERCISE IMPROVES INSULIN SENSITIVITY AND LIPID METABOLISM ARE ASSOCIATED WITH REDUCED BMI IN OBESE ADOLESCENTS

Chen Wei, Wang Yukuo, Zhaohuaen Hebei Normal University of Science and Technology, Hebei, China

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The association of obesity with insulin resistance has been recognised for decades. Obesity beginning in adolescents often precedes the hyperinsulinemic state. The hyperlipidemia are also present in adolescents. Aerobic exercise has been shown to be

beneficial to lipid metabolism and insulin sensitivity. The purpose of this study is to investigate the effects of aerobic exercise on insulin sensitivity and lipid metabolism in obese adolescents.

Methods Eight obese adolescents performed aerobic exercise five times per week over 6 weeks period at an intensity of approximately 75% of HRmax. All subjects took standard meals and routine of the day. The plasma levels of total cholesterol, triglyceride, glucose and insulin were measured before and after exercise.

Results Comparing before exercise to after exercise, the BMI went from 33.27 ± 5.63 to 30.07 ± 5.30 ($p < 0.01$), triglyceride went from 1.46 ± 0.53 to 1.04 ± 0.53 mmol/l ($p < 0.05$), the total cholesterol level went from 5.08 ± 0.70 to 4.10 ± 0.36 mmol/l ($p < 0.05$), the HOMA-IR went from 4.24 ± 0.46 to 2.73 ± 0.49 ($p < 0.01$) and two positive correlations were found in BMI and HOMA-IR ($r = 0.281$, $p < 0.05$), BMI and triglyceride level ($r = 0.726$, $p < 0.01$).

Conclusion Six weeks aerobic exercise program can improve insulin sensitivity and lipid metabolism in obese adolescents, the improved insulin sensitivity and lipid metabolism were associated with reduced BMI.