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# Aerobic interval training reduces cardiovascular risk factors more than a multitreatment approach in overweight adolescents.

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### Abstract

The aim of the present study was to compare the effects of a multidisciplinary approach (MTG) and aerobic interval training (AIT) on cardiovascular risk factors in overweight adolescents. A total of 62 overweight and obese adolescents from Trøndelag County in Norway, referred to medical treatment at St Olav's Hospital, Trondheim, Norway, were invited to participate. Of these, 54 adolescents (age, 14.0 +/- 0.3 years) were randomized to either AIT (4 x 4 min intervals at 90% of maximal heart rate, each interval separated by 3 min at 70%, twice a week for 3 months) or to MTG (exercise, dietary and psychological advice, twice a month for 12 months). Follow-up testing occurred at 3 and 12 months. VO(2max) (maximal oxygen uptake) increased more after AIT compared with MTG, both at 3 months (11 compared with 0%; P<0.01) and 12 months (12 compared with -1%; P<0.01). AIT enhanced endothelial function compared with MTG at both 3 months (absolute change, 5.1 compared with 3.9%; P<0.01) and 12 months (absolute change, 6.3 compared with 1.0%; P<0.01). AIT was favourable compared with MTG in reducing BMI (body mass index), percentage of fat, MAP (mean arterial blood pressure) and increasing peak oxygen pulse. In addition, AIT induced a more favourable regulation of blood glucose and insulin compared with MTG. In conclusion, the novel findings of the present proof-of-concept study was that 3 months of twice weekly high-intensity exercise sessions reduced several known cardiovascular risk factors in obese adolescents more than that observed after a multitreatment strategy, which was initiated as hospital treatment. Follow-up at 12 months confirmed that AIT improved or maintained these risk factors to a better degree than MTG.

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