Even when BMI Stays the Same HIIT Increases Aerobic Capacity

Exercise and a balanced and nutritious diet are key to a healthy lifestyle. A recent systematic review published examined the impact of high-intensity interval training (HIIT) on health in obese teenagers.

Study

The researchers searched four databases for randomized controlled trials (RCTs) on this topic. They focused on the impact of such exercise on body function in this group.

There were 11 articles that fulfilled the eligibility criteria, covering a total of 611 participants. They were classified as controls (283) and intervention groups (328), aged between 11 and 17 years.

The studies covered multiple continents, including Poland and Denmark in Europe, China in Asia, South Africa, the USA, and Brazil in South America. Some bias was observed; for example, allocation concealment was unclear in ~38% of studies, and smaller proportions showed performance bias, attrition bias, or reporting bias, partly due to small sample sizes, performance bias related to improper blinding, and attrition bias.

Small sample size could have introduced bias because of random errors and limited statistical power. Since the participants came from obesity clinics and schools, this could have contributed to heterogeneity in studies.

In the former case, close monitoring and expert consultants are the norm. In contrast, a more generally qualified training staff may lack the specialized training required for this specific group in the latter case. The geographical setting could also have contributed to differences in the standardization of HIIT protocols, whether due to local attitudes, scarcity of resources, or the lack of trained professionals.

Results

HIIT significantly reduced body fat percentage in obese teenagers, while improving VO2peak, a measure of aerobic capacity. This has been associated with better cardiovascular fitness, metabolic health, and insulin sensitivity.

High-density lipoprotein ('good' cholesterol) also increased with HIIT, while the systolic blood pressure decreased. Surprisingly, there was no significant reduction in the body mass index (BMI), perhaps because the gain in muscle tissue offset the reduction of fat mass in the body.

When the researchers examined the structure of the exercise protocols more closely, they found that HIIT performed twice a week was particularly effective. This frequency was linked with improvements in BMI, greater reductions in body fat percentage, and gains in aerobic capacity. The sessions included in the studies were 1–30 minutes or 30–60 minutes, depending on the protocol. This variation suggests that shorter and longer HIIT sessions can be effective, provided the training is done consistently.

The immediate benefits of HIIT probably stem from improved cardiorespiratory and metabolic fitness mediated by better insulin sensitivity and mitochondrial biogenesis. Long-term compliance and benefits have not been equally studied. Longer periods of HIIT are probably required to allow the body to adapt more durably to the training and for habit formation. Participant retention remains a live problem in this area.

Conclusion

HIIT does not appear to significantly reduce BMI in obese teenagers. However, it improves body fat percentage and increases aerobic capacity. Increased HDL improved the blood cholesterol profile, while systolic blood pressure fell. These changes predict reduced cardiovascular risk with HIIT in obese adolescents.

Overall, the findings highlight the potential of HIIT as an effective intervention for improving body composition and cardiovascular health in obese adolescents, though its effect on BMI appears minimal.

The significant differences between studies support further research before the findings can be generalized. Future work should identify the best HIIT protocols and assess the long-term health outcomes so that optimal recommendations can be rolled out for this group of at-risk individuals.

Source:

https://www.news-medical.net/news/20250826/HIIT-increases-aerobic-capacity-even-when-BMI-stays-the-same.aspx