



Strength Training for Overweight Youth

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The number of overweight children and adolescents continues to increase worldwide. Being overweight as a child has serious consequences which substantially increase the risk of cardiovascular, orthopedic, metabolic and psychosocial disorders. Traditionally, aerobic activities such as walking and bicycling have been the mainstay of treatment programs. More recently, observations suggest that strength training can be a safe, effective and enjoyable method of exercise for overweight youth provided that appropriate training guidelines are followed and qualified supervision is present.

Potential Benefits of Strength Training

In addition to enhancing motor skills and sports performance, regular participation in a youth strength training program has the potential to positively influence several measurable indices of health. It can help to facilitate weight control, strengthen bone, enhance psychosocial well-being, and improve one's cardiovascular risk profile. Further, a stronger musculoskeletal system will enable overweight teenagers to perform life's daily activities with more energy and vigor.

Observations from our school-based-programs suggest that overweight teenagers enjoy strength training because it is not aerobically taxing and provides an opportunity for all participants to experience success and feel good about their performance. Since overweight teenagers tend to be

the strongest students in program, they often receive unsolicited positive feedback from their underweight peers who are often impressed with the introductory strength levels of overweight boys and girls, and the amount of weight they can lift successfully. Unlike prolonged periods of aerobic exercise in which most overweight teens “fail”, participation in strength training activities gives teens with a high percentage of body fat a chance to “shine” and gain competence in their abilities to be physically active.

Program Design Considerations

Cautionary measures need to be taken when overweight teenagers begin strength training. Parents or legal guardians should complete a health history questionnaire for each child, and if a known or suspected health problem is present teenagers should be referred to their health-care provider. In addition, exercise programs for overweight teenagers need to be carefully prescribed because the volume and intensity of some youth strength training programs exceeds their physical abilities. When designing strength training programs for teenagers with excess body fat it is always better to underestimate their physical abilities and gradually increase the volume and intensity of training than to overestimate their abilities and risk an injury or possible dropout.

Overweight youth should perform about 5 to 10 minutes of warm-up activities before strength training. Jogging and dynamic exercises such as hops, skips and jumps are typically too intense for youth with excess body fat. Walking and low to moderate intensity calisthenics with a 1 to 2 kg medicine ball are enjoyable warm-up activities that can prepare the cardiorespiratory and musculoskeletal systems for the demands of strength training. Overweight teenagers who have

difficulty completing a continuous 5 to 10 minute warm-up should participate in an interval type of warm-up whereby short recovery periods are incorporated into the activity session.

In addition to traditional free weight exercises using barbells and dumbbells, a variety of other strength training modalities including one's own body weight, elastic tubing, medicine balls and weight machines can be used. From our experience, overweight teenagers enjoy strength training on weight machines because they are relatively easy to use and a majority of the exercises can be performed in the seated position. We try to begin with activities that are moderately challenging so youth can develop fundamental skills and gain confidence in their abilities prior to progressing to more advanced exercises using free weights and one's own body weight. We know that when overweight teenagers have a choice, they will participate in activities that will be fun and enjoyable. In our youth strength training center the attendance rate for overweight children and teenagers who participate in an introductory 9 week program typically exceeds 90%

During the first few weeks of the strength training program, teens perform a single set of 10 to 15 repetitions on 8 to 12 different exercises with adequate rest between exercise stations between similar movements and involved muscle groups. Super setting of antagonistic muscle groups is also recommended by setting up 2 or 3 stations of 2 to 3 different exercises per station that do not involve the same major muscle movements. For the advanced youth, each circuit is done in 2 to 3 rotations. We place a high value on participation and underweight, "normal" body weight, and overweight teenagers all exercise together in a cooperative, non-threatening environment. We reduce the emphasis on guaranteed outcomes and focus on the mere enjoyment of participating in strength training activities. All youth in our programs keep track of their

progress on workout cards. When working with overweight boys and girls, it is important to focus on intrinsic factors such as skill improvement, personal success and having fun.

In summary, we need to provide opportunities for overweight youth to engage regularly in lifetime physically activities that are safe, effective and fun. While further study is warranted, the first step in encouraging overweight children and adolescents to exercise may be to increase their confidence in their ability to be physically active which in turn may lead to an increase in regular physical activity and a decrease in fat gain. Rather than focus entirely on aerobic training, the inclusion of strength training activities into a health-oriented lifestyle plan that includes nutrition education may be part of the solution for long-term fat loss and weight management in boys and girls with excess body fat.

Selected References

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