

INTRODUCTION

The effects of childhood obesity on tendon structure and its relation to physical activity are barely known. We aimed to investigate the influence of a 6-month multidisciplinary childhood obesity management program (which included dietary intervention and an exercise program) on Achilles tendon structure in overweight/obese children

OBJECTIVES

We aimed to investigate the influence of a 6-month multidisciplinary childhood obesity management program (which included dietary intervention and an exercise program) on Achilles tendon structure in overweight/obese children

CONCLUSIONS

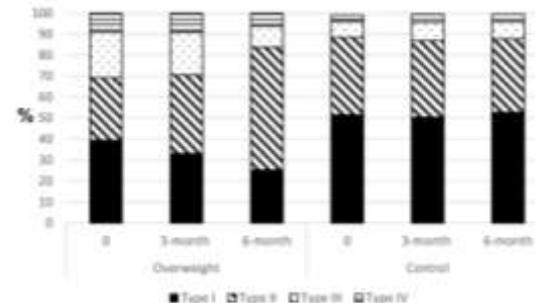
At pre-intervention, the overweight group had significantly "worse" tendon structure, with a lower prevalence of echo type II fiber and a higher prevalence of echo type III fibers compared with the control group. Following the 6-month intervention, the tendon structure of the overweight group was "positively" changed, with reduced echo type III fibers and increased echo type II fibers

METHOD

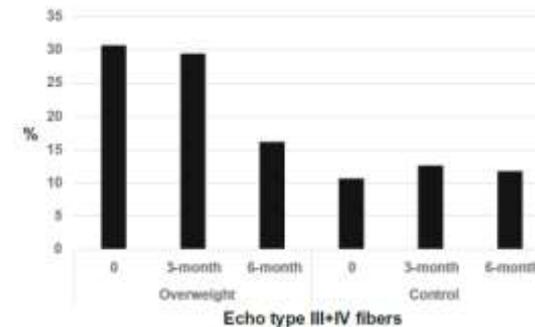
Twenty-five overweight/obese children (overweight group) who participated in a 6-month multidisciplinary childhood obesity program, and 27 normal-weight controls were examined for anthropometric measurements and for Achilles tendon structure (using ultrasound tissue characterization to capture a three-dimensional structure of four echo type fibers and the cross-sectional area) at baseline, 3, and 6 months

RESULTS

The BMI of the overweight group significantly decreased from the pre- to the post-intervention period, ($p = .002$, $\eta^2 = .229$), yet among the control group, the BMI significantly increased ($p = .002$, $\eta^2 = .222$). Interactions (pre-post \times group) showed a significant decrease in the prevalence of echo type I and in echo type III fibers and a significant increase in the prevalence of echo type II fibers and in the cross-sectional area along the intervention. No significant changes in echo type fibers were found in the control group along the 6 months.



The relative fiber echo types frequency (I-IV) in the overweight and control groups, along the three testing



The relative frequency of echo types III + IV from pretesting to middle testing (3 months) and to last-testing (6 months) among overweight and control children