

Prediction of Semitendinosus-Gracilis Graft Diameter in Adolescents and Children

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Summary:

The weight and height can be used as predictors of STG graft diameter in patients younger than 18 years who undergo ACL reconstruction. Moreover, women and children under 14 years old may have more often insufficient graft diameter, eventually requiring an unplanned augmentation of it

Abstract:

PURPOSE

To evaluate if the anthropometric and demographic measures of patients under 18 years can be used to predict the diameter of semitendinosus-gracilis autograft in ACL reconstruction surgery.

METHODS

Retrospective serie of 169 patients under 18 years (112 men, 57 women, average age 15.7 years) who underwent to ACL reconstruction surgery with semitendinosus-gracilis autograft (STG). We recorded anthropometric measurements (weight, height and BMI), demographics (age and gender) and autograft diameter used. Correlation coefficients were used to determine the relationship between each anthropometric variable and the diameter of the graft and T-Student test to compare graft diameter by gender and age group (12-14 vs 15-17 years). P values <0.05 were considered statistically significant.

RESULTS

Correlation analysis showed a positive relation between weight and graft diameter ($r = 0.31$, <0.0001) and between height and graft diameter ($r = 0.48$, $p <0.0001$). However, age and BMI did not correlate with graft thickness ($r = 0.05$ and $p = 0.461$, $r = 0.06$ and $p = 0.432$, respectively). The median graft diameter in men was 8 (range 6-10) and 7 women (range 6-9), a difference that was statistically significant ($p <0.0001$). Finally, it was noted that although patients between 15 and 17 years had a graft thicker than those between 12 and 14 years, this difference was not statistically significant ($p = 0.086$)

CONCLUSIONS

The weight and height can be used as predictors of STG graft diameter in patients younger than 18 years who undergo ACL reconstruction. Moreover, women and children under 14 years old may have more often insufficient graft diameter, eventually requiring an unplanned augmentation of it.