

## **CORRELATIONS BETWEEN ANTHROPOMETRIC MEASUREMENTS AND HAMSTRING AUTOGRAFTS**

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**AIM:** ESTIMATING THE LENGTH AND DIAMETER OF HAMSTRING TENDON AUTOGRAFTS MAY BE IMPORTANT IN THE PREOPERATIVE PLANNING OF ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION OF THE KNEE. IN THIS STUDY WE AIMED TO IDENTIFY CORRELATIONS BETWEEN A NUMBER OF ANTHROPOMETRIC MEASUREMENTS AND THE SIZE OF SEMITENDINOSUS AND GRACILIS TENDON AUTOGRAFTS.

**MATERIAL AND METHOD:** THE STUDY INCLUDED 155 PATIENTS THAT UNDERWENT ARTHROSCOPICALLY ASSISTED ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION USING HAMSTRING AUTOGRAFTS, BETWEEN SEPTEMBER 2012 AND OCTOBER 2013. AVERAGE AGE OF THE PATIENTS WAS  $26.7 \pm 6.8$  YEARS, WITH 119 MALE AND 36 FEMALE PATIENTS. ANTHROPOMETRIC MEASUREMENTS WERE RECORDED PREOPERATIVELY – WE DETERMINED PATIENT HEIGHT, WEIGHT, BODY MASS INDEX, LEG AND THIGH LENGTH, AND THIGH CIRCUMFERENCE 10 CM ABOVE THE PATELLA. THE LENGTH AND DIAMETER OF SEMITENDINOSUS AND GRACILIS TENDON AUTOGRAFTS WERE DETERMINED INTRA-OPERATIVELY. WE CALCULATED THE PEARSON CORRELATION COEFFICIENT (R) CONSIDERING ANTHROPOMETRIC DATA AS INDEPENDENT VARIABLES AND GRAFT SIZE AS THE DEPENDENT VARIABLE.

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**RESULTS:** WE IDENTIFIED A STRONG POSITIVE CORRELATION BETWEEN PATIENT HEIGHT AND LEG LENGTH AND THE LENGTH OF THE AUTOGRAFTS ( $R = 0.78$  AND  $R = 0.82$ ,  $P < 0.001$ ). WE ALSO OBSERVED MODERATE CORRELATIONS BETWEEN WEIGHT AND HEIGHT, AND TENDON GRAFT DIAMETER ( $P = 0.002$  AND  $P = 0.005$ ). THERE WERE NO SIGNIFICANT CORRELATIONS BETWEEN BODY MASS INDEX OR THIGH CIRCUMFERENCE AND TENDON GRAFT DIMENSIONS.

**CONCLUSIONS:** PATIENT HEIGHT AND WEIGHT MAY BE USEFUL FOR ESTIMATING THE SIZE OF HAMSTRING TENDON AUTOGRAFTS IN THE PREOPERATIVE PLANNING OF ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION, IDENTIFYING PATIENTS WHO MAY PRESENT HAMSTRING TENDON INSUFFICIENCY AND THOSE FOR WHOM TENDON GRAFT LENGTH WOULD ALLOW THE USE OF A SINGLE TENDON.

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**KEYWORDS:** ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION, ANTHROPOMETRIC MEASUREMENTS, HAMSTRINGS