

Research Colloquium Series 3:

## A Multicenter Study of the Relationship between Anthropometric Measurement and Hamstring Autograft Diameter in Anterior Cruciate Ligament Reconstruction in Malaysia



By: Dr. Wong Vei Seng

### Background

Anterior cruciate ligament (ACL) reconstruction is a common procedure to restore knee stability and the ability to estimate the hamstring graft diameter preoperatively can prevent reconstruction failure. This study aimed to establish the relationship between anthropometric measurements with the hamstring graft diameter in ACL reconstruction surgery for the Malaysian population .

### Methods

This is a retrospective cross-sectional study of patients treated with four strands hamstring autograft (gracilis and semitendinosus) in a primary single bundle ACL reconstruction surgery at two tertiary hospitals in Malaysia from 2014 – 2020. Patients' demographic, anthropometric measurements and hamstring graft diameter were retrieved and analysed statistically.

### Results

70 patients were included. The mean body weight was  $71.29 \pm 14.14$ kg and the mean height was  $1.68 \pm 0.08$ m. The mean body mass index (BMI) was  $25.38 \pm 4.65$ kg/m<sup>2</sup> and the mean hamstring grafts diameter was  $7.94 \pm 0.69$ mm. There was a statistically significant and positive correlation between weight and height to hamstring's graft diameter ( $p < 0.05$ ). Linear regression has shown that weight was the sole predictive factor for hamstring graft's diameter ( $p < 0.05$ ,  $r^2 = 0.119$ ).

### Conclusion

Our study supports the evidence of weight as a predictive factor for hamstring's graft diameter in the Malaysian population. The graft's diameter can be predicted preoperatively by calculating the patient's body weight value using the proposed predictive formula in this study. In contrast, height and BMI did not predict hamstring graft size in the Malaysian population.

