**ORAL PRESENTATION**
**OP4**

# Comparison of Hamstring and Quadriceps Muscle Activity During Jump Landing Among University Netball Players

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## ABSTRACT

**Background and Objective:** Muscle activation is essential for optimal athletic performance, especially in sports like netball that involve rapid directional changes and explosive movements. As the hamstrings and quadriceps play a key role in lower limb function, imbalances between these muscle groups can significantly increase the risk of knee injury. Therefore, this study aimed to compare the muscle activity between the hamstrings and quadriceps in netball players during jump landing. **Methods:** A cross-sectional study was conducted involving 38 netball players from the International Islamic University Malaysia, Kuantan, Pahang. Convenience sampling was used to recruit IIUM Kuantan students with at least two years of netball experience who met the predefined inclusion and exclusion criteria. All participants underwent Surface Electromyography (EMG) assessments of hamstring and quadriceps activity during a jump landing task to evaluate peak muscle activation. A paired t-test was employed for data analysis. **Results:** A significant difference in muscle activity (μV) was observed between the hamstrings (mean±SD=486.76±266.55) and quadriceps (mean±SD=671.27±324.44) during jump landing ($p<0.001$), with a hamstring-to-quadriceps (H:Q) activation ratio of 0.73. **Conclusion:** Quadriceps activity was higher than hamstring activity during the propulsion phase of landing, while the H:Q ratio indicated neuromuscular balance between the two muscle groups. This study evaluated muscle activity without considering muscle strength. Therefore, future research could explore the potential cause-and-effect relationship between them. Nevertheless, the study finding may benefit healthcare providers in planning more comprehensive rehabilitation programmes that focus more on the related muscles to improve netball players' performance.

**Keywords:** Muscle activity; muscle activation; quadriceps; hamstring; netball players

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