

The Association between Physical Characteristics and Risk of Ankle Injury Occurrence among Professional Handball Players in the Sri Lankan Air Force

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Handball, known for its high injury rates among Olympic sports was the focus of a study investigating the link between physical characteristics and ankle injury risk in professional handball players of the Sri Lankan Air Force (SLAF). The study aimed to assess key physical attributes—balance, anaerobic power, agility, lower limb muscle strength, and endurance—and their association with ankle injuries. Conducted as a descriptive cross-sectional study, it involved 25 players (14 males, 11 females) with measurements taken using the Y balance test, vertical jump test, agility T-test, hand-held dynamometer, leg press test, and Star Excursion Balance Test (SEBT). Ankle injury risk was indicated by a 4 cm or greater difference in anterior reach distance on the SEBT. The average age, weight, and height for males were 30.4±4.9 years, 69.4±9.8 kg, and 174.2±9.1 cm, and for females were 28.7±4.9 years, 60.8±9.7 kg, and 165±6.3 cm, respectively. Significant differences were found in agility T-test and left evtor muscle strength between players with and without ankle injury risk. While agility T-test showed an insignificant positive correlation with injury risk, vertical jump, Y balance tests, and various muscle strength tests had insignificant negative correlations. Notably, left evtor muscle strength showed a significant negative correlation with injury risk indicating that stronger left evertors are associated with a lower risk of ankle injuries. Overall, 76% of players were at risk of ankle injury, with 90.9% of those being female.

Keywords: *handball, star excursion balance test, ankle injury occurrence*