

ABSTRACT

Introduction: This study sought to determine the relationships between eccentric strength and power of the lower extremity with dynamic balance in male football players. Footballers with superior balance, kick more accurately, have a possible reduced risk of injury and faster agility times. However, the relationship between eccentric strength and power with dynamic balance remains unresolved.

Methods: Fifty male footballers (university; $n = 27$ and professional; $n = 23$) volunteered to participate in the study and performed the Y-balance Test, eccentric isokinetic knee extensor and flexor testing and the countermovement jump.

Results: The university group demonstrated significant positive correlations between mean eccentric peak torque to body weight of the knee extensors and composite score in the Y-balance test ($r = 0.42$, $p = 0.03$) and between eccentric peak torque to body weight of the knee extensors of the non-dominant leg with normalised reach distance in the Y-balance test on the non-dominant limb ($r = 0.50$, $p = 0.008$). In the professional group, countermovement jump height was significantly correlated with composite score in the Y-balance test ($r = 0.52$, $p = 0.02$). Furthermore, countermovement height was positively correlated to normalised reach distance in the Y-balance test on the non-dominant limb in the university ($r = 0.4$, $p = 0.05$) and professional ($r = 0.56$, $p = 0.006$) groups, respectively.

Conclusion: Moderate positive relationships exist between eccentric strength of the knee extensors and dynamic balance in the university group and between power and dynamic balance in the professional group. These findings may be due to different coordination strategies between the groups to maximize reach distance. Both groups demonstrated a significant relationship between countermovement jump height and reach performance on the non-dominant leg. In footballers, different neural control strategies may develop between the

limbs due to their constant use of their non-dominant leg to stabilise whilst executing a kicking action. Due to these significant relationships, a longitudinal study measuring the effects of strength and power training on dynamic balance in footballers is required to ascertain cause and effect.