An Evidence Based Technical Framework for Mitigating Knee Joint Loads in Cutting Tasks

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Background: Cutting actions are associated with non-contact ACL injuries in multidirectional sports due to the propensity to generate large multiplanar knee joint loads (KJLs) that have the capacity to increase ACL loading and strain. Numerous studies have investigated the biomechanical determinants of KJLs in cutting tasks. The aim of this systematic review was to comprehensively review the literature regarding biomechanical determinants of KJLs during cutting, in order to develop a cutting technical framework alongside training recommendations for practitioners regarding KJL mitigation.

Biography

Thomas Donelon is a University Instructor and PhD candidate in Sports Biomechanics and Strength and Conditioning at Canterbury Christ Church University. Tom completed his BSc in Sport Science (Advanced Strength and Conditioning) at The University of Salford in 2016, attaining a first-class degree with honours. During this time he developed a deep interest in biomechanics, predominantly the biomechanics of Strength and Conditioning, and injury incidence and prevention. Previous posts have involved the testing of team GB triple jumpers, 3D motion analysis of elite endurance runners and other athletic populations, alongside a research assistance post in clinical gait analysis. Tom graduated with an MSc in Strength and Conditioning with Distinction from the University of Salford in 2018. Tom acts in a consultancy capacity with numerous sports clubs. Current research interests are aligned to the biomechanics involved in change of direction tasks, their application to performance and injury and if using strength and conditioning protocols can mitigate knee joint loads and improve performance in these tasks.