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The Impact of Proprioceptive Based Exercise Programme on Agility, Muscle Strength and Dynamic Balance Among Athletes with Post Knee ACL Reconstruction: A Study Protocol

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ABSTRACT

Introduction: Anterior Cruciate Ligament (ACL) injury common among athletes often result from high-impact movements and lead to reduced knee stability and proprioceptive deficits. They are prevalent in males and females aged 18-25 years. Despite treatment advancements, many athletes face challenges in regaining pre-injury performance. Proprioceptive training plays a vital role in enhancing neuromuscular control, balance, joint stability, supporting recovery and reducing re-injury risk.

Need of the Study: To examine the impact of proprioceptive based exercise programme on agility, muscle strength and dynamic balance among athletes with post knee ACL reconstruction.

Materials and Methods: This study will be randomised, single blinded, parallel-group prospective study evaluate the effects of proprioceptive-based exercises on muscle strength, agility, and dynamic balance in 80 young athletes from 18 to 25 years of age with post knee ACL reconstruction which are actively involved in sports prior to injury and completed basic rehabilitation protocol (acute phase) and cleared for advanced exercises by the physiotherapist with no additional injuries, chronic illnesses, or surgical complications and non-compliance risk or pregnancy. Participants will be randomly assigned to experimental and control groups using computer-based randomisation. Experimental group will be on proprioceptive-based exercises for 4 times per week, progressing in intensity from stable to unstable surfaces, for each session 4 sets, 2 exercises per set with 3 repetitions each for 60 seconds per repetition including 5 min rest between sets. The outcome measure such as agility, muscle strength and dynamic balance will be assessed by using hexagon agility test, isokinetic dynamometer and Huber 360 score at baseline, 2nd and 6th week respectively.

Keywords: High-impact movement, Proprioception, Speed

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