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Anterior cruciate ligament injury prevention programs in team sports: A systematic review

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Background
As the demands of modern sports continue to evolve, the rate of injuries among athletes is increasing. One of the most common injuries in basketball and football, particularly among both male and female athletes, is anterior cruciate ligament (ACL) damage. Various injury prevention programs have been developed to address this issue, but their long-term effectiveness remains to be determined. To systematically review ACL prevention programs for basketball and football players and evaluate their effectiveness in reducing injury risk.

Materials and methods
A comprehensive literature search was conducted using PubMed (Medline). The review focused on randomized controlled trials (RCTs), prospective cohort studies, and descriptive laboratory studies that examined ACL injury prevention programs.

Results
Nine studies met the inclusion criteria and were included in the analysis. The majority of the studies reported a significant reduction in ACL injury risk associated with prevention programs. The evidence indicates that multifaceted training interventions, comprising neuromuscular training, stretching, proprioceptive exercises, resistance training, plyometric exercises, landing mechanics optimization, core stability training, dynamic stabilization, and agility drills, demonstrate moderate to strong efficacy in mitigating ACL injury risk.

Conclusions
This systematic review underscores the efficacy of ACL and knee injury prevention programs in mitigating the risk of lower extremity, knee, and ACL injuries in team sports. To maximize effectiveness, these programs should prioritize interventions targeting lower extremity muscle strength and balance enhancement, specifically tailored for team-sport athletes.