DOI: 10.7860/JCDR/2026/88435.22877 Abstract No.: 31

Comparative Effect of Plyometric Training versus Sportsmetrics Jump Training on Explosive Strength, Speed and Agility in Under-18 Basketball Players: A Systematic Review

DISHA BANSAL[1], GAURAV KADYAN[2]

ABSTRACT

Introduction: Explosive strength, speed, and agility are critical components of athletic performance. Although plyometric training and the Sportsmetrics jump training programme are widely used plyometric exercises, to enhance these attributes, yet no studies have directly compared their effectiveness in adolescent basketball players.

Aim: This study aims to systematically review the comparative effects of plyometric training versus the Sportsmetrics jump training programme on explosive strength, speed, and agility in under-18 basketball players.

Material and Methods: Following the PRISMA 2020 guidelines, a systematic electronic search was conducted across PubMed, ResearchGate and Google Scholar databases from July to August 2025. Eligible studies were those that evaluated the effects of either the plyometric training or the Sportsmetrics jump training programme in male or female basketball players under-18 years of age, reported at least one outcome measure of interest, and were published in the English language. Risk of bias was assessed using the PEDro scale (RCTs) and Newcastle-Ottawa scale (non-RCTs). The protocol has been registered in PROSPERO 2025 (ID: CRD420251146587).

Results: A total of six studies were included, which enabled the outcomes of plyometric training (n=5) and the Sportsmetrics jump training (n=1) programmes to be narratively synthesised. The results indicated that plyometric training showed significant improvement in explosive strength, but low to moderate effects in speed and agility, while the single Sportsmetrics study reported enhancement in explosive strength.

Conclusion: Plyometric training demonstrated consistent effects on explosive strength, speed and agility, while the Sportsmetrics jump training programme showed potential benefits, but evidence was limited to a single study. Hence, further trials directly comparing the two interventions are needed to establish their relative effectiveness in under-18 basketball players.

Keywords: Adolescent, Athletic performance, Plyometric exercise, Systematic review

PARTICULARS OF CONTRIBUTORS:
1, Postgraduate Student, Department of Sports Physiotherapy, Indian Spinal Injuries Centre, Institute of Rehabilitation Sciences, Vasant Kunj, New Delhi, India.
2. Associate Professor, Department of Sports Physiotherapy, Indian Spinal Injuries Centre, Institute of Rehabilitation Sciences, Vasant Kunj, New Delhi, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Ms. Disha Bansal,
Postgraduate Student, Department of Sports Physiotherapy, Indian Spinal Injuries Centre, Institute of Rehabilitation Sciences, Vasant Kunj, New Delhi, India.
Email: dishabansal2000@gmail.com