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THE COMPONENTS, PARAMETERS AND OUTCOMES OF CORE STABILITY TRAINING FOR LOWER EXTREMITY DYSFUNCTIONS: A SYSTEMATIC REVIEW OF EXPERIMENTAL TRIALS

[ALT EKSTREMİTE DİSFONKSİYONLARI İÇİN ÇEKİRDEK STABİLİTE EĞİTİMİNİN BİLEŞENLERİ, PARAMETRELERİ VE SONUÇLARI: DENEYSEL DENEMELERİN SİSTEMATİK BİR İNCELEMESİ]

[Turkish Journal of Physiotherapy and Rehabilitation](#) • [Review](#) • [Open Access](#) • 2025 •

DOI: 10.21653/tjpr.1568251

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Abstract

Purpose: Core stability exercises, widely used for treating low back pain has recently been reported to rehabilitate lower extremity dysfunctions. However, information on the components and

parameters of the exercise remains scarce. Hence, the aim of this systematic review was to synthesize evidence on core stability training for lower limb dysfunctions and determine the key components, parameters, and impact of the exercises. Methods: A systematic search of electronic databases (PubMed, Scopus, ScienceDirect, Ovid, Cochrane, and Google Scholar) was carried out covering the period from January 2000 to March 2024. Articles were screened based on predefined criteria and their quality was assessed by using PEDro scale. Relevant data on the components, parameters, and outcomes of core stability exercise, were extracted and descriptively synthesized. Results: Out of 2393 articles identified, seven articles met the criteria. Five trials administered exercise programme containing both isometric and isotonic exercises, with curl ups, bridges, quadruped stance and transverse abdominis contraction being the most frequent exercise routines. Most of the studies used isometric exercise with 5-second hold and 6-8 repetitions for each movement while for isotonic exercises most studies used 10 repetitions of 2-3 sets per movement. Significant reduction in pain and improvement in muscle strength, mobility, balance, foot posture and joint stability were reported. Conclusion: Core stability training shows encouraging outcomes in improving lower limb dysfunctions in nonathletic individuals by enhancing lumbopelvic control. However, due to heterogeneity in studies further research is needed to establish the most effective components and their impact on various lower limb outcomes. © 2025 The Author.

Author keywords

Core stability; Exercise therapy; Lower extremity; Postural balance; Proprioception

Indexed keywords

EMTREE medical terms

abdominal wall musculature; anterior cruciate ligament injury; body equilibrium; body position; core stability training; flatfoot; human; isometric exercise; isotonic exercise; joint stability; Knee Injury and Osteoarthritis Outcome Score; knee instability; knee osteoarthritis; limb disease; lower limb; Lysholm score; muscle contraction; muscle strength; numeric rating scale; osteoarthritis; outcome assessment; pain; patellofemoral pain; patellofemoral pain syndrome; physical performance; proprioception; Review; standing; systematic review (topic); timed up and go test; treatment duration; visual analog scale

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