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Does Eccentric Hamstring Training Improve Speed and Jump Performance in Team Sports: A Systematic Review

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Eccentric strength is thought to be a key component of fitness for sports requiring rapid movements such as sprinting and jumping. As a result, eccentric training forms part of strength and conditioning programmes in these sports (Krommes et al., 2017, *Biomed Central Research Notes*, 10(1), 669). However, the association between improvements in eccentric strength and athletic performance remains unclear. The aim of this systematic review was to determine the effect of improvements in eccentric strength on sprint and jump performance. Online databases including SPORTDiscus, CINAHL, MEDLINE, PubMed and ScienceDirect were searched (June 2017) with a date restriction (2007 – 2017) to obtain relevant articles. Search terms included eccentric hamstring training “AND” performance, speed, strength and jump performance. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were used to report the screening of articles. The Physiotherapy Evidence Database (PEDro) Scale was used to assess the methodological quality of each included article. A total of 8,613 articles were returned from the search. After screening the title and abstracts, 8,591 articles were excluded. Out of the remaining 25 articles, 17 were excluded after a review of full texts. A further 3 articles were identified from manually searching reference lists from which 1 was included. A total of 8 studies were included in the review. The studies included in this review were of poor methodological quality (PEDro 4.1/10). Overall, significant improvements were found in speed and jump performance for the eccentric training groups compared to the control groups. Only 2 of the studies measured strength pre and post intervention. There is weak evidence that eccentric training is effective in promoting improvements in speed and jump performance. Further high quality randomised controlled trials are needed to support the use of eccentric training to improve speed and jump performance.