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Effects of Vibration Training on Lower Extremity Strength: A Systematic Literature Review

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Background Strength training of the lower extremity has been shown to improve overall leg musculature strength. The combination of vibration training (VT) and strength training (ST) has been increasing in popularity among various populations. Evidence, however, is scant on how this combined training regimen influences lower extremity muscle strength. Data Sources Systematic literature searches for randomized controlled trials between 2000-2020 were performed in the databases of PubMed, PEDro Database, Ovid, Cochrane Library, EBSCO (Medline) between April 30 to July 26, 2020. Study Selection and Data Extraction Nineteen randomized controlled trials (full text available, PEDro score > 6, and conducted in the past 10 years) with a total of 987 subjects met methodological quality guidelines using the PEDro scale. Results A total of forty (40) articles were screened, and nineteen (19) studies with a total population of n = 987 were included in the systematic review. With heterogeneity in modality and vibration intensity/frequency including dosing and prescriptions, no meta-analysis was conducted. There were no significant differences found between VT + ST vs ST in eleven (11) of the randomized controlled trials (n= 678). There were statistically significant improvements reported in terms of improved strength outcomes in VT + ST vs ST in eight (8) of the randomized controlled trials (n= 309). Our results revealed that during lower leg musculature training, the addition of vibration training (VT) does not significantly elicit improvements in lower extremity muscular strength in majority of the studies. Conclusion and Recommendations The studies presented limited evidence for recommending the use of VT as an adjunct to strength training in improving lower extremity musculature strength. The use of Vibration Training (VT) does not significantly affect strength and performance gains when compared to traditional strengthening exercises for the lower extremities. Higher quality methodological studies are recommended in the field of vibration training. Higher quality methodological studies are recommended in the field of vibration training.

Keywords: “Strength”, “muscle performance”, and “vibration training”.

Biography

R. Kirby Baloy completed his Doctor of Physical Therapy from the College of Saint Scholastica Duluth, Minnesota and his Education Specialist Degree from Fort Hays State University in Hays, Kansas. He is also a recent graduate of the Therapeutic Pain Specialist Certification Course from the Evidence in Motion Institute of Health Professions. He is currently a Defense and Strategic Studies graduate student at Missouri State University.

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