

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)



Can Whole-Body Vibration Therapy Augment the Results of Conventional Physiotherapy among Chronic Non-Specific Low Back Pain Patients

Prof. Dr. CK Senthil Kumar¹ and Prof. R. Balasaravanan²

Director, North East Christian University, Centre for Medical Education and Research, Nagaland, India¹ Professor, Kempegowda institute of physiotherapy, Bangalore, Karnataka, India² *Corresponding author: drcksenthil@gmail.com¹

Abstract: Objective -The primary objective of the study is to find out the effects of adding whole-body vibration therapy to conventional physiotherapy among chronic non-specific low back pain patients. Methodology:20 subjects with chronic non-specific low back pain patients were selected as samples. This study design is an experimental study and the study type is comparative. The duration of this study is 12 weeks within which whole body vibration therapy and conventional physiotherapy are given to the patients of group A and group B. subjects with chronic non-specific low back pain [LBP], age group around 30 to 50, both males and females are included in this study. GROUP -A -Ten weeks of vibration therapy was provided to selected samples. All the subjects underwent baseline analysis and post-test analysis after ten weeks of intervention using the 3 selected outcome measures, namely the Roland Morris scale for pain, Oswestry disability index, and Visual analog scale. GROUP-B- was treated with conventional physiotherapy. Result: On comparing the between group analysis of the Roland-Morris scale, Oswestry disability index, and Visual analog scale. It has been found that there is no significant difference between group A and group. On comparing the within-group analysis, it has been found that there was a significant difference in the Roland-Morris scale of group A and group B of pre-test and post-test with the p-value 0.005. In Oswestry Disability index of group-A and group B for pre-test and post-test with ap-value of 0.005. In VAS of group A for pre-test and post-test with the p-value of 0.005 and group B with the p-value of 0.004. Conclusion: The study concluded that whole-body vibration therapy is more effective than conventional physiotherapy in treating with chronic non-specific low back pain.

Keywords: Chronic non-specific low back pain [LBP] patients, whole body vibration [WBV] therapy, conventional physiotherapy, lumbar and core muscle strengthening exercise

REFERENCES

- [1]. Chou R, Huffman LH. Nonpharmacologic therapies for acute and chronic low back pain: a review of the evidence for an American Pain Society/American College of Physicians clinical practice guideline. Ann Intern Med 2007; 147: 492–504.
- [2]. De Jager JP, Ahern MJ. Improved evidence-based management of acute musculoskeletal pain: guidelines from the National Health and Medical Research Council are now available. Med J Aust 2004; 181: 527–528.
- [3]. Dunn KM, Croft PR. Classification of low back pain in primary care: using "bothersomeness" to identify the most severe cases. Spine 2005; 30: 1887–1892.
- [4]. Diamond S, Borenstein D. Chronic low back pain in a working-age adult. Best Pract Res Clin Rheumatol 2006; 20: 707–720.
- [5]. Andrew Walsh D, Jane Kelly S, Sebastian Johnson P, Rajkumar S, Bennetts K. Performance problems of patients with chronic low-back pain and the measurement of patient-centered outcome. Spine (Phila Pa 1976) 2004; 29: 87–93.
- [6]. Gonzalez Viejo MA, Condon Huerta MJ. [Disability from low back pain in Spain]. Med Clin (Barc) 2000; 114: 491–492 (in Spanish).

IJARSCT



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

Volume 3, Issue 2, January 2023

- [7]. Hashemi L, Webster BS, Clancy EA, Volinn E. Length of disability and cost of workers' compensation low back pain claims. J Occup Environ Med 1997; 39: 937–945.
- [8]. Mannion AF, Junge A, Taimela S, Muntener M, Lorenzo K, Dvorak J. Active therapy for chronic low back pain: part 3. Factors influencing self-rated disability and its change following therapy. Spine (Phila Pa 1976) 2001; 26: 920–929.
- [9]. Mannion AF, Muntener M, Taimela S, Dvorak J. Comparison of three active therapies for chronic low back pain: results of a randomized clinical trial with one-year follow-up. Rheumatology (Oxford) 2001; 40: 772–778.
- [10]. Delecluse C, Roelants M, Verschueren S. Strength increase after whole-body vibration compared with resistance training. Med Sci Sports Exerc 2003; 35: 1033–1041.
- [11]. Bruyere O, Wuidart M, Palma E, Gourlay M, Ethgen O, Richy F, et al. Controlled whole body vibration to decrease fall risk and improve health-related quality of life of nursing home residents. Arch Phys Med Rehabil 2005; 86: 303–307.
- [12]. Cardinale M, Bosco C. The use of vibration as an exercise intervetion. Exerc Sport Sci 2003; 31: 3–7.
- [13]. Rehn B, Lidstrom J, Skoglund J, Lindstrom B. Effects on leg muscular performance from whole-body vibration exercise: a systematic review. Scand J Med Sci Sports 2007; 17: 2–11
- [14]. Rittweger J. Vibration as an exercise modality: how it may work, and what its potential might be. Eur J Appl Physiol 2010; 108: 877–904.
- [15]. Gusi N, Parraca JA, Olivares PR, Leal A, Adsuar JC. Tilt vibratory exercise and the dynamic balance in fibromyalgia: A randomized controlled trial. Arthritis Care Res (Hoboken) 2010; 62: 1072–1078.
- [16]. Bovenzi M, Angotzi G, Apostoli P, Negro C, Versini W. [Guidelines for prevention of disorders and pathologies caused by exposure to mechanical vibrations in work environment]. G Ital Med Lav Ergon 2007; 29: 4–54 (in Italian).
- [17]. Rittweger J, Just K, Kautzsch K, Reeg P, Felsenberg D. Treatment of chronic lower back pain with lumbar extension and whole-body vibration exercise: a randomized controlled trial. Spine (Phila Pa 1976) 2002; 27: 1829–1834.
- [18]. Tardy-Gervet MF, Guieu R, Ribot-Ciscar E, Roll JP. Les vibrations mécaniquestranscutanées : effetsantalgiques et mécanismesantinociceptifs. Rev Neurol (Paris) 1993; 149: 177–185.
- [19]. Wang XQ, Gu W, Chen BL, Wang X, Hu HY, Zheng YL, Zhang J, Zhang HY, Chen PJ. Effects of wholebody vibration exercise for non-specific chronic low back pain: an assessor-blind, randomized controlled trial. Clin Rehabil. 2019 Sep;33(9):1445-1457.
- [20]. Wang W, Wang S, Lin W, Li X, Andersen LL, Wang Y. Efficacy of whole body vibration therapy on pain and functional ability in people with non-specific low back pain: a systematic review. BMC Complement Med Ther. 2020 May 27;20(1):158.
- [21]. Del Pozo-Cruz B, Hernández Mocholí MA, Adsuar JC, Parraca JA, Muro I, Gusi N. Effects of whole body vibration therapy on main outcome measures for chronic non-specific low back pain: a single-blind randomized controlled trial. J Rehabil Med. 2011 Jul;43(8):689-94.
- [22]. Sajadi N, Bagheri R, Amiri A, Maroufi N, Shadmehr A, Pourahmadi M. Effects of Different Frequencies of Whole Body Vibration on Repositioning Error in Patients With Chronic Low Back Pain in Different Angles of Lumbar Flexion. J Manipulative PhysiolTher. 2019 May;42(4):227-236.
- [23]. Barrero LH, Cifuentes M, Rodríguez AC, Rey-Becerra E, Johnson PW, Marin LS, Piedrahita H, Dennerlein JT. Whole-body vibration and back pain-related work absence among heavy equipment vehicle mining operators. Occup Environ Med. 2019 Aug;76(8):554-559. doi: 10.1136/oemed-2019-105914. PMID: 31300561.
- [24]. Bovenzi M. Metrics of whole-body vibration and exposure-response relationship for low back pain in professional drivers: a prospective cohort study. Int Arch Occup Environ Health. 2009 Jul;82(7):893-917. doi: 10.1007/s00420-008-0376-3. Epub 2008 Oct 25. PMID: 18953559.
- [25]. Mateus Zanatta et al, The role of whole-body vibration in back pain: A cross-sectional study with agricultural pilots, International Journal of Industrial Ergonomics, Volume 74, November 2019, 102872.



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

Volume 3, Issue 2, January 2023

[26]. Wegener, Veronika M, Rarack, Stephanie MD et al, Jansson, Volkmar MD; Wegener, Bernd MD, Effects of Whole Body Vibration Therapy and Classic Physiotherapy on Postural Stability in People With Back Pain, Clinical Spine Surgery: May 2019 - Volume 32 - Issue 4 - p E214-E220.