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Original Research Article

Effect of percussion and vibration therapy in Musculoskeletal disorders: A short review

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ABSTRACT

Introduction: The utilization of percussion theory with the help of (hand held massager or prominently known as hand gun) has become progressively well known as of late. In spite of the fact that their utilization is increasingly normal, both in a clinical and sports setting, there is still little data to direct the experts. This survey planned to decide the impacts of percussion therapy in as pre-and post-action or part of a treatment.

Materials and Methods: Information sources utilized were Pub Med, PEDro, Scopus, Claviate, Medline, Web of Science and Google Researcher. At first, 170 records were screened, out of which 16 could be incorporated with considerate inclusion and exclusion criteria. Fifteen had a moderate gamble of predisposition and one a high gamble of inclination.

Conclusion: In strength, balance, speed increase, endurance, it either didn't have upgrades or it even showed a decline in execution. In the recuperation related results, percussion gun were demonstrated to be practical instruments for firmness decrease.

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1. Introduction

Since the hour of the antiquated Greeks, percussive or vibration treatment has been utilized for helpful and medical advantages.¹ In those times, to rush the recuperation of wounds, an adaptable saw was folded over the harmed body part to communicate mechanical vibrations and work on the wellbeing in compromised people. Continuously, with science and innovation development, these intercessions' range of purpose has expanded, demonstrating these days to be feasible for different medical problems, (for example, osteoporosis,² constant obstructive aviation route illnesses, balance impedances, neurological infections, intense and ongoing outer muscle torment, stoutness, vascular

inadequacy, Down disorder, bone mineral thickness, urinary stones, hard-headed intense respiratory pain disorder, and improve neuromuscular conditions.³⁻⁶

Percussive or vibration treatment could be applied with the hands (manual) or gadgets (mechanical). From the different hand moves that could be applied.⁷⁻¹¹ The improvement of mechanical percussion gadgets arose to produce comparative or more noteworthy impacts to those tracked down in manual percussion, by affecting the tissues at an alternate recurrence, sufficiency and power with higher grating, to lessen specialists' furthest point pressure and cover bigger regions in more limited treatment periods.¹² The main gadget was made during the 1950s,¹³ and these days, there is a more extensive assortment to browse, for example wearable gadgets, belts, froth rollers, non portable gadgets, pads and, all the more as of late, kneading

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instruments.

Notwithstanding their oddity and expanding interest by the clinical and mainstream researchers, there is restricted logical proof to help their utilization and normalize their belongings and boundaries. For instance, as this innovation is as yet subject of progressing research, numerous clinicians who use knead firearms report narrative data (joint effort with peers or observational proof) as their principal source, utilizing them frequently without a particular speed, treatment time or rhythm.¹⁴ This is stressing on the grounds that it conflicts with the standards of the ideal clinical practice and patient administration.¹⁵ Since there is criticalness to direct clinicians and figure out this innovation in additional detail, and there is still no deliberate survey distributed connected with this particular subject, the point of the ongoing review was to efficiently audit the impacts of hand held massage instruments in musculoskeletal patients.

2. Materials and Methods

The writing search planned to distinguish concentrates on that assessed the impacts of back rub firearms characterized as versatile hand-held mechanical gadgets (electric or battery controlled) that use different formed implement tips to convey explosions of percussion/vibration to the myofascial tissues. In January 2023, efficient and thorough hunts were led in the PubMed, PEDro, Scopus, Web of Science and Google Researcher electronic data sets. The hunt procedure was directed utilizing the accompanying patients, mediation, examination, results, studies (P.I.C.O.S.) solid and undesirable people; massage instruments; other intercession, fake treatment farce or no mediation; pre-action, post-movement, or some portion of a treatment; randomized and nonrandomized studies.

For the pursuit system, a combination of key terms and laid out search channels were utilized. The primary catchphrases used to look through in the data sets were "percussive treatment", "vibration treatment". They were recognized after starter writing look and by crosschecking them against past applicable investigations. There was no language or distribution date limitations. Unexpected distributions that were not found during the first information were distinguished through manual inquiries of the individual, related investigations, site catalogs and references records. An illustration of a web-based search procedure draft utilized in the MEDLINE data set is introduced.

Two respective researchers played out in the electronic data sets and screened the examinations' titles and modified works to assess on the off chance that they meet the laid out qualified standards. The examinations that appear to meet the measures were accumulated in Endnote and the copies eliminated utilizing the mechanized programming order "track down copies". Past this interaction, every one of the examinations were physically checked to affirm that

no copies remained. The starter incorporated examinations' full variants were recovered and assessed for the satisfaction of the consideration and prohibition measures. The creators of the examinations where either full adaptations were not open or information were missing, were reached by email for their entrance. The review determination process was managed, and the conflicts tackled through verbal conversation or intervention by a third researcher.

3. Discussion

Nonetheless, the outcomes were more predictable for the lower recurrence, particularly in the more limited exhaustion conventions.¹⁶ These outcomes might be expected, by and by, with the impacts of hand held massager in solid firmness decrease, as it was found, utilizing spiral dislodging at low recurrence (25 Hz) had improved results than manual treatment, mechanical vibration and froth rollers after a gastronomies unconventional exhaustion convention.^{17–20}

These unfortunate outcomes in the results were proven in other review,²¹ where the creators didn't track down genuinely tremendous contrasts in one or the other rating of seen effort or lactate focus in examination with the benchmark group (10 min uninvolved rest) after a 150 m run. In any case, crude information showed a few enhancements after the massager application, concerning model. An element that could make sense of the outcomes in this study might be the recurrence utilized. As examined, the general outcomes were more steady for lower frequencies and the Alonso-Calvete et al.²² Accordingly, the massager percussion gun or instrument' drawn out impacts in recuperation are as yet unclear. In outline, rub weapons appear to be successful in further developing momentary recuperation related results.

While percussion instruments are by and large thought to be protected, there are a few contraindications or circumstances where their utilization may not be suggested:²² late scars, serious injuries, burns from the sun, rashes, injuries, draining or skin contaminations, as this can additionally harm the impacted tissue(s); late breaks or bone persistent circumstances (like osteoporosis or rheumatoid joint inflammation), as the percussive power can obstruct the recuperating system or increment the gamble of crack; profound vein apoplexy or blood coagulating masses, as the tension would oust blood clumps and cause serious unexpected problems; diabetes and neuralgias, as it can bring about deadness or loss of sensation, restricting the discovery of additional injury; try not to use on delicate region of the body, like the face, eyes, ears, head, neck, chest, spine, shallow nerves and vessels, or medical procedure/joint substitution (plates, metal pins, corneal or cochlear), as this can prompt serious injury and agony; don't utilize over and over and forcefully, on a similar region, for extensive stretches of time (e.g., >45 min),

as it can prompt muscle fiber harm, vein analyzations and inner dying, (for example, intra-strong, hemartrosis, hemothorax or rhabdomyolysis); for a few ailments, its utilization can likewise be restricted, like pregnant ladies, fibromyalgia, headaches, hernias, hypertension, epilepsy, malignant growth/cancer, seizures or people with an embedded meds or clinical gadgets (like a pacemaker).^{15,16}

4. Conclusion

The aftereffects of this study recommend that massagers, vibrators could be applied to work on transient ROM, adaptability and recuperation related results. In strength, balance, speed increase, dexterity and pre and post exercises out comes, however full history about the patient past traumas or any surgical insertions needed to be taken in close check.

5. Source of Funding

None.

6. Conflict of Interest

None.

References

1. Comeaux Z. Dynamic fascial release and the role of mechanical/vibrational assist devices in manual therapies. *J Bodyw Mov Ther.* 2011;15(1):35–41.
2. Martin J. A critical evaluation of percussion massage gun devices as a rehabilitation tool focussing on lower limb mobility: A literature review. *SportRxiv.* 2021;doi:10.31236/osf.io/j9ya8.
3. Park S. Effect of local vibration on triceps surae flexibility compared to static stretching. *J Korean Phys Ther.* 2020;32(4):245–9.
4. Sillero MG, Porres JB, Romero JG, Bonilla DA, Petro JL, Vargasmolina S. Comparison of interventional strategies to improve recovery after eccentric exercise-induced muscle fatigue. *Int J Environ Res Public Health.* 2021;18(2):647.
5. Moraska A. Sports massage: A comprehensive review. *J Sports Med Phys Fitness.* 2005;45:370–80.
6. Wu S, Ning HT, Xiao SM. Effects of vibration therapy on muscle mass, muscle strength and physical function in older adults with sarcopenia: A systematic review and meta-analysis. *Eur Rev Aging Phys A.* 2020;17(1):1–14.
7. Picelli A, Elias LA, Pilato F. Indirect vibration of the upper limbs alters transmission along spinal but not corticospinal pathways. *Front Hum Neurosci.* 2021;15:617669.
8. Fuller JT, Thomson RL, Howe P, Buckley JD. Vibration therapy is no more effective than the standard practice of massage and stretching for promoting recovery from muscle damage after eccentric exercise. *Clin J Sport Med.* 2015;25(4):332–7.
9. Available from: https://journals.lww.com/cjsportsmed/Fulltext/2015/07000/Vibration_Therapy_Is_No_More_Effective_Than_the.4.aspx.
10. Kraft K, Kanter S, Janik H. Safety and effectiveness of vibration massage by deep oscillations: A prospective observational study. *Evid-based. Comple Alternat Med.* 2013;p. 679210–48.
11. Trigueros ADB, Valdecabres R, Ceca D, Richards J, Igual B, Monzó J, et al. Effect of vibration vs non-vibration foam rolling techniques on flexibility, dynamic balance and perceived joint stability after fatigue. *PeerJ.* 2019;7:8000.
12. Rasti E, Shirazi ZR, Ebrahimi N, Sobhan MR. Effects of whole body vibration with exercise therapy versus exercise therapy alone on flexibility, vertical jump height, agility and pain in athletes with patellofemoral pain: a randomized clinical trial. *BMC Musculoskeletal Disord.* 2020;21(1):705.
13. Poston B, Holcomb WR, Guadagnoli MA, Linn LL. The acute effects of mechanical vibration on power output in the bench press. *J Strength Cond Res.* 2007;21(1):199–203.
14. Germann D, Bouse A, Kazemi M, Shnier J, Abdelkader N, et al. Effects of local vibration therapy on various performance parameters: A narrative literature review. *J Can Chiropr Assoc.* 2018;62(3):170–81.
15. Available from: <http://libezproxy.open.ac.uk/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=133718166&site=ehost-live&scope=site>.
16. Lu X, Wang Y, Lu J. Does vibration benefit delayed-onset muscle soreness?: ameta-analysis and systematic review. *J Int Med Res.* 2019;47(1):3–18.
17. Alghadir AH, Anwer S, Zafar H, Iqbal ZA. Effect of localised vibration on muscle strength in healthy adults: a systematic review. *Physiotherapy.* 2018;104(1):18–24.
18. Osawa Y, Oguma Y. Effects of vibration on flexibility: A meta-analysis. *J Musculoskel Neuron.* 2013;13(4):442–53.
19. Jones P, Comfort P. Strength and conditioning. A comprehensive guide to sports physiology and injury management.
20. Dunleavy K, Lulofs-Macpherson K, Slowik AK. Relationship between impairments and function. *Therapeutic Exercise Presc.* 2019;p. 60–81.
21. Kurt C. Alternative to traditional stretching methods for flexibility enhancement in well-trained combat athletes: Local vibration versus whole-body vibration. *Biol Sport.* 2015;32(3):225–33.
22. Treede RD. The International Association for the Study of Pain definition of pain: as valid in 2018 as in 1979, but in need of regularly updated footnotes. *Pain Rep.* 2018;3(2):e643.

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