



Research Roundup

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From: Journal of Integrative Medicine (Science Press), Volume 16, Issue 2, March 2018, Pages 84–89. <https://doi.org/10.1016/j.joim.2018.02.003>.

Occupational Hand Injuries: a Current Review of the Prevalence and Proposed Prevention Strategies for Physical Therapists and Similar Healthcare Professionals

Giles Gyer, Jimmy Michael and James Inklebarger

The abstract states:

‘Hand injury is the second most common work-related musculoskeletal injury among physical therapists (PTs) and other manual therapy professionals such as osteopaths, physiotherapists, chiropractors, acupuncturists and massage therapists. However, the nature and extent of this problem have not been fully explored yet. Therefore, the objective of this study was to review the existing literature published on the prevalence, risk factors, consequences, and prevention of hand injuries among PTs and similar healthcare professionals. The lifetime prevalence of hand injuries was about 15%-46%, and the annual prevalence was reported as 5%-30%. Thumb injuries were found to be the most prevalent of all injuries, accounting more than 50% of all hand-related problems. The most significant risk factors for job-related hand injuries were performing manual therapy techniques, repetitive workloads, treating many patients per day, continued work while injured or hurt, weakness of the thumb muscles, thumb hypermobility, and instability at the thumb joints. PTs reported modifying treatment technique, taking time off on sick leave, seeking intervention, shifting the specialty area, and decreasing patient contact hours as the major consequences of these injuries. The authors recommend that PTs should develop specific preventive strategies and put more emphasis on the use of aids and equipment to reduce the risk of an unnecessary injury.’

Massage World wonders what you the readers think about this? We have covered various methods that therapists use to protect their joints, especially fingers and thumbs, and to maintain good posture and technique so as to protect our bodies. These include reinforcing hands, fingers and thumb, making sure you apply pressure at the correct angle (one that is not a strain), and having power coming from the legs where possible, with a lunging stance. A variety of massage tools exist, some therapists finding these helpful, whilst others prefer to rely on their own touch. Keeping physically strong, as well as stretching and strengthening muscles that we use a lot (such as those of the forearm) also helps to keep injuries at bay.

<https://www.ncbi.nlm.nih.gov/pubmed/29526241>

From: Frontiers in Physiology 27 September 2017; 8: 747. Published online 2017 Sep 27. doi: 10.3389/fphys.2017.00747. <https://doi.org/10.3389/fphys.2017.00747>.

Massage Alleviates Delayed Onset Muscle Soreness after Strenuous Exercise: A Systematic Review and Meta-Analysis

Jianmin Guo, Linjin Li, Yuxiang Gong, Rong Zhu, Jiakexu, Jun Zou and Xi Chen

This is a systematic review and meta-analysis looking into the effects of massage on alleviating delayed onset of muscle soreness (DOMS) and muscle performance after strenuous exercise, drawing from seven databases, including PubMed, Embase, and Cochrane Library. Randomized controlled trials (RCTs) were eligible and the outcomes of muscle soreness, performance (including muscle maximal isometric force (MIF) and peak torque (indicates the muscle’s maximum

strength capability) and creatine kinase (CK) were used to assess the effectiveness of massage intervention on DOMS.

As the authors explain in the full paper:

‘Exhaustive or unaccustomed exercise (particularly involving eccentric contractions) frequently result in temporary muscle damage, leading to delayed onset muscle soreness (DOMS) (Bleakley et al., 2012). DOMS commonly occurs within the first 24 h after exhaustive or intense exercise, reaching a peak between 24 and 72 h (Howatson and van Someren, 2008). It is often accompanied by muscle swelling and reduction in muscle performance (Kargarfard et al., 2016; De Marchi et al., 2017), as well as a decrease in range of motion (Cheung et al., 2003; Lavender and Nosaka, 2006). This is verified by microscopic analysis showing disruption of muscle fibers. In addition, there is also an increase of intracellular enzymes such as creatine kinase (CK) and inflammatory markers in blood (Peake et al., 2005a,b; Chatzinikolaou et al., 2010).’

Most (eight articles) of the trials used western massage techniques or Swedish massage techniques including effleurage and petrissage. Three articles performed traditional Chinese massage.

Here are the study’s results:

‘Eleven articles with a total of 23 data points (involving 504 participants) satisfied the inclusion criteria and were pooled in the meta-analysis. The findings demonstrated that muscle soreness rating decreased significantly when the participants received massage intervention compared with no intervention at 24 h (SMD: -0.61, 95% CI*: -1.17 to -0.05, P = 0.03), 48 h (SMD**: -1.51, 95% CI: -2.24 to -0.77, P < 0.001), 72 h (SMD: -1.46, 95% CI: -2.59 to -0.33, P = 0.01) and in total (SMD: -1.16, 95% CI: -1.60 to -0.72, P < 0.001) after intense exercise. Additionally, massage therapy improved MIF (SMD: 0.56, 95% CI: 0.21–0.90, P = 0.002) and peak torque (SMD: 0.38, 95% CI: 0.04–0.71, P = 0.03) as total effects. Furthermore, the serum CK level was reduced when participants received massage intervention (SMD: -0.64, 95% CI: -1.04 to -0.25, P = 0.001).

Conclusion:

The current evidence suggests that massage therapy after strenuous exercise could be effective for alleviating DOMS and improving muscle performance.’

However, they cite specific limitations in the quality of the current research, and add in the full article: ‘Nevertheless, it is necessary to be cautious about the results in view of the limitations outlined in the present study. More RCTs with large sample sizes are needed for better understanding the effectiveness of massage intervention on DOMS and muscle performance.’

**CI is confidence interval, relating to the precision of findings.

*Standardized mean differences

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5623674/#idm140006008628208title>

From: *Frontiers in Physiology*, 26 Apr 2018; 9:403. doi: 10.3389/fphys.2018.00403. eCollection 2018. <https://doi.org/10.3389/fphys.2018.00403>.

An Evidence-Based Approach for Choosing Post-exercise Recovery Techniques to Reduce Markers of Muscle Damage, Soreness, Fatigue, and Inflammation: A Systematic Review With Meta-Analysis.

Olivier Dupuy, Wafa Douzi, Dimitri Theurot, Laurent Bosquet and Benoit Dugué

A similar meta-analysis study points again to the positive effects of massage for alleviating DOMS after physical exertion. This study looked at three databases, PubMed, Embase, and Web-of-Science, and 99 studies were included.

The results were as follows:

‘Active recovery, massage, compression garments, immersion, contrast water therapy, and cryotherapy induced a small to large decrease ($-2.26 < g < -0.40$) in the magnitude of DOMS, while there was no change for the other methods. Massage was found to be the most powerful technique for recovering from DOMS and fatigue. In terms of muscle damage and inflammatory markers, we observed an overall moderate decrease in creatine kinase [SMD (95% CI) = -0.37 (-0.58 to -0.16), I² = 40.15%] and overall small decreases in interleukin-6* [SMD (95% CI) = -0.36 (-0.60 to -0.12), I² = 0%] and C-reactive protein** [SMD (95% CI) = -0.38 (-0.59 to -0.14), I² = 39%]. The most powerful techniques for reducing inflammation were massage and cold exposure.

Conclusion:

Massage seems to be the most effective method for reducing DOMS and perceived fatigue. Perceived fatigue can be effectively managed using compression techniques, such as compression garments, massage, or water immersion.’

*An endogenous chemical which is active in inflammation and elevated in response to muscle contraction

**One of the acute-phase proteins, whose levels fluctuate in response to tissue injury

<https://www.ncbi.nlm.nih.gov/pubmed/29755363>

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