

Directed Meditation Has Minimal Short-Term Effect for Adults with Chronic Low Back Pain: A Critically Appraised Topic

Marenzi AL, Medina McKeon JM: Ithaca College, Ithaca, NY

Focused Clinical Question: In adults with chronic low back pain(LBP) [P], is directed meditation [I] effective for reducing disability [O] compared to standard care or rest [C]?

Data Sources: PubMed was searched (May-September 2017) for studies using iterations of the terms: meditation, mindfulness, and low back pain. Search was limited to clinical trials published within the past 5 years. **Study Selection:** Selection criteria required studies 1) were performed on adults(>18years) with chronic LBP, 2) implemented a meditation or mindfulness program(Meditation); 3) incorporated a control condition, which could include health education, home-based exercise program, flexibility program, or rest(Standard Care). **Data Extraction:** Selected outcomes of interest were 1) disability, as measured by the Roland Morris Disability Index(RDQ) [23 items, higher scores indicate worse symptoms]; and 2) physical or mental interference with daily life(Bothersome), as caused by LBP [100-mm VAS, 100-mm indicates most bothersome pain]. Means, standard deviations, and sample sizes were extracted at 8- & 26-weeks post-treatment. **Summary Measures:** Individual Hedge's g effect sizes(ES) [95%CIs] were calculated to determine group differences(Meditation vs. Standard Care) at the 2 identified time points. Two summary models were also used to pool data separately for the 2 time points. **Evidence Appraisal:** All included studies were clinical trials; the PEDro scale was used to identify potential threats to validity. **Search Results:** Three studies satisfied criteria for inclusion. The control condition varied: a home-based exercise program, rest, and a health education / stretching program were each used as control conditions. **Data Synthesis:** At the 8-week time point, there was a weak effect for Meditation on improvement of LBP, as indicated by the RDQ (ES=0.2[0.0, 4.0], p=0.02) and by the Bothersome outcome(ES=0.3[0.1, 0.6], p=0.004). At 26-weeks, this trend did not improve for the RDQ; there was a stronger effect, however wide CIs that encompassed zero (ES=0.6[-0.4, 1.5], p=0.24). For the 26-week Bothersome outcome, there was little change from the 8-week result (ES=0.3[0.01, 0.5], p=0.04). **Evidence Quality:** Two studies scored 8/10 and 1 study scored 7/10 on the PEDro scale. All 3 studies failed to blind the participants and administering therapists. One study failed to analyze by intention-to-treat for patients not receiving allocated treatment.

Conclusions: The current evidence demonstrated little positive effect of short-term directed meditation on chronic LBP. However, all 3 experimental groups showed more improvement in disability and back pain interference than the controls. In particular, LBP-associated interference in daily life (Bothersome) did have a small, but consistent effect on reducing this perception. Chronic pain affects all aspects of life, and a small, but perhaps meaningful reduction in the attention directed to this pain may be clinically meaningful. While the included studies were well-designed, with few threats to validity, the time points of 8- and 26-weeks may be too short to evoke substantial change, especially with chronic conditions. The ability to consciously regulate thoughts and to clear the mind is a complex skill that needs time to master. For the included studies, the timeframe may be too short for the participants to acquire this complex skill, and also to affect a chronic condition. Additionally, patient buy-in is required to fully develop this

skill; patients not compliant with this type of treatment will unlikely observe the desired results. It was unknown as to the level of commitment to meditation-based treatment for those assigned to the experimental groups. Although meditation did not strongly affect disability associated with chronic LBP, there may be a place for using psychological techniques for managing certain musculoskeletal conditions. Future research should focus on identifying which conditions most likely most likely to respond to meditation training and also the dosage necessary to evoke positive change. **Word Count: 599**