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Topic of Study: Use of Manual Therapy as compared to Exercise for Pain Relief and Improving Disability

First Author, Year	Article Title	Article Type	Research Purpose	Sample(s)/Variables	Intervention(s) - Rename Groups as needed			Dependent Variables or Outcome measure(s)	Pertinent Results/Findings	Comment on evidence and clinical usefulness or Applicability (relevance to your question and clinical practice)	Determine level of Study Quality (use PRIS for Evidence Level/Grade. https://www.evidence-practice.com/1_pretect_published_guidelines)
					Independent Variables	Sampling Type	Experimental				
Fredin, 2017	Manual therapy, exercise therapy or combined treatment in the management of adult neck pain: A systematic review and meta-analysis	SR + MA	The aim of the study by Fredin et al was to review the current body of literature in order to assess whether or not a combined approach to rehabilitation utilizing both manual therapy (MT) and exercise therapy (ET) was more effective than either therapy alone in reducing pain and improving function in adult patients with grade I and II neck pain.	Manual Therapy Exercise Therapy	N/A	Exp1: Exercise Therapy Exp2: ET + MT	None N/A	Visual Analogue Scale (VAS) Numeric Rating Scale (NRS) Neck Disability Index (NDI) Northwick Park Questionnaire (NPQ) Short Form (36) with physical and mental component (SF-36 PCS and MCS) Short Form (12) with physical and mental component (SF-12 PCS and MCS)	Found very small to insignificant between-group differences in effect sizes for their primary outcomes (neck pain at rest, neck disability, quality of life and QoL).	The authors' conclusions are that a combined treatment of MT and ET does not appear to be more effective than ET alone in reducing neck pain, neck disability, or quality of life for adults with grade I or II neck pain. The authors stated that there are specific benefits associated with MT, these benefits are very minimal to the overall treatment effect of combining the two treatments. The authors cite the lack of trials investigating the topic and the subsequent poor quality of included studies as reasons for the insignificant results. However, given the reciprocity of the included studies, they appear hopeful this is representative of increased interest in the subject matter and therefore, the potential for future research to support or refute their findings.	Level 1B AMSTAR 8/11
Batran-Abacru, 2015	Manual Therapy, Therapeutic Patient Education, and Therapeutic Exercise: an Effective Multimodal Treatment of Nonspecific Chronic Neck Pain	RCT	The aim of the study was to determine the effectiveness of a multimodal treatment approach for disability associated with nonspecific chronic neck pain. The authors were specifically interested in how therapeutic education (TE) and therapeutic education (TPE) affected disability in short and medium term.	Manual Therapy Therapeutic Exercise (TE) Therapeutic Patient Education (TPE)	Combination of Convenience and Voluntary Response Sample	Exp1: TE + MT Exp2: TE + MT + TPE	MT N/A	Neck Disability Index (NDI) Tampa Scale of Kinesiophobia (TSK) Fear Avoidance Beliefs Questionnaire (FABQ) Visual Analogue Fatigue Scale (VAFS) Neck Flexor Muscle Endurance (NFME)	The authors found the FABQ follow-up scores statistically significant in the experimental groups but not in the control. Both experimental and control groups demonstrated reduced disability in the short and medium terms. However, a greater effect was seen in the two experimental groups than in the control. While the NDI change scores were higher in the experimental group versus the control, scores between the two experimental groups were similar. Therefore, the inclusion of therapeutic exercise and/or therapeutic education in conjunction with manual therapy provides greater effect than manual therapy alone. The authors also found that experimental group 2 had a minimal improvement over experimental group 1 in terms of disability. Lastly, the VAFS and NFME for the experimental groups showed better outcomes than the control, although not clinically significant.	I agree with much of the interpretations presented by the authors. For the NDI, P < 0.01 for all follow-up periods, making the results statistically significant in all groups throughout the entirety of the testing period. My interpretation of this is that manual therapy alone, and certainly in conjunction with TPE and TE, has a positive impact on disability in patients with chronic neck pain. With respect to the FABQ and TSK, 11 outcomes, the effect size of the experimental groups show statistical significance as the effect sizes are greater than 0.3. In the FABQ, at the 16-week follow up there was no significant effect size within the control group. Whereas the experimental groups showed effect sizes greater than 0.3. From the first treatment to the way through to week 16. Similarly, in the TSK-11, the experimental groups had substantially larger effect sizes compared to the control and the results were similar between the two experimental groups. My interpretation of this data is that there is an early, and long-standing benefit to substantially reducing with or without therapeutic exercise. It would have been interesting to see how the results would have differed if experimental group 2 utilized TE instead of TPE as that is what we could make conclusions regarding the effectiveness of TPE versus TE. As briefly mentioned, I would have liked to see a study that isolated manual therapy from therapeutic exercise, or at a minimum, offered TE in addition to MT without the addition of TPE. While the results regarding TPE are fascinating, the mere implementation of TPE in the treatment intervention is a confounding variable that impacts the relevancy of this article to the stated clinical question. The therapeutic education component is actually cited as a reason why the Fredin et al systematic review did not include the Batran-Abacru RCT in their systematic review. Regardless, I cannot draw comparisons between manual therapy and TE especially because the outcomes between experimental groups were very similar. If the pain or disability results of experimental group 2 were substantially higher than experimental group 1, it may be reasonable to draw inferences that the added intervention of therapeutic exercise was the cause for difference. However, this was not the case.	Level 1A PEDRO 9/11
Mansueto, 2017	Stabilization exercise compared to general exercises or manual therapy for the management of low back pain: A systematic review and meta-analysis	SR + MA	The aim of this systematic review with meta-analysis was to analyze published RCTs that investigated the efficacy of stabilization exercises versus general exercises or manual therapy in patients with LBP.	Manual Therapy General Exercises Stabilization Exercises	N/A	Manual Therapy	Stabilization Exercises General Exercises	Pain (NRS, VAS) Disability	Significant improvements in pain and disability of the participants in the stabilization group as compared to the general exercises group. No significant differences in pain or disability between stabilization group and manual therapy group.	This systematic review indicates that stabilization exercises may be more effective than general exercises in reducing pain and improving disability. Further, there was no significant difference in pain or function between stabilization exercises and manual therapy (mobilization and manipulation) exercises. Therefore, this review indicates that manual therapy is as effective as stabilization exercises and manual therapy and TE especially because the outcomes between experimental groups were very similar. If the pain or disability results of experimental group 2 were substantially higher than experimental group 1, it may be reasonable to draw inferences that the added intervention of therapeutic exercise was the cause for difference. However, this was not the case.	Level 1B
Arguilueta, 2019	Effects of myofascial release in erector spinae myoelectric activity and lumbar spine kinematics in non-specific chronic low back pain: Randomized controlled trial	RCT	Analyze the effects of the same isolated MFR protocol on erector spinae myoelectric activity and lumbar spine kinematics in individuals with CLBP.	Myofascial Release	Recruited from Orthopaedic Surgery Service	MFR Group	Sham MFR	Structures treated with MFR (A) Longitudinal sliding of lumbar paravertebral muscles (B) myofascial release of the thoracolumbar fascia. (C) myofascial release of quadratus lumborum; (D) myofascial release of psoas muscle.	Roland Morris Questionnaire, RMQ Short Form McGill Pain Questionnaire, SF-MPQ	This study set out to determine if myofascial release had an effect on "myoelectric silence" of the erector spinae muscles during a flexion-extension activity. Essentially they were measuring the gap (if any) was present in the erector spinae when the patient transitioned from sitting to concrete to concrete. The theory is that the absence of a silent period is indicative of a low back injury. This study did not correlate any of the findings with their findings of improved pain and disability. However, they did find that MFR is effective in reducing pain and disability as compared to a sham treatment where they therapists placed their hands on the patients similar to the intervention groups, but refrained from applying pressure. This study is useful in determining MFR, a manual therapy technique, to be effective in the treatment of CLBP.	Level 1A
Bada, 2017	Effects of manual therapy and exercise targeting the hips in patients with low back pain: A randomized controlled trial	RCT	To determine whether a formal prescription treatment protocol consisting of exercise and manual therapy targeting the hip improves outcomes in patients with LBP + HIFP group.	Isolated Hip Exercises	Convenience sample from routine clinical care.	Exp: 1 Pragmatic low back pain treatment alone (LBP) Exp: 2 Pragmatic low back pain treatment plus prescriptive hip treatment (LBP + HIFP)	None N/A	ODI Patient Satisfaction NPRS GRCC Patient Acceptable Symptom State (PASS) * Looked at baseline, 2 weeks, and upon discharge data	No significant differences between groups in ODI and NPRS at week 2. ODI - Experimental group improved from 36.4 to 21.2 at two weeks to 9.1 at discharge. Patient Satisfaction - Experimental group reported 2.0 at two weeks to 1.0 at discharge. NPRS - Experimental group improved from 5.1 to 2.7 at two weeks to 1.1 at discharge. GRCC - Experimental group reported 4.0 at two weeks to 6.0 at discharge. Patient Acceptable Symptom State (PASS) - this measure only reported at discharge, LBP + HIFP group: 36 = Yes 3 = No 6 = missing (92% acceptable symptom state) LBP group: 26 = Yes 1 = No 12 = missing (65% acceptable symptom state)	Patient findings reported were of the chief experimental group. Findings for the LBP only group were very similar, however, small to medium effect sizes were found for all measures in favor of the LBP + HIFP group. Therefore, whenever there was between group differences, they were in favor of the LBP + HIFP group. Both groups, however, reported clinically meaningful improvements in pain, disability, and satisfaction. A particular interest, 92% of the included responses in the LBP + HIFP were discharged with an acceptable level of symptoms to the patient. This was substantially higher than the LBP group. Therefore, this article demonstrated that a pragmatic approach to treating LBP including manual therapy and exercise is effective in treating the condition and satisfaction may be enhanced with the introduction of isolated hip exercises.	Level 1A
Abbott, 2013	Manual therapy, exercise therapy, or both, in addition to usual care, for osteoarthritis of the hip or knee: A randomized controlled trial. I. clinical effectiveness	RCT	To determine the long term effectiveness of exercise, manual therapy, and combined treatments for the purpose of rehabilitating knee or hip OA.	Manual Therapy, Exercise Therapy	Convenience sample from GP referral for hip/knee pain	Exp1: Usual Care + MT Exp2: Usual Care + Exercise Therapy Exp: Usual Care + Combined MT and ET	Usual Care Only	Primary: WOMAC Secondary: VAS 30s STS 40m Self-Paced Walk Test GRCC	WOMAC - Usual care + MT achieved clinically important reduction 41.4pts from baseline to 1 year (28.5 point reduction compared to usual care) WOMAC - Usual care + ET achieved clinically important reduction 29.3pts from baseline to 1 year (16.4 point reduction compared to usual care) WOMAC - Usual care + Combined MT/ET improved by 27.4 but barely missed clinical importance from baseline to 1 year (14.5 point reduction compared to usual care) WOMAC - Usual care improved by 12.9pts, but from baseline to 1 year. This is not even half way to clinical importance. WOMAC clinically important reduction +28 points The exercise group provided physical performance benefits in most of the secondary outcomes, although none of which were clinically significant.	The WOMAC is a functional questionnaire used in OA populations. This study is useful because it identified a large population experiencing OA in the hip or knee and demonstrated clinically meaningful improvements in function for the LC + MT and LC + ET group. The study identified the manual therapy group as demonstrating the most improvement at 1 year follow-up. Compared to the previous studies I have reviewed, this study looked at long term improvements and found no significant differences at 1 year for the usual care group. In this study, usual care was defined as the typical care provided by the GP, or other professionals the participant sought out. There were no study interventions in this group. These results indicate that other manual therapy or exercise therapy are effective for improving function, and that exercise therapy is favored for improving the secondary outcome measures. However, none of the secondary measures were clinically meaningful. Lastly, the combined MT + ET group was near clinical significance, but did not achieve this. Therefore, it could be surmised that it is better for the patient to determine the preference of MT or ET and the physician to treat them accordingly because combining both treatments with the same timeframe effectively reduces the dosage of each. This may explain the reduced effectiveness within the group. This is important for On-Site physical therapy because it aligns with our patient-centered approach and providing the patient with the treatments they wish to receive.	Level 1A