ACUTE EFFECTS OF DIFFERENT ANTERIOR THIGH SELF-MASSAGE ON HIP RANGE-OF-MOTION IN TRAINED MEN. Monteiro ER. Int J Sports Phys Ther. 2018 Feb;13(1):104-113.

Review submitted by: Justin Pretlow, PT, DPT, OCS

Objective: To investigate the acute effects of foam rolling and rolling massage of anterior thigh on hip range-of-motion (ROM) – hip extension and hip flexion.

Methods: A single-blinded, randomized, crossover, within-subject design - Eighteen recreationally active, resistance trained males visited the lab on two occasions over a 4-day period separated by at least a day. Each session included two baseline ROM measures of passive hip flexion and extension taken in a randomized fashion. Subjects performed the randomized intervention of either foam rolling or massage stick rolling of the anterior thigh, for 120 secs. Hip flexion and hip extension PROM were reassessed immediately post intervention and at 10, 20, and 30 minutes post-intervention.

Results: Hip flexion and hip extension ROM increased immediately following both interventions (foam rolling or roller massager) and remained increased for 30 minutes post intervention. Foam rolling was statistically superior in improving hip flexion and hip extension ROM immediately post intervention. However, immediately post-intervention was the only time point that measurements exceeded the minimum detectable change for both interventions. (For point of reference- MDC for the foam roller intervention was 10.31 deg for hip flexion and 6.57 deg for hip extension)

Conclusions: Both foam rolling and rolling massage of the anterior thigh are equally effective at increasing hip flexion as well as hip extension ROM immediately post-intervention. These effects started to fall below the MDC in as little as 10 minutes.

Commentary: I like this study because it seeks to test the effectiveness of a simple intervention that is not very time-consuming (only 2 mins) and can be utilized by a wide variety of patients. However, I'm not sure that any strong conclusions can be drawn from this study. The authors do a good job of discussing some of the major weaknesses. All the subjects are male – not ideal. They assessed the interventions impact on passive hip extension and flexion, which does not necessarily correlate well with active, functional movement. I wish they had thrown in some comparison interventions – have subjects ride a bike or perform a dynamic warm-up as comparison groups. The authors cite the improvement in hip flexion as evidence of a more global or centrally mediated effect. I agree with the idea that foam rolling or self-massage effects are more central in nature. I typically think of having patients foam roll the quads to aid in hip extension exercises, but after reading this, I'd like to experiment with foam rolling as an adjunct for improving hip flexion.

Ahem M, Skyllas J, Wajon A and Hush J. The effectiveness of physical therapies for patients with base of thumb osteoarthritis: Systematic review and meta- analysis. Musculoskel Sci Pract., 2018, doi: 10.1016/j.msksp.2018.02.005.

Review submitted by: Jennifer M. Boyle

Objective:

The objective of this study was to systematically review the evidence from randomized controlled trials that have investigated the effectiveness of multimodal and unimodal physical therapies for base of thumb OA.

Methods:

Electronic searches of MEDLINE (PubMed), CINAHL, Embase, AMED, PEDro, Cochrane Database of Systematic Review, Cochrane Register of Controlled Trials (CENTRAL) from inception to May 2017 were conducted. The following key words were used: 'thumb', 'base of thumb', 'osteoarthritis', 'conservative', 'OA', 'carpometacarpal joint', 'treatment' and 'management' in combination with search terms to identify randomized controlled trials

Studies included with following criteria:

- 18 and older with confirmed dx of trapeziometacarpal OA and no other co morbidities of the hand or wrist (carpal tunnel, De Quervain's tendonitis, Dupuytren's contracture).
- Interventions included: exercise, manual therapy, nerve mobilizations, orthoses, acupuncture, electrotherapy and other combinations of these. All compared to control involving placebo, sham or primary care.
- Randomized control trials included
- Outcomes utilized if reporting at least one of the following: pain, strength or function or absolute outcome data

Results:

Original search: 239 published articles

Removal of duplicates: 134

Abstract screened: 27

Full text review: 5 studies utilized

Studies utilized compared single or multimodal physical therapy interventions.

Treatment:

Pain: Multimodal interventions reduced pain by 2.9 on 0-10 scale over placebo treatment. Single modality reduced pain by 3.1 on 0-10 scale.

Strength: Multimodal had small increase in pinch strength (0.1kg) over placebo. Unimodal pinch strength no difference over placebo and no activity. Unimodal increase in grip strength by 0.9 kg compared to placebo or no activity.

Conclusions:

Strong evidence was collected that physical therapy treatments can reduce pain, increase strength and function in patients with thumb OA. For the outcome of pain severity the results showed consistent reductions for both unimodal and multimodal treatments.

Commentary:

I feel that this article is not only prevalent with the patients we see but with ourselves as physical therapists as well. Our thumbs take a huge amount of loading forces everyday on the patients we work on. Personally, I have had to adopt other means of treatment because my thumbs will not be able to sustain these forces for my career. This article provides evidence showing that treating these patients with one or multiple interventions helps decrease pain and increase strength and function for these patients and ourselves. At times I am intimidated with treating a hand patient but this article reassures me that I have the tools to help these patients just as a hand therapist would.

Locks R, Utsunomiya H, Briggs KK, Mcnamara S, Chahla J, Philippon MJ. Return to Play After Hip Arthroscopic Surgery for Femoroacetabular Impingement in Professional Soccer Players. Am J Sports Med. 2018;46(2):273-279.

Review Submitted By: Tyler France, PT, DPT, CSCS

Objective: The objective of this study was to determine the rate and time to return to sport for professional soccer players after hip arthroscopic surgery for the treatment of femoroacetabular impingement and to identify potential risk factors associated with a delay returning to play.

Methods: Professional soccer players who underwent hip arthroscopic surgery for FAI by a single surgeon from 2005-2015 were evaluated. All players were unable to continue playing soccer before their surgery due to either pain or significant mechanical symptoms. Information on each player's professional career, including participation on the national team, length of professional career before injury, number of games played before surgery, time between surgery and first appearance in a professional game, and number of games played after surgery were obtained from Wikipedia.com, fifa.com, and mlssoccer.com. Other relevant data was obtained from the patient's medical record. Supervised physical therapy was initiated post-operative day 1 in all cases.

Results: Twenty-four professional soccer players (26 hips) were included in the study. The mean age at surgery was 25 (4) (range: 19-32 years). A total of 96% of patients were able to return to play at the professional level. The mean time between surgery and the first professional game played was 9.2 months (range: 1.9-24 months). On average, players played in 70 games after surgery (range: 0-224). National team players were able to return to play significantly earlier than the rest of the players (median: 5.7 months vs 11.6 months, respectively; p= .018) Severe chondral damage and microfracture did not interfere with return to play.

Conclusions: The arthroscopic management of FAI in symptomatic professional soccer players allowed 96% of them to return to play. Players with national team experience were able to return to play earlier than those without it. Severe chondral damage and microfracture did not interfere with return to play.

Commentary: The findings of this study were similar to those of previous studies examining return to play following hip arthroscopy in sports such as baseball and hockey. It appears that 8-9 months is an appropriate time to return to play in professional athletes following hip arthroscopy. I found it particularly interesting that the presence of significant chondral damage or performance of microfracture procedure did not have any effect on the time to return to play. Additionally, I found it interesting that players with more games played before surgery and those who were members of the national team returned to play significantly earlier than their counterparts, who were generally younger. This could potentially be related to prior experience dealing with injuries and rehabilitation, or perhaps due to financial obligations and pressure from sponsors and teammates to return to play. Overall, the percentage of athletes who are able to return to professional sports following hip arthroscopy has been found to be high across a number of sports.

Griswold, David et al. "Pragmatically Applied Cervical And Thoracic Nonthrust Versus Thrust Manipulation For Patients With Mechanical Neck Pain: A Multicenter Randomized Clinical Trial." *Journal of Orthopaedic & Sports Physical Therapy* (2018): 1-30. Web.

Review Submitted by: Katie Long, PT, DPT

Objective: To evaluate the impact of a pragmatic clinical approach of thrust manipulation versus nonthrust manipulation to the cervical and thoracic spine, targeting the symptomatic level, in patients with mechanical neck pain.

Methods: Inclusion criteria: patients with mechanical neck pain, between ages 18-70, minimum of 20% on NDI, and reported >2/10 on NRPS. Exclusion criteria: contraindication to orthopedic manual therapy, prior surgical history of cervical or thoracic spine, spinal nerve compression signs (myotomal weakness, dermatomal sensory loss, decreased DTR), patients seeking litigation, if they were seeking other forms of conservative care, provocation of symptoms with PAIVM testing to the cervical or thoracic spine. Red-flag screening was performed by clinicians, pre-manipulative hold screening testing was not performed due to their lack of sensitivity in detecting blood flow compromise. Instead clinicians followed the clinical decision-making guidelines for performing cervical manipulations as published by IFOMPT. Clinician and patient equipoise bias regarding manipulative success was assessed utilizing a visual analogue scale from -2-0-2 to quantify degree of preference toward any of the intervention techniques. Each patient had an individualized examination, although PAIVM testing and deep cervical flexion (DCF) endurance training was a required component. Primary outcome measures included NDI and DCF endurance. Secondary outcome measures included PSFS, NRPS, global rating of change scale (GROC). Each patient's techniques and dosage were determined pragmatically by the clinician's individualized exam following allocation of group assignment (TM vs NTM).

Results: 103 participants were included in the study, 48 were allocated to receive TM and 55 were randomized to receive NTM. NDI, PSFS score, NRPS 24-hour, and DCF endurance were analyzed utilizing a two-way mixed ANOVA at baseline, visit two and discharge. No significant difference between measures (NDI, PSFS, NRPS, DCF) for time or group was noted when clinical equipoise was controlled. Significant main effects were observed in the NDI, PSFS and NRPS when global or patient equipoise was accounted for. No major adverse effects were noted, 26 patients (25%, 13=TM, 13=NTM) suffered adverse effects including aggravation of pain, headache, dizziness, radiating symptoms, muscle stiffness, spasm or soreness.

Conclusions: The results of this study found no between-group differences in those who received TM or NTM. The authors determined that the clinician preference on intervention technique did not affect the outcomes of the study. These results are similar with previous similarly designed studies evaluating a pragmatic approach to TM or NTM, that found no difference between groups. These results differ from studies utilizing a prescriptive design to compare TM and NTM, which vary in both results and intervention application.

Commentary: The results of this study indicate that those with mechanical neck pain can demonstrate benefit from TM or NTM applied to symptomatic levels. This study is applicable to daily practice due to its pragmatic nature. This study is also helpful when working with populations contraindicated for manipulative treatment. These results may be applied to justify either method of treatment depending on patient demographics and presentation. This study is also unique as it accounts for clinician and

patient bias for or against manipulative therapy. It may be helpful to take these points into consideration when patient or clinician bias may align with one treatment intervention over the other.

King MG, Lawrenson PR, Semciw AI, et al. Lower limb biomechanics in femoroacetabular impingement syndrome: a systematic review and meta-analysis. Br J Sports Med. Epub ahead of print: [2018 Feb 13]. doi:10.1136/bjsports-2017-097839.

Review Submitted by: Sarah Bosserman, PT, DPT, CSCS

Objective: 1. To identify differences in hip and pelvic biomechanics in those with FAIS compared with controls for activities of daily living (i.e. walking, squatting, stairs). 2. Evaluate effectiveness of interventions on biomechanics during daily activities.

Methods: Five electronic databases were searched, up until February 2017. For aim one, studies were required to include participants with FAIS compared with healthy controls or the contralateral asymptomatic limb. For aim two, included studies evaluated effects of a conservative or surgical intervention on patients with FAIS. Studies were grouped based on population (i.e. cam-only FAIS) and outcome (i.e. peak hip extension).

Results: This review included 14 studies, including 11 cross-sectional and 3 pre-post intervention studies of low to moderate reporting quality (using the EAI). A total of 215 symptomatic patients (158 men, 57 women) with a primary diagnosis of FAI as diagnosed by X-ray, MRI or CT, were compared against 236 controls. 7 studies included those with cam-type FAIS and 7 included a variety of cam, pincer, or combined. Results for FAIS compared to controls found moderate evidence of a small effect for lower peak hip extension angle (SMD -0.40, 95% CI -0.71 to -0.09) and moderate evidence of a moderate effect for lower peak hip internal rotation angle during stance phase (-0.67, 95% CI -1.19 to -0.16). Pooled data from 5 studies demonstrated moderate evidence of moderate effect size for lower peak external rotation joint torque (-0.74, 95% CI -1.07 to -0.35). Squatting kinematics was investigated in 4 studies, finding those with FAIS squatted to a lesser depth vs controls (SMD 0.92, 95% CI 0.46 to 1.38) but no differences in peak hip angles for all 3 planes at maximal squat depth (i.e. hip flexion, abduction, and IR angles). 2 studies investigated effects of arthroscopic surgery on kinematics and joint torques on walking, squatting, and steps. The studies reported insufficient evidence of improvements or no change with kinematics during the walking cycle or stair ascent but did find postoperative patients squatted to a lower depth with no difference in peak hip flexion angle.

Conclusions: This study demonstrated that those with FAIS may have lower peak hip extension, total sagittal plane ROM, and peak hip internal rotation during stance phase of gait. These patients also squatted to a lesser depth, with no change in peak hip flexion range. There was insufficient evidence to comment on other tasks evaluated at this time.

Commentary: The authors of this review discuss past studies and comment on possible implications of each finding. Decreased peak hip extension near terminal stance is consistent with hip OA and following THA potentially to reduce load on anterior hip during gait. It is hypothesized this may negatively affect hip stability over time and may be a factor to consider in management of this condition. Further, it was shown that those with FAIS had decreased peak ER torque (with decreased hip IR angles), that may be a strategy to avoid positions of IR (and minimize pain). Those with FAIS did not squat as deeply as controls, despite no differences in flexion range of motion. Though evidence-based recommendations can not be made at this time, it is thought that this may be because of poor motor programming, pain, or fearfulness. Lastly, this review found no studies investigating the effect of physical therapy on biomechanics in those with FAIS but did find that surgical interventions may have no effect on hip kinematics during step and squatting tasks. The authors hypothesize that the limited and conflicting evidence found for effects of surgery may be due to surgical technique used, FAIS type or follow up time. This review highlights the need for future studies investing effects of conservative treatment in those with FAIS. This review does not allow for determination of cause and effect (implicating biomechanical variations in FAIS or vice versa) and multiple other variable still need to be considered (walking speed, impact of higher impact activities, etc). This review does highlight biomechanical difference in those with FAIS that should be considered when developing treatment strategies and in symptom management.