GOOD EVIDENCE MATTERS

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Short-Term Steroids, Long-Term Relief for Hip OA

Clinical Efficacy of Multiple Intra-Articular Injection for Hip Osteoarthritis

Lei T, Wang Y, Li M, Hua L. Clinical efficacy of multiple intra-articular injection for hip osteoarthritis. *Bone Joint J*. 2024;106-B(6):532-539. Published 2024 Jun 1. doi:10.1302/0301-620X.106B6.BJJ-2023-1272.R1

KEY TAKEAWAY: Steroid injections are the most effective treatment for reducing pain and improving function at three months in adults with hip osteoarthritis (OA). At six months, local anesthetics are more effective at reducing pain, while a placebo is the most effective for improving function.

STUDY DESIGN: Systematic review and network meta-analysis of 16 randomized controlled trials (RCTs) (N=1,735)

LEVEL OF EVIDENCE: STEP 3 (downgraded due to significant heterogeneity among studies, including differences in drug doses and formulations and outcomes)

BRIEF BACKGROUND INFORMATION: Hip OA is a common progressive deterioration of cartilage that is primarily associated with older adults or previous trauma, leading to pain and impaired mobility. There are multiple intra-articular (IA) injections available with varying efficacies. This study aimed to assess the clinical outcomes of treatment modalities for hip OA.

PATIENTS: Patients with hip OA

INTERVENTION: Various IA injections

CONTROL: Placebo and alternative injectable medications

PRIMARY OUTCOME: Pain and function

METHODS (BRIEF DESCRIPTION):

- Patients were adults with hip OA who participated in RCTs requiring them to receive at least two of the seven IA treatment modalities.
- Of the 16 studies, four studies were from Italy, two each were from Canada, United Kingdom, and the United States, one each was from Denmark, France, Iran, Japan, Spain, and Sweden.
- Interventions included at least two of the following IA injections: Hyaluronic acid (HA), platelet-rich plasma (PRP), steroid, local anesthesia, HA + PRP, steroid + local anesthesia, and placebo (normal saline).
- Self-reported comparisons were made between these interventions to assess pain and function.
- The primary outcome measured pain and function using the following scales:
  - Pain was assessed using the Visual Analogue Scale (VAS). Scores range from 0–100, with higher scores indicating worse pain.
  - Function was assessed using the Western Ontario and McMaster Universities Arthritis Index (WOMAC). Scores range from 0–100, with higher scores indicating worse function.
- The primary outcomes were measured at three- and six-month post intervention.
- Results were reported as surface under the cumulative ranking curve (SUCRA) values.
  - SUCRA is a statistical method used in network meta-analysis and represents overall ranking of treatment options within a group of treatments, with lower SUCRA values indicating improved pain and function.

INTERVENTION (# IN THE GROUP):

- HA: 690
- PRP: 194
- HA + PRP: 64
- Steroid: 272
- Anesthetic: 119
- Steroid + anesthetic: 61

COMPARISON (# IN THE GROUP): 335

FOLLOW-UP PERIOD: Three and six months

RESULTS:

Primary Outcome –

- Steroids are the most effective treatment for pain at three months, according to the SUCRA analysis:
  - HA resulted in worse pain compared to local anesthetic (weighted mean difference [wMD] 2.2; 95% CI, 0.37–3.7).
  - HA showed no significant difference in pain compared to placebo (wMD –0.05; 95% CI, –0.91 to 0.81).
  - HA improved pain compared to steroids (wMD –1.7; 95% CI, –2.8 to –0.76).
  - Local anesthetic improved pain compared to steroids (wMD –3.9; 95% CI, –5.3 to –2.2).
  - Placebo improved pain compared to steroids (wMD –1.6; 95% CI, –2.8 to –0.64).
- Anesthetics were the most effective treatment for pain at six months, according to the SUCRA analysis:

- HA showed no significant difference in pain compared to local anesthetic (wMD 0.51; 95% CI, –3.1 to 3.9).
- HA showed no significant difference in pain compared to placebo (wMD –0.21; 95% CI, –3.4 to 3.0).
- HA showed no significant difference in pain compared to steroids (wMD 0.42; 95% CI, –2.8 to 3.6).
- Local anesthetic showed no significant difference in pain compared to steroids (wMD –0.08; 95% CI, –4.8 to 4.7).

- Steroids were the most effective treatment for function at three months, according to the SUCRA analysis.
  - HA did not improve function compared to placebo (wMD 1.9; 95% CI, –3.8 to 7.8).
  - HA improved function compared to steroids (wMD –7.9; 95% CI, –14 to –1.5).
  - Placebo improved function compared to steroids (wMD –9.7; 95% CI, –17 to –3.2).
- Placebo was the most effective treatment for improving function at six months, according to the SUCRA analysis:
  - HA did not improve function compared to placebo (wMD 0.31; 95% CI, –27 to 28).
  - HA did not improve function compared to steroids (wMD 1.5; 95% CI, –24 to 28).
  - Placebo did not improve function compared to steroids (wMD 1.4; 95% CI, –39 to 36).

LIMITATIONS:

- There were unknown previous injections or other treatments at patient level.
- Included studies used varying formulations, drug brands, doses, and administration techniques.
- If comorbidities were favored more heavily in certain treatment groups, they were unaccounted for.
- Pain and function outcomes were considered separately, not in combination.

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Can Trabecular Bone Score Enhance Fracture Risk Assessment in Long-Distance Runners with Bone Stress Injuries?

Madi R, Khan S, Rajapakse CS, Khan AN, Temme K. Can Trabecular Bone Score Enhance Fracture Risk Assessment in Long-Distance Runners with Bone Stress Injuries?. *Clin J Sport Med*. 2025;35(2):127-131. doi:10.1097/JSM.0000000000001279

KEY TAKEAWAY: In long-distance runners with higher bone mineral density (BMD) z-scores, the trabecular bone score (TBS) z-score may not add additional value in predicting bone stress injury risk.

STUDY DESIGN: Retrospective cohort study

LEVEL OF EVIDENCE: STEP 4 (downgraded due to small sample size)

BRIEF BACKGROUND INFORMATION: Long-distance runners are at increased risk of developing bone stress injuries (BSIs), which can progress to complete fractures if not properly identified and treated. The TBS z-score uses images from the dual-energy X-ray absorptiometry (DEXA) bone density scan to measure underlying bone microarchitecture and quality, which may be useful in determining BSI and fracture risk. This study aimed to assess the correlation between TBS z-scores and BMD z-scores in patients with BSI.

PATIENTS: Long-distance runners 18–40 years old

INTERVENTION: TBS z-score

CONTROL: BMD z-score

PRIMARY OUTCOME: Prevalence of abnormal TBS z-scores

Secondary Outcome: Differences in abnormal TBS z-score based on BSI type

METHODS (BRIEF DESCRIPTION):

- The study was conducted through electronic medical record review of patients at the University of Pennsylvania Sports Medicine Center.
- Selected patients were long-distance runners between 18–40 years old who experienced a BSI between 2017 and 2023 and had completed DEXA imaging with TBS z-score determination within one year before or two years after the injury.
- The average participant was approximately 25 years old with 79% of participants being female.
- BSI type was further categorized into trabecular-rich bones (e.g. sacrum, pelvis, femoral neck, calcaneus) and cortical-rich bones (e.g. femoral shaft, tibia, fibula, metatarsals, tarsal navicular).
- All DEXA images were reviewed by the study authors, verifying BMD and TBS z-scores.
- Z-scores compare a person's bone density to others of the same age, gender, and size.
- BMD z-scores range from –4 to 1, with a score of –1.0 or higher indicating better bone density, and a TBS z-score of –2.0 or lower indicates poorer bone quality.
- The primary study outcome evaluated the percent of abnormal TBS z-scores in participants with BMD z-scores above –1.0.

INTERVENTION (# IN THE GROUP): 44

COMPARISON (# IN THE GROUP): 44

FOLLOW-UP PERIOD: Not available

RESULTS:

Primary Outcome –

- In study participants with BMD z-scores above –1.0, abnormal TBS z-scores were seen in 55% of total participants.

Secondary Outcome –

- There was no significant difference in TBS z-scores between trabecular-rich and cortical-rich BSIs.

LIMITATIONS:

- The study had a very small sample size and focused on disease-oriented outcomes.
- The study only included long-distance runners and findings may not be representative of athletes in other sports.
- Athletes with recurrent bone stress injuries were not included in the study.

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The views expressed herein are those of the author and do not necessarily reflect the official policy of the Department of the Navy, Defense Health Agency, Department of Defense, or the U.S. Government.

Exercise for the Tongue: A New Angle on Sleep Apnea

Orofacial Myofunctional Therapy for Obstructive Sleep Apnea: A Systematic Review and Meta-Analysis

Saba ES, Kim H, Huynh P, Jiang N. Orofacial Myofunctional Therapy for Obstructive Sleep Apnea: A Systematic Review and Meta-Analysis. *Laryngoscope*. 2024;134(1):480-495. doi:10.1002/lary.30974

KEY TAKEAWAY: Orofacial myofunctional therapy (OMT) decreases severity of sleep apnea, but benefits are limited in children due to poor compliance.

STUDY DESIGN: Systematic review and meta-analysis of seven randomized controlled trials (RCTs) (N=310)

LEVEL OF EVIDENCE: STEP 2 (downgraded due to small sample size and high heterogeneity)

BRIEF BACKGROUND INFORMATION: Many patients are noncompliant or intolerant of continuous positive airway pressure (CPAP) which is the standard treatment for obstructive sleep apnea (OSA). Untreated OSA increases risk for cardiovascular (CV) events, excessive sleepiness, and cognitive impairment. This study aimed to assess the efficacy of OMT vs sham therapy, observation, or oral appliance use.

PATIENTS: Adults and children with OSA

INTERVENTION: OMT

CONTROL: Sham treatment, oral appliance, or no treatment

PRIMARY OUTCOME: OSA severity

Secondary Outcome: Subjective sleepiness, sleep-related quality of life, snoring frequency

METHODS (BRIEF DESCRIPTION):

- The review consisted of six adult studies and one pediatric study.
- Adults 19–75 years old and children 4–16 years old with newly diagnosed OSA, low CPAP adherence (<4 hours/night) were included in the study.
- Patients underwent adenotonsillectomy with Apnea-Hypopnea Index (AHI) >1/hour, and no evidence of adenotonsillar hypertrophy.
- Patients on CPAP treatment with good compliance, history of cardiovascular event, grade IV tonsil, temporomandibular joint dysfunction, complete nasal obstruction, and low education, or low literacy level were excluded from the study.
- Treatment arm included OMT monotherapy which consisted of tongue placement and phonation exercises. Pediatric group had poor compliance with OMT.
- Control arm for adults consisted of sham exercises that used different muscles such as inspiratory muscle training, or no treatment. Control arm for children consisted of an oral appliance.
- OSA severity was measured using the AHI:
  - Minimal clinically important difference (MCID): 5/hour
  - Scoring
    - Normal: 0–5
    - Mild: 5–14
    - Moderate: 15–29
    - Severe: ≥30
- Subjective sleepiness was assessed via Epworth Sleepiness Scale (ESS). Scores range from 0–24, with a higher score indicating more severe sleepiness.
- Sleep-related quality of life was assessed via Pittsburgh Sleep Quality Index. Scores range from 0–21, with higher scores indicating poorer sleep quality.
- Oxygenation was measured by minimum oxygen saturation.
- Snoring frequency had various measures across studies.
- Investigators calculated mean difference (MD) for each measure, and using t-test for comparison.
  - Due to the variation in measures of snoring frequency across studies, a meta-analysis was not conducted.

INTERVENTION (# IN THE GROUP):

- Adult: 112
- Children: 23

COMPARISON (# IN THE GROUP):

- Adult: 125
- Children: 52

FOLLOW-UP PERIOD:

- Adult: 1.5–3 months
- Children: Six months

RESULTS:

Primary Outcome –

- OMT decreased OSA severity compared to sham or no treatment in adults (mean difference [MD] –10; 95% CI, –16 to –4.8).
- OMT did not improve OSA severity compared to oral device in children (MD –0.38; *p*=0.5).

Secondary Outcome –

- OMT improved subjective sleepiness compared to sham or no treatment in adults (MD –5.7; 95% CI, –6.8 to –4.5).
- OMT improved sleep-related quality of life compared to sham or no treatment in adults (MD –3.0; 95% CI, –4.5 to –1.5).
- OMT improved minimum O_2 saturation compared to sham or no treatment in adults (MD 2.7; 95% CI, 0.23–5.2).

LIMITATIONS:

- Limited inclusion of women made results less generalizable.
- Poor compliance in pediatric group and a very small sample size meant that the results could not be generalized to pediatric population.
- Short duration of follow-up.

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From Conversation to Commitment: MI Helps Patients Plan Ahead

Effect of Motivational Interviewing to Promote Advance Care Planning among Palliative Care Patients in Ambulatory Care Setting: A Randomized Controlled Trial

Chan HY, Leung DY, Lam PT, Ko PP, Lam RW, Chan KS. Effect of motivational interviewing to promote advance care planning among palliative care patients in ambulatory care setting: a randomized controlled trial. *BMC Palliat Care*. 2025;24(1):31. Published 2025 Jan 31. doi:10.1186/s12904-025-01667-9

KEY TAKEAWAY: Longitudinal motivational interviewing increases readiness to talk about advanced care planning (ACP) with family and physicians, appoint a surrogate, and leads to increased documentation for palliative care patients in an ambulatory setting compared to usual care.

STUDY DESIGN: Multicenter, nonblinded randomized controlled trial (N=204)

LEVEL OF EVIDENCE: STEP 3 (downgraded due to of lack of blinding, non-statistically significant secondary outcomes, and limited generalizability of patient population)

BRIEF BACKGROUND INFORMATION: Approaching ACP discussions can be challenging for both patients and providers. Previous studies conducted in the United States have shown a correlation between motivational interviewing and increased outcomes of documentation or appointment of surrogates, with an additional secondary benefit of improved quality of life for patients. This trial aimed to investigate the relationship between motivational interviewing and ACP readiness in cultures where these discussions are often considered taboo.

PATIENTS: Ambulatory, palliative care patients in Hong Kong

INTERVENTION: Motivational interviewing sessions

CONTROL: Usual palliative care

PRIMARY OUTCOME: Readiness for ACP

Secondary Outcome: Decisional conflict, perceived stress, quality of life

METHODS (BRIEF DESCRIPTION):

- Adult patients with an anticipated life expectancy (mean survival time) of 41–65 days as determined by a Palliative Performance Scale (PPS) ≥60% were included in the study.
- Patients who already had documented end-of-life decisions, were undergoing psychiatric treatment, or were non-communicative were excluded from the study.
- Patients were randomized 1:1 to motivational interviewing or usual care.
  - The motivational interviewing cohort received three one-hour sessions of in-home motivational interviewing conducted by a trained social worker.
  - The control group received usual care which included printed information regarding ACP.
- The primary outcome was measured using a five-point Likert scale, asking patients to discuss their readiness to discuss the primary four ACP aspects: Appointing a medical decision maker, discussing end-of-life care with family, discussing end-of-life care with physicians, and documenting end-of-life care preferences.
- Likert scale measurements were obtained from all patients at baseline, one month, and three months.
- Secondary outcomes were measured using the following:
  - Decisional conflict was assessed with the SURE test.
  - Perceived stress was measured with a 10-item Perceived Stress Scale.
  - Quality of life was measured with a 23-item Quality of Life Concerns in the End-of-Life Questionnaire

INTERVENTION (# IN THE GROUP): 102

COMPARISON (# IN THE GROUP): 102

FOLLOW-UP PERIOD: One month and three months

RESULTS:

Primary Outcome –

- At three months, patients who received motivational interviewing were significantly more likely than control to:
  - Appoint a surrogate decision maker (β 0.80; 95%CI, 0.25–1.4)
  - Discuss end-of-life with family (β 0.76; 95% CI, 0.22–1.3)
  - Discuss end-of-life with physicians (β 0.86; 95% CI, 0.3–1.4)

- Document advanced directives (β 0.89; 95% CI, 0.36–1.4)

Secondary Outcome –

- Patients who received motivational interviewing had no statistically significant improvements in decisional conflict or perceived stress.
- Patients who received motivational interviewing had greater quality of life specifically in social support (β=0.17; 95% CI 0.05–0.33, p=0.43) and value of life (β=0.20; 95% CI, 0.01–0.39, p=0.04) at the one-month compared to usual care. However, these results were not sustained at three months.

LIMITATIONS:

- Because of the nature of the study design, participants were unable to be blinded to treatment.
- There was limited generalizability because the study was conducted with voluntary participation of palliative care patients, which could represent patients that are more open to ACP at baseline.
- There was a disproportionate number of patients with cancer diagnoses compared to non-cancer diagnoses, which could also limit generalizability.

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The views expressed herein are those of the author and do not necessarily reflect the official policy of the Department of the Army, Defense Health Agency, Department of Defense, or the U.S. Government.