The Impact of Osteopathic Manipulative Therapies on Sports Performance and Recovery: A Literature Review

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AIM

Investigate the efficacy of osteopathic manipulative treatment (OMT) to improve athletic performance and recovery in college athletes. We aim to evaluate whether OMT can improve sports performance and recovery to potentially serve as an adjunct to conventional sports medicine treatments.

INTRODUCTION

Athletes frequently experience performance limitations and impaired range of motion (ROM) due to injury, overtraining, or sport-specific demands. These challenges are often compounded by factors such as game load, travel, and level of competition. While conventional sports medicine offers a variety of strategies to address these issues, the integration of OMT remains underutilized despite growing evidence of its benefits.

OMT encompasses a range of hands-on techniques that aim to restore physiological function, reduce pain, and enhance neuromuscular performance. Current research suggests that OMT modalities may improve athletic performance metrics such as ROM, sprint speed, jump height, and throwing accuracy, while also accelerating recovery and reducing injury risk.

Current return-to-play protocols without OMT are stepwise depending on the injury, and recovery time ranges from 7-28 days. Athletes must complete each step of the protocol without symptoms of pain to progress to the next step. The gap we are addressing is to investigate if OMT as an adjunct therapy can have the potential to shorten recovery time.

Given the potential of OMT to serve as a safe, non-pharmacologic adjunct to traditional sports medicine, our goal is to inform future clinical applications and support the development of evidence-based protocols that incorporate OMT into collegiate athletic care as an adjunct to current return-to-play protocols

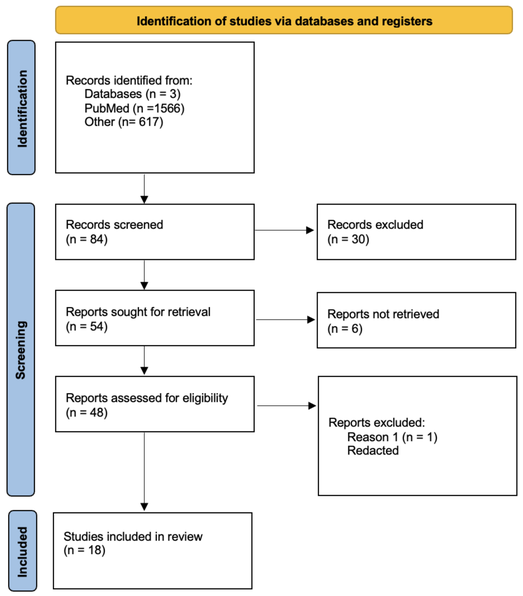
What is OMT?

- **HVLA: high-velocity low-amplitude**
  Quick reset for a stuck joint, frees up restricted motion, and reset the mechanics of the joint.
- **SCS: strain-counterstrain**
  Places the muscle into the most relaxed position, reduces muscle spasm, calms down pain signals, and resets muscle tone
- **MET: muscle energy technique**
  Uses the body's own muscle contractions against resistance to stretch tight muscles, and restore motion
- **MFR**: **Myofascial release**
  Applying gentle pressure and stretching to restore function to connective tissue (fascia)

METHOD

54 peer reviewed full text articles were screened for inclusion criteria. The RVU-MCOM library was used as a tool to access databases including PubMed and Clinical Key. Key words included "muscle stretching exercises", "musculoskeletal manipulations", "muscle energy technique" "osteopathic manipulative treatment", "osteopathic manipulative medicine", "OMT", "sports injuries", "athlete", "athletic injuries", "athletic performance". Articles published primarily after 2015 were included, with earlier studies considered in select cases due to the limited number of available research studies.

PRISM flow diagram for the literature review.

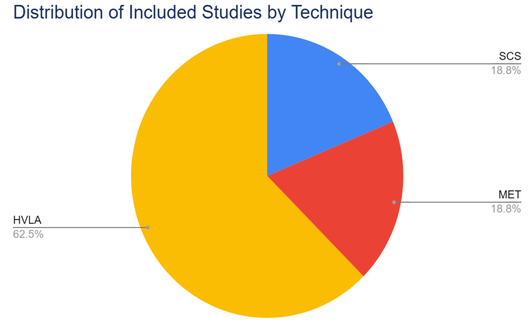


PRISM 2020 illustrates identification, screening, and how many studies were included in this review.

Adapted from: Page MJ, et al. PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71."

RESULTS

Study Inclusion:16 studies met criteria (SCS = 3, MET = 3, HVLA = 10)



Of the 16 studies included in this review, HVLA was the most studied technique, followed by MET and SCS.

Strain-Counter Strain (SCS):

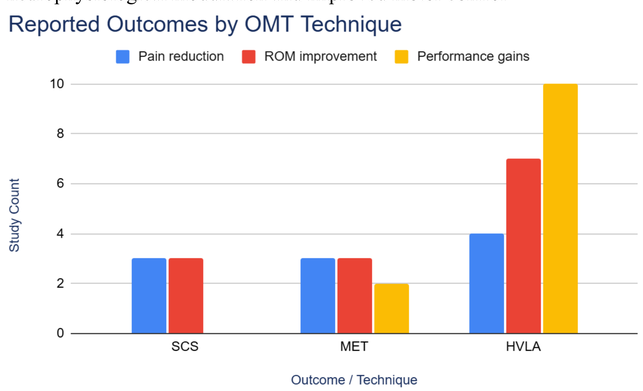
- Reduces tenderness and pain in targeted muscles
- Improves strength and functional recovery in athletes with chronic musculoskeletal dysfunction
- Short-term improvements in range of motion; long-term effects inconsistent

Muscle Energy Technique (MET):

- Clinically meaningful improvements in range of motion, especially in the shoulder and posterior shoulder tightness
- Reduces pain in musculoskeletal conditions (e.g., low back, shoulder)
- Strength improvements, particularly when combined with other therapies

High-Velocity, Low-Amplitude (HVLA):

- Short-term improvements in sprint speed, jump height, throwing velocity, and accuracy
- Increases joint range of motion and neuromuscular readiness
- Greater benefits observed in symptomatic athletes; mechanisms include neurophysiological modulation and improved motor control



SCS and MET consistently improved pain and range of motion, while HVLA produced the largest gains in performance outcomes and enhanced ROM.

Key Finding:
OMT demonstrated measurable improvements in recovery and selected performance outcomes, supporting its role as a potential adjunctive therapy in collegiate sports medicine.

DISCUSSION

This systematic review evaluated the emerging evidence supporting OMT as a valuable adjunct in sports medicine. Our findings indicate that OMT is associated with reduced pain, increased range of motion, and enhanced performance outcomes including sprint speed, jump height, and throwing accuracy. Collectively, this evidence suggests that OMT could play a valuable role in enhancing athlete recovery and performance.

Despite these associations, the current literature is limited by small sample sizes, variable treatment protocols, and inconsistent outcome measures, reflecting a lack of standardization across studies. Additionally, available research has focused on short-term recovery and immediate performance outcomes. The lack of longitudinal follow-up limits our understanding of the sustained effects of OMT on long-term recovery, reinjury prevention, and athletic performance over the course of a competitive season.

Future research should prioritize well-designed, longitudinal studies that assess the durability of OMT benefits across weeks, months, and entire seasons. Such studies should incorporate larger, more diverse athletic populations and adopt standardized treatment protocols with clearly defined outcomes. Establishing a more robust evidence base will be essential for the integration of OMT as a standard component of sports medicine practice.

REFERENCES

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