

## IN BRIEF A Summary of the Evidence

# Shockwave Therapy for Pain Associated With Lower Extremity Orthopedic Disorders: A Review

## Key Messages

- Shockwave therapy (SWT) sends low- or high-energy sound waves to tissues in an effort to reduce pain, but how SWT might achieve this effect is not known. As SWT treatment techniques are not standardized, comparing studies is difficult.
- SWT appears to be more effective than other non-surgical treatments for reducing chronic pain associated with lower extremity orthopedic disorders, including plantar fasciitis, or heel pain; greater trochanteric pain syndrome, or hip pain; patellar tendinopathy, or knee pain; and medial tibial stress syndrome, or shin pain. However, there were a few inconsistencies in the findings.
- More evidence is needed to determine whether SWT is more clinically effective than surgery for pain associated with lower extremity orthopedic disorders.
- There is little information on adverse effects experienced with SWT treatment, but bruising and pain at the site of application have been reported.
- There is no evidence for the cost-effectiveness of SWT for chronic pain associated with lower extremity orthopedic disorders.

## Context

Orthopedic disorders are conditions that affect the muscle or bone and often cause chronic pain, which is pain that lasts for more than three months. Orthopedic disorders can range from shoulder disorders (cuff tendinopathy) to foot disorders (plantar fasciitis), and the chronic pain associated with them is commonly treated with ice and rest, nonsteroidal anti-inflammatory drugs (NSAIDs), physical therapy, corticosteroid injections, or, in more severe cases, surgery. Other non-drug treatment options include shockwave therapy (SWT), laser therapy, radiation therapy, and transcutaneous electric nerve stimulation. If not properly treated, orthopedic disorders can lead to long-term complications such as decreased productivity or even disability in patients.

## Technology

For more than two decades, SWT has been used to treat bone and soft tissue-related disorders, and is proposed as a cheaper and less risky alternative to surgery for orthopedic disorders. SWT sends sound waves to tissues affected by pain in an effort to increase their repair rates. Pain relief from SWT is thought to be a result of the sound waves overstimulating tissues to reduce pain signalling to the brain and breaking down calcium deposits, although how exactly SWT may achieve this is unknown. Different SWT devices include focused SWT, which uses an applicator filled with water, and radial SWT, which uses compressed air to transmit pressure waves into the body.

## Issue

As SWT continues to be used to treat chronic pain from orthopedic disorders, there is a need to determine whether SWT is an effective and affordable alternative to other treatments. A previous CADTH report entitled *Shockwave Therapy for Pain Associated with Upper Extremity Orthopedic Disorders: A Review of the Clinical and Cost-Effectiveness* found that SWT was effective in reducing chronic pain associated with shoulder tendinitis but only if caused by calcium deposits. A review of the clinical and cost-effectiveness of SWT in treating chronic pain associated with lower extremity orthopedic disorders will complement the CADTH report on upper extremity orthopedic disorders and help inform decisions regarding options for chronic pain management.

## Methods

A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

## Results

The literature search identified 570 citations, with no additional relevant articles identified from other sources. Of these, 22 potentially relevant reports were selected for full-text review, and seven systematic reviews met the criteria for inclusion in this report – four looked at foot- and ankle-related disorders; two at thigh-, knee-, and tibia-related disorders; and one included several lower extremity disorders.

## Read more about CADTH and its review of shockwave therapy for pain associated with lower extremity orthopedic disorders at:



[cadth.ca/shockwave-therapy-pain-associated-lower-extremity-orthopedic-disorders-review-clinical-and-cost-0](http://cadth.ca/shockwave-therapy-pain-associated-lower-extremity-orthopedic-disorders-review-clinical-and-cost-0)

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