

Acute Pain Management: Non-Pharmacological Interventions

Pain can be categorized as acute or chronic and sometimes as acute, subacute, and chronic. The definitions for these categories vary. Acute or subacute pain is typically described as short-term forms of pain that last less than three months and chronic pain is described as pain lasting for longer than three months. If not properly managed, acute and subacute pain may turn into chronic pain. There are many interventions available for acute or subacute pain management. They include both pharmacological and non-pharmacological options. In the last few years, CADTH has been asked to review, through our Rapid Response Service, the clinical effectiveness evidence and the recommendations from evidence-based guidelines for treating various acute pain conditions with non-pharmacological interventions. Here, you'll find the evidence highlights related to those evidence reviews.

For more information about the CADTH work and evidence on pain management, please visit cadth.ca/pain.

It's important to note that the information that follows has been compiled from multiple CADTH reports from 2017 to mid-2020. For more details on each intervention and the evidence identified, consulting the full CADTH report (as provided through the links in the tables) is highly recommended. Depending on the date of the report, additional evidence may now be available that changes the findings subsequently reported. And because of the methods used for rapid reviews, it is possible that some evidence may not have been included.

Summary of Considerations for Practice Legend



- There is a reasonable amount of evidence (although a comparison with opioids may be lacking, making their place in therapy uncertain).
- The evidence indicates that the risk of harms is low and/or side effects are mild to moderate.



- There is some evidence to indicate effectiveness, but it may be conflicting, mixed, or lower quality.^a
- Evidence on harms is lacking or unclear.




- There is no evidence or evidence shows a lack of effectiveness.
- There is limited or no evidence on harms.

^a The quality of the evidence may be ranked as unclear, low, moderate, or high. The lower the quality, the less confidence there is in the results. When the quality is low, there is a need for higher-quality research to be certain of the interventions effect.


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Acute Musculoskeletal Pain



Intervention	Research Findings	Limitations
<p><u>Psychological therapies</u></p> <p>cadth.ca/psychotherapy-treatment-acute-musculoskeletal-pain-review-clinical-effectiveness-and-guidelines</p> 	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • Cognitive behavioural therapy (CBT) in combination with physiotherapy after back-surgery may improve function; however, it may not impact pain resolution. • Low-quality evidence suggests that CBT may improve pain for patients with subacute neck pain. • CBT may reduce disability and improve body functions in patients with subacute low back pain, particularly when combined with physiotherapy and personalized to the patient. • Psychotherapies based on relaxation or mindfulness techniques showed mixed results on pain following knee surgery. • Psychotherapy combined with physiotherapy may improve pain and disability in patients with musculoskeletal pain as a whole; however, these benefits were not found when low back pain, neck and whiplash-associated pain, and osteoarthritis-related pain were investigated separately. <p><i>Based on five systematic reviews, one randomized controlled trial, and one evidence-based guideline</i></p>	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • There was heterogeneity among the therapies (e.g., type, frequency, duration, timing, administration method, use of a combination of add-on/adjunct psychotherapies). • Varying outcome measures (e.g., scales and questionnaires) were used. <p>Guidelines:</p> <ul style="list-style-type: none"> • The identified evidence-based guideline did not provide any recommendations because of the insufficiency of the evidence.


Ankle Sprain

Intervention	Research Findings	Limitations
<p>Exercise</p> <p>cadth.ca/exercise-treatment-ankle-sprain-review-clinical-effectiveness-and-guidelines</p> 	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • No significant differences were found for structured exercise-based rehabilitation plus usual care compared to usual care alone for outcomes such as foot and ankle function, pain, and subjective ankle instability. The results were mixed for ankle sprain recurrence. • No significant differences were found for supervised rehabilitation compared to home exercise for outcomes such as pain, subjective ankle instability, and subjective recovery. The results for ankle sprain recurrence were mixed. • No significant differences were found for early mobilization using a stretch band ankle traction technique compared to protection, rest, ice, compression, and elevation (PRICE) treatment for outcomes such as ankle strength, ankle function, pain, and number of days to returning to sport in children and adolescents. • No significant difference were found for Wii Fit exercise therapy compared to conventional physical therapy or no therapy for outcomes such as ankle function, pain, time to returning to sport, and self-reporting satisfaction and effectiveness. <p>Guidelines:</p> <ul style="list-style-type: none"> • One guideline recommends the use of exercise therapy in combination with functional support or manual mobilization in the treatment of acute lateral ankle sprain. <p><i>Based on two systematic reviews, two randomized controlled trials, and one evidence-based guideline</i></p>	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • There was heterogeneity among the exercise training programs and degree of injury. • The population was not clearly defined. • Studies had varying outcome measures and follow-up periods. • No evidence was identified comparing exercise to pharmacotherapy. <p>Guidelines:</p> <ul style="list-style-type: none"> • The included guideline did not grade its recommendation.



Intervention	Research Findings	Limitations
<p>External supports</p> <p>cadth.ca/external-supports-treatment-ankle-sprain-review-clinical-effectiveness</p> 	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • Stockings may improve pain, swelling, functional outcomes, and range of motion when compared to bandages for ankle sprain. However, statistically significant differences in pain and swelling were not found when stockings were compared to placebo. Stockings may shorten the time to return to sport activities when compared to placebo. • No significant differences were found between taping and other external supports for ankle sprain. • No significant differences were found for semi-rigid or posterior rigid supports compared to tape or bandages for ankle sprains, except a higher patient satisfaction when using semi-rigid or posterior rigid supports. • The addition of Kinesio Tape to acupuncture did not significantly improve outcomes. • No significant differences were found between cohesive taping and short-leg casts. • Reported complications include: <ul style="list-style-type: none"> ◦ Air-cast brace: skin complications, suspected deep vein thrombosis (DVT), or pulmonary embolism (PE) (one randomized controlled trial (RCT) found 1 out of 149 patients with suspected DVT or PE, another RCT did not report incidence rates) ◦ Bandages: suspected DVT or PE (one RCT found 2 out of 144 patients with suspected DVT or PE, another RCT did not report incidence rates) ◦ Below-knee cast: suspected DVT or PE (one RCT found 1 out of 119 patients with suspected DVT or PE) ◦ Bledsoe boots: cellulitis (one RCT found 1 out of 149 patients with cellulitis, another RCT did not report incidence rates) ◦ Taping: dermatitis, skin blister, bullae formation, skin abnormalities <p><i>Based on one systematic review, one randomized controlled trial, and one non-randomized study</i></p>	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • No evidence was identified comparing external supports to pharmacotherapy. • There was heterogeneity among patients' demographics and study characteristics. • Few trials were identified for each comparison.


Acute Back Pain

Intervention	Research Findings	Limitations
<p>Psychological therapies</p> <p>cadth.ca/psychotherapy-treatment-acute-musculoskeletal-pain-review-clinical-effectiveness-and-guidelines</p> 	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • Cognitive behavioural therapy (CBT) in combination with physiotherapy after back-surgery may improve function; however, it may not impact pain resolution. • CBT may reduce disability and improve body functions in patients with subacute low back pain, particularly when combined with physiotherapy and personalized to the patient. • Psychotherapy combined with physiotherapy may improve pain and disability in patients with musculoskeletal pain as a whole; however, these benefits were not found when low back pain, neck and whiplash-associated pain, and osteoarthritis-related pain were investigated separately. <p><i>Based on five systematic reviews, one randomized controlled trial, and one evidence-based guideline relating to acute musculoskeletal pain</i></p>	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • There was heterogeneity among the therapies (e.g., type, frequency, duration, timing, administration method, use of a combination of add-on/adjunct psychotherapies). • Varying outcome measures (e.g., scales and questionnaires) were used. <p>Guidelines:</p> <ul style="list-style-type: none"> • The identified evidence-based guideline did not provide any recommendations because of the insufficiency of the evidence.
<p>Manual therapy (manipulation, mobilization, massage, traction)</p> <p>cadth.ca/manual-therapy-recent-onset-or-persistent-non-specific-lower-back-pain-review-clinical-effectiveness</p> 	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • Low-quality evidence suggests that spinal manipulation and soft tissue therapy may have positive effects on pain and function for acute and chronic low back pain. • The effectiveness of spinal mobilization (often included as an adjunct to spinal manipulation) is uncertain. • Traction for low back pain with or without radiculopathy appears not to be effective. • No serious harms were reported with manual therapies. Non-serious adverse events included transient increases in pain. <p>Guidelines:</p> <ul style="list-style-type: none"> • Three evidence-based guidelines provided recommendations supporting the use of manual therapy for acute and chronic low back pain in adults. One guideline recommended massage and spinal manipulation for acute or subacute low back pain. Another guideline recommended spinal manipulation, mobilization, or massage in conjunction with other interventions for people with low back pain. The last guideline provided a recommendation for spinal manipulation for people with acute low back pain aggravated or occurring as a result of a traffic collision. • One guideline recommended against the use of traction. <p><i>Based on 12 systematic reviews and three evidence-based guidelines relating to acute or chronic low back pain</i></p>	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • Evidence was limited (studies were limited in duration, quality, and quantity). • Information regarding the type of procedure utilized and the dosage of treatments used was lacking. • No clinical effectiveness evidence was identified for the pediatric population. <p>Guidelines:</p> <ul style="list-style-type: none"> • No recommendations from evidence-based guidelines were identified for the pediatric patient population.

Intervention	Research Findings	Limitations
<p>Physiotherapy</p> <p>cadth.ca/physiotherapy-interventions-management-neck-and-or-back-pain-review-clinical-and-cost-effectiveness</p> 	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • Physiotherapy for back pain may be effective. Some studies reported statistically significant reductions in pain, while others reported no difference. • No adverse effects were reported. <p><i>Based on 14 systematic reviews relating to acute or chronic neck and/or low back pain</i></p>	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • The evidence was limited and largely low to moderate in quality.

Acute Neck Pain

Intervention	Research Findings	Limitations
<p>Psychological therapies</p> <p>cadth.ca/psychotherapy-treatment-acute-musculoskeletal-pain-review-clinical-effectiveness-and-guidelines</p> 	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • Low-quality evidence suggests that CBT may improve pain for patients with subacute neck pain. • Psychotherapy combined with physiotherapy may improve pain and disability in patients with musculoskeletal pain as a whole; however, these benefits were not found when low back pain, neck and whiplash-associated pain, and osteoarthritis-related pain were investigated separately. <p><i>Based on five systematic reviews, one randomized controlled trial, and one evidence-based guideline relating to acute musculoskeletal pain</i></p>	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • There was heterogeneity among the therapies (e.g., type, frequency, duration, timing, administration method, use of a combination of add-on/adjunct psychotherapies). • Varying outcome measures (e.g., scales and questionnaires) were used. <p>Guidelines:</p> <ul style="list-style-type: none"> • The identified evidence-based guideline did not provide any recommendations because of the insufficiency of the evidence.
<p>Manual therapy (manipulation, mobilization, massage, traction)</p> <p>cadth.ca/manual-therapy-recent-onset-or-persistent-neck-pain-review-clinical-effectiveness-and-guidelines</p> 	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • Manipulation and mobilization appear to be effective for managing neck pain in adults. • Massage may be beneficial for managing neck pain in adults. • Traction may be beneficial for managing neck pain in adults, but this evidence is of limited quality. <p>Guidelines:</p> <ul style="list-style-type: none"> • Two evidence-based guidelines recommend the use of manual therapies for acute and chronic neck pain in adults including manipulation, mobilization, multimodal manual therapy, and massage. The guidelines both do not recommend using relaxation massage, strain-counterstrain therapy, and/or traction. <p><i>Based on 12 systematic reviews and two evidence-based guidelines relating to acute or chronic neck pain</i></p>	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • Evidence is limited (studies were limited in duration, quality, and quantity). • Information on the type of manual therapy procedure, as well as the frequency and duration of treatments, was lacking. • No clinical effectiveness evidence was identified for the pediatric population. <p>Guidelines:</p> <ul style="list-style-type: none"> • No recommendations from evidence-based guidelines were identified for the pediatric patient population.

Intervention	Research Findings	Limitations
<p>Physiotherapy</p> <p>cadth.ca/physiotherapy-interventions-management-neck-and-or-back-pain-review-clinical-and-cost-effectiveness</p> 	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • Physiotherapy for neck pain may be effective. Some studies reported statistically significant reductions in pain, while others reported no difference. • No adverse effects were reported. <p><i>Based on 14 systematic reviews relating to acute or chronic neck and/or low back pain</i></p>	<p>Clinical effectiveness:</p> <ul style="list-style-type: none"> • The evidence was limited and largely low to moderate in quality.

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