

CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Orthotic Braces for Idiopathic Scoliosis: Guidelines

Service Line: Rapid Response Service
Version: 1.0
Publication Date: August 23, 2019
Report Length: 6 Pages

Authors: Shannon Hill, Mary-Doug Wright

Cite As: *Orthotic Braces for Idiopathic Scoliosis: Guidelines*. Ottawa: CADTH; 2019 Aug. (CADTH rapid response report: summary of abstracts).

Disclaimer: The information in this document is intended to help Canadian health care decision-makers, health care professionals, health systems leaders, and policy-makers make well-informed decisions and thereby improve the quality of health care services. While patients and others may access this document, the document is made available for informational purposes only and no representations or warranties are made with respect to its fitness for any particular purpose. The information in this document should not be used as a substitute for professional medical advice or as a substitute for the application of clinical judgment in respect of the care of a particular patient or other professional judgment in any decision-making process. The Canadian Agency for Drugs and Technologies in Health (CADTH) does not endorse any information, drugs, therapies, treatments, products, processes, or services.

While care has been taken to ensure that the information prepared by CADTH in this document is accurate, complete, and up-to-date as at the applicable date the material was first published by CADTH, CADTH does not make any guarantees to that effect. CADTH does not guarantee and is not responsible for the quality, currency, propriety, accuracy, or reasonableness of any statements, information, or conclusions contained in any third-party materials used in preparing this document. The views and opinions of third parties published in this document do not necessarily state or reflect those of CADTH.

CADTH is not responsible for any errors, omissions, injury, loss, or damage arising from or relating to the use (or misuse) of any information, statements, or conclusions contained in or implied by the contents of this document or any of the source materials.

This document may contain links to third-party websites. CADTH does not have control over the content of such sites. Use of third-party sites is governed by the third-party website owners' own terms and conditions set out for such sites. CADTH does not make any guarantee with respect to any information contained on such third-party sites and CADTH is not responsible for any injury, loss, or damage suffered as a result of using such third-party sites. CADTH has no responsibility for the collection, use, and disclosure of personal information by third-party sites.

Subject to the aforementioned limitations, the views expressed herein do not necessarily reflect the views of Health Canada, Canada's provincial or territorial governments, other CADTH funders, or any third-party supplier of information.

This document is prepared and intended for use in the context of the Canadian health care system. The use of this document outside of Canada is done so at the user's own risk.

This disclaimer and any questions or matters of any nature arising from or relating to the content or use (or misuse) of this document will be governed by and interpreted in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein, and all proceedings shall be subject to the exclusive jurisdiction of the courts of the Province of Ontario, Canada.

The copyright and other intellectual property rights in this document are owned by CADTH and its licensors. These rights are protected by the Canadian *Copyright Act* and other national and international laws and agreements. Users are permitted to make copies of this document for non-commercial purposes only, provided it is not modified when reproduced and appropriate credit is given to CADTH and its licensors.

About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada's health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.

Funding: CADTH receives funding from Canada's federal, provincial, and territorial governments, with the exception of Quebec.

Questions or requests for information about this report can be directed to requests@cadth.ca

Research Questions

1. What are the evidence-based guidelines regarding the use of orthotics for the treatment of children with early and late onset idiopathic scoliosis?

Key Findings

One systematic review was identified regarding evidence-based guidelines for the use of orthotics in the treatment of children with late onset idiopathic scoliosis. In addition, one evidence-based guideline was identified regarding the use of orthotic treatment for early and late onset idiopathic scoliosis. No relevant health technology assessments were identified.

Methods

A limited literature search was conducted by an information specialist on key resources including PubMed, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused Internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were orthotics and children with early and late onset idiopathic scoliosis. Search filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, or network meta-analyses and guidelines. Where possible, retrieval was limited to the January 1, 2014 and August 3, 2019. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Pediatric (< 17 years) patients with early or late onset idiopathic scoliosis (previously called juvenile, infantile and adolescent scoliosis)
Intervention	TLSO [Thoracic Lumbar Sacral Orthosis] (e.g., different styles of TLSO: Boston, Rigo, Cheneau, Milwaukee, Providence, Charleston, plaster cast); Full time or night TLSO
Comparator	Not applicable

Outcomes	Guidelines (e.g., guidelines on shape capture method [plaster, scan, measurements, Risser table, etc.], what TLSO design to use, how often to x-ray during use of brace, recommendations on orthotist level of expertise for orthosis creation and monitoring)
Study Designs	Health technology assessments, systematic reviews, meta-analyses, and evidence-based guidelines.

Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by evidence-based guidelines.

One systematic review¹ was identified regarding evidence-based guidelines for the use of orthotics in the treatment of children with late onset idiopathic scoliosis. In addition, one evidence-based guideline² was identified regarding the use of orthotic treatment for early and late onset idiopathic scoliosis. No relevant health technology assessments were identified.

Additional references of potential interest are provided in the appendix.

Overall Summary of Findings

One systematic review¹ was identified regarding evidence-based guidelines for the use of orthotics in the treatment of children with late onset idiopathic scoliosis.

The authors of the systematic review¹ suggested that there was evidence in favor of bracing, despite being of low quality. Based on three meta-analyses published on bracing, the authors also suggested that bracing does not reduce surgery rates,¹ full time bracing was better than part-time bracing,¹ and not all full time rigid bracing was the same, with some rigid bracing being higher in effectiveness while other rigid bracing was less effective than elastic or nighttime bracing.¹ The authors concluded that there was no agreement among experts on the best braces or biomechanical action by the Society of Scoliosis Orthopedic and Rehabilitation Treatment (SOSORT).¹

Additionally, the authors of the 2016 SOSORT guidelines on orthopedic and rehabilitation treatment of idiopathic scoliosis during growth aimed to align their guidelines with evidence for clinical practice for conservative treatment for idiopathic scoliosis (CTIS).² This guideline presented 68 recommendations which included 25 recommendations on bracing and evidence for the efficacy of bracing.²

References Summarized

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

1. Negrini S, De Mauroy JC, Grivas TB, et al. Actual evidence in the medical approach to adolescents with idiopathic scoliosis. *Eur J Phys Rehabil Med*. 2014 Feb;50(1):87-92. [PubMed: PM24622050](https://pubmed.ncbi.nlm.nih.gov/24622050/)

Guidelines and Recommendations

2. Negrini S, Donzelli S, Aulisa AG, et al. 2016 SOSORT guidelines: orthopaedic and rehabilitation treatment of idiopathic scoliosis during growth. *Scoliosis Spinal Disord.* 2018;13:3.
[PubMed: PM29435499](#)

Appendix — Further Information

Systematic Reviews and Meta-analyses – Alternative Outcome

Compliance with Bracing

3. Rahimi S, Kiaghadi A, Fallahian N. Effective factors on brace compliance in idiopathic scoliosis: a literature review. *Disabil Rehabil Assist Technol*. 2019 Jun 28:1-7.
[PubMed: PM31248292](#)

Clinical Practice Guidelines – Unclear Methodology

4. Medical policy. Orthotics for progressive scoliosis. Boston (MA): Blue Cross Blue Shield of Massachusetts; 2019:
https://www.bluecrossma.com/common/en_US/medical_policies/550%20Orthotics%20or%20Progressive%20Scoliosis%20prn.pdf
5. Spinal Orthoses: Thoracic-Lumbar-Sacral (TLSO), Lumbar-Sacral (LSO), and Lumbar. Clinical UM Guideline. Virginia Beach (VA): Amerigroup; 2019:
https://medicalpolicies.amerigroup.com/medicalpolicies/guidelines/gl_pw_c169423.htm
6. Korbek K, Kozinoga M, Stolinski L, Kotwicki T. Scoliosis Research Society (SRS) Criteria and Society of Scoliosis Orthopaedic and Rehabilitation Treatment (SOSORT) 2008 Guidelines in Non-Operative Treatment of Idiopathic Scoliosis. *Pol Orthop Traumatol*. 2014 Jul 28;79:118-122.
[PubMed: PM25066033](#)

Policy Information

7. Scoliosis: Conservative Interventions. *Utilization Management Policy*. Eden Prairie (MN): OptumHealth Care Solutions. 2019:
<https://www.myoptumhealthphysicalhealth.com/ClinicalPolicies/95.pdf>
8. Idiopathic Scoliosis. *Clinical Policy Bulletins*. No. 0398. Hartford (CT): Aetna. 2019:
http://www.aetna.com/cpb/medical/data/300_399/0398.html

Additional Information

9. Bracing for adolescent idiopathic scoliosis. *Eyes on Evidence*. London (GB): National Institute for Health and Care Excellence. 2014.
<http://arms.evidence.nhs.uk/resources/hub/1038317/attachment>