

CADTH Reference List

Surgical Interventions for Weight Loss in Children With Obesity or Overweight

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Key Message

- Ten systematic reviews were identified regarding the clinical effectiveness of surgical interventions for weight loss in children with obesity or overweight.

Research Question

What is the clinical effectiveness of surgical interventions for weight loss in children with obesity or overweight?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, the Cochrane Database of Systematic Reviews, the international HTA database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were pediatrics, obesity, and bariatric surgery. Search filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, or network meta-analyses; and randomized controlled trials or controlled clinical trials. Where possible, retrieval was limited to the human population. The search was also limited to English-language documents published between January 1, 2013 and February 17, 2021. Internet links were provided, where available.

Selection Criteria

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in Table 1. Full texts of study publications were not reviewed.

Results

Ten systematic reviews were identified regarding the clinical effectiveness of surgical interventions for weight loss in children with obesity or overweight.¹⁻¹⁰ No relevant health technology assessments or randomized controlled trials were identified.

Additional references of potential interest that did not meet the inclusion criteria are provided in Appendix 1.

Table 1: Selection Criteria

Criteria	Description
Population	Children and youth aged 2 to 18 years with obesity or overweight (i.e., BMI \geq 25) Excluding: those with eating disorders, overweight or obesity secondary to genetic or medical condition (e.g., Cushing disease), weight gain secondary to medications, pregnant or breastfeeding
Intervention	Surgical intervention for weight loss management, alone or in combination with a pharmacological or behavioural intervention for weight loss management
Comparators	No or minimal treatment; usual care; alternative pharmacological, behaviour-based, or surgical interventions for weight loss or weight management, alone or in combination with another eligible comparator; no comparator (safety outcomes only)
Outcomes	Clinical effectiveness: benefits (e.g., weight change, adiposity, hypertension, dyslipidemia, sleep apnea, fasting blood sugar, mental health, quality of life, physical fitness) and harms (e.g., adverse events, death, need for medical or psychiatric treatment, growth retardation, gastrointestinal events)
Study Designs	HTAs, SRs, RCTs

BMI = body mass index; HTA = health technology assessment; RCT = randomized controlled trial; SR = systematic review.

References

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

1. Norwegian Institute of Public Health (NIPH). Effectiveness of interventions for overweight or obesity in children and adolescents. Oslo: NIPH; 2016. <https://www.fhi.no/en/publ/2016/effekt-av-tiltak-for-barn-og-unge-med-overvekt-eller-fedme/> Accessed February 18, 2021. See: Key message
2. Ells LJ, Mead E, Atkinson G, et al. Surgery for the treatment of obesity in children and adolescents. *Cochrane Database Syst Rev.* 2015;24(6):CD011740. [Medline](#)

No Comparator – Safety Outcomes

3. Lamoshi A, Chernoguz A, Harmon CM, Helmrath M. Complications of bariatric surgery in adolescents. *Semin Pediatr Surg.* 2020;29(1):150888. [Medline](#)
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Systematic Review of Reviews – Safety Outcomes

10. Ells LJ, Rees K, Brown T, et al. Interventions for treating children and adolescents with overweight and obesity: an overview of Cochrane reviews. *Int J Obes.* 2018;42(11):1823-1833. [Medline](#)

Randomized Controlled Trials

No literature identified.

Appendix 1: References of Potential Interest

Previous CADTH Reports

11. Bariatric Surgery for Adolescents and Young Adults: A Review of Comparative Clinical Effectiveness, Cost-Effectiveness and Evidence-Based Guidelines (*CADTH Rapid response report: summary with critical appraisal*). Ottawa (ON): CADTH; 2016. <https://cadth.ca/bariatric-surgery-adolescents-and-young-adults-review-comparative-clinical-effectiveness-cost>. Accessed 2021 Feb 22.

Health Technology Assessments – Unclear Methodology

12. Rodríguez B, Augustovski F, Pichon-Riviere A, García Martí S, et al. Bariatric surgery to treat obesity in individuals under 21 years old. Buenos Aires: Institute for Clinical Effectiveness and Health Policy (IECS). 2017. <https://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?ID=32017000274&src=trip&ID=32017000274&src=trip> Accessed 2021 Feb 18.

Systematic Reviews and Meta-analyses

Mixed Population – Adults and Pediatric Populations

13. Di Vincenzo A, Beghetto M, Vettor R, et al. Effects of Surgical and Non-surgical Weight Loss on Migraine Headache: a Systematic Review and Meta-Analysis. *Obes Surg*. 2020;30(6):2173-2185. [Medline](#)

No Direct Comparison

14. Selvendran SS, Penney NC, Aggarwal N, Darzi AW, Purkayastha S. Treatment of Obesity in Young People—a Systematic Review and Meta-analysis. *Obes Surg*. 201;28(8):2537-2549. [Medline](#)
15. Rajjo T, Mohammed K, Alsawas M, et al. Treatment of Pediatric Obesity: An Umbrella Systematic Review. *J Clin Endocrinol Metab*. 2017;102(3):763-775. [Medline](#)

No Comparator

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22. Willcox K, Brennan L. Biopsychosocial outcomes of laparoscopic adjustable gastric banding in adolescents: a systematic review of the literature. *Obes Surg*. 2014;24(9):1510-1519. [Medline](#)

Guidelines and Recommendations

23. O’Kane M, Parretti HM, Pinkney J, et al. British Obesity and Metabolic Surgery Society Guidelines on perioperative and postoperative biochemical monitoring and micronutrient replacement for patients undergoing bariatric surgery-2020 update. *Obes Rev*. 2020;21(11):e13087. [Medline](#)
24. Armstrong SC, Bolling CF, Michalsky MP, Reichard KW. Pediatric Metabolic and Bariatric Surgery: Evidence, Barriers, and Best Practices. *Pediatr*. 2019;144(6):e20193223. <https://pediatrics.aappublications.org/content/144/6/e20193223> Accessed 2021 Feb 18.
25. Yi DY, Kim SC, Lee JH, et al. Clinical Practice Guideline for the Diagnosis and Treatment of Pediatric Obesity: Recommendations from the Committee on Pediatric Obesity of the Korean Society of Pediatric Gastroenterology Hepatology and Nutrition. *Pediatr*. 2019;22(1):1-27. [Medline](#)
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27. Styne DM, Arslanian SA, Connor EL, et al. Pediatric Obesity-Assessment, Treatment, and Prevention: An Endocrine Society Clinical Practice Guideline. *J Clin Endocrinol Metab.* 2017;102(3):709-757. [Medline](#)
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Review Articles

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Not Specific to Surgery

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Additional References

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