# Recommendations on Elective Total Hip and Knee Replacement Surgery in Patients Living with Obesity

## PREMISE, METHODOLOGY, AND RESULTS OF A CONSENSUS-BASED APPROACH


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## INTRODUCTION

Obesity is a risk factor for hip and knee arthritis, and an increasing number of patients presenting for hip/knee arthroplasty are living with obesity. This patient population presents several unique considerations in this setting. Research has demonstrated that although the functional outcomes are similar—or often better than—those experienced by the average patient, the risk of complications is markedly higher. Unfortunately, the research has been less clear with regards to interventions or strategies to minimize complications in this patient population.

This has led to a situation where hospitals, policymakers, orthopedic surgeons, and other health care practitioners have not had consistent and high-quality guidance upon which to facilitate decision-making. In many instances, access to surgical care for these patients has become inconsistent. Selective interpretation of evidence (or lack of evidence) has led to complex clinical and ethical situations where patients are often denied care. We therefore felt it was important to formulate best practice guidance to inform consistent “best practice” care for patients living with obesity.

Given the complexity of this subject (in terms of both limitation in the scientific literature and also prominent ethical/resource-related issues), we felt the ideal methodology to formulate guidelines would be through an information-gathering and consensus-based model which involved existing stakeholders.

## METHODOLOGY

Two national obesity “Consensus Meetings” were arranged, co-sponsored by the Canadian Orthopaedic Association and Obesity Canada. The meetings were performed virtually, to enable the broadest possible representation from across the country. Orthopedic surgeons and allied healthcare practitioners (physical therapists, nurses, physician assistants, medical doctors, etc.) from across the country were invited to participate. There were a total of 85 registered participants for these meetings, which occurred in October 2023.

Discussions were framed around 3 broad subject areas – pre-operative considerations, intra-operative considerations, and post-operative considerations—and led by facilitators. All discussions were recorded, analyzed, and broad themes were extracted. These were then formed into guidelines by a core steering committee of 13 members. Research evidence was used to corroborate the summated guidance where possible. Several iterations of these guidelines were circulated to the core steering committee, until consensus was achieved. Finally, the guidelines were sent to 15 non-steering committee participants for further feedback, of which 10 (66%) responded with an 88% approval across all five guideline recommendations (i.e. AGREE or STRONGLY AGREE).

**RESULTS: Recommendations on Elective Total Hip and Knee Replacement Surgery in Patients Living with Obesity**

The following document represents the summation of key discussion points gathered at the COA/Obesity Canada Consensus Meetings held in Oct 2023. Subsequently, these have been distilled into 5 recommendations, and only those recommendations which can be supported by peer-reviewed research evidence have been included.

**Premise 1:**

Weight bias and stigma is pervasive in the health care system.

**Recommendation 1:**

Patients living with obesity deserve to be approached with compassion and empathy, and to be included as active participants in shared therapeutic decision-making.

Communication forms the bedrock of the surgeon-patient relationship - orthopaedic surgeons must strive to communicate in a manner which is free from judgment, bias, and/or discrimination.

Select References:


1. Wharton S et al. Obesity in adults: clinical practice guideline. CMAJ. 2020 Aug 4;192(31):E875-E891. doi: 10.1503/cmaj.191707.
2. Philip SR et al. Comparisons of Explicit Weight Bias Across Common Clinical Specialties of US Resident Physicians. J Gen Intern Med. 2024;39(4):511-18.
3. Godziuk K et al. “I Often Feel Conflicted in Denying Surgery”: Perspectives of Orthopaedic Surgeons on Body Mass Index Thresholds for Total Joint Arthroplasty: A Qualitative Study. J Bone Joint Surg. 2023;105(11):865-77.


**Premise 2:**

Patients living with obesity experience inequitable access to surgical care.

**Recommendation 2:**

Obesity is not a reason on its own to deny patients access to hip or knee replacement surgery.

A holistic surgical and medical assessment should be undertaken to understand the risk-benefit profile of each individual patient.

Importantly, Body Mass Index (BMI) is an imperfect measure of obesity and should not be used to inform surgical candidacy “cut-offs”.

Select References:


1. Richardson G. Variable effects of obesity on access to total hip and knee arthroplasty. Can J Surg. 2021 Feb;64(1):E84-E90.
2. What effect have NHS commissioners' policies for body mass index had on access to knee replacement surgery in England?: An interrupted time series analysis from the National Joint Registry. PloS One. 2022 June 29;17(6):e0270274.
3. Hannon et al. 2023 American College of Rheumatology and American Association of Hip and Knee Surgeons Clinical Practice Guideline for the Optimal Timing of Elective Hip or Knee Arthroplasty for Patients With Symptomatic Moderate-to-Severe Osteoarthritis or Advanced Symptomatic Osteonecrosis With Secondary Arthritis for Whom Nonoperative Therapy Is Ineffective. J Arthroplasty. 2023 Nov;38(11):2193-2201.
4. Nelson CL et al. Low Albumin Levels, More Than Morbid Obesity, Are Associated With Complications After TKA. Clin Orthop Relat Res. 2015 Oct;473(10):3163-72.
5. Lachance AD et al. Total Joint Arthroplasty in Patients Who Are Obese or Morbidly Obese: An Ethical Analysis. J Bone Joint Surg. 2024;106(7):659-64.


**Premise 3:**

Weight loss is commonly recommended for patients denied access to surgery. There is uncertainty and limited evidence as to the relationship between rapid acute weight loss and improvement in surgical complication profile.

**Recommendation 3:**

Due to substantial uncertainty of research evidence, weight loss recommendations should be made judiciously, in the context of the patient's unique clinical situation, including degree of disability, extent of joint disease, and likelihood of progression; considerations of patients' weight loss history and prior treatments; risk of malnutrition and muscle loss; access to obesity management; and the patient's perspective, among other considerations.

When pursued, weight management should be co-ordinated by the patient's comprehensive primary care team. This care should be informed by widely available evidence-based obesity management guidelines.

Select References:


1. Godziuk K et al. A critical review of weight loss recommendations before total knee arthroplasty. Joint Bone Spine. 2021 Mar;88(2):105114.
2. Laperche J et al. Obesity and total joint arthroplasty: Does weight loss in the preoperative period improve perioperative outcomes? Arthroplasty. 2022;4(1):47.
3. Hameed D et al. Timing Matters: Optimizing the Timeframe for Preoperative Weight Loss to Mitigate Postoperative Infection Risks in Total Knee Arthroplasty. J Arthroplasty. 2023 Dec 21:S0883-5403(23)01244-5.
4. Obesity Canada. Report Card on Access to Obesity Care. https://obesitycanada.ca/research/report-card/

**Premise 4:**

Patients living with obesity represent a complex surgical population, with elevated risks of experiencing a surgical or medical complication.

**Recommendation 4:**

Medical and surgical complexity varies between patients. Most patients can be treated at local community hospitals if adequate resources are available.

For more complex patients (i.e. where the risk of major complications is deemed unacceptable by the consulting surgeon), referral pathways to tertiary-level centers with medical, anaesthetic, and surgical expertise should be established at a system-level. Once established, the availability of these pathways and how to access them should be clearly communicated to the patient by the surgeon or consulting practitioner. Referrals from secondary to tertiary care centers should be made directly in most cases.

Provision of adequate resources (including funding, equipment, personnel, inpatient beds, and rehabilitation) for this complex patient population must be considered by healthcare funders.

Select References:


1. Chaudhry H, Ponnusamy K, Somerville L, McCalden RW, Marsh J, Vasarhelyi EM. Revision Rates and Functional Outcomes Among Severely, Morbidly, and Super-Obese Patients Following Primary Total Knee Arthroplasty: A Systematic Review and Meta-Analysis. JBJS Rev. 2019 July;7(7):e9.
2. Ponnusamy KE, Somerville L, McCalden RW, Marsh J, Vasarhelyi EM. Revision Rates and Functional Outcome Scores for Severely, Morbidly, and Super-Obese Patients Undergoing Primary Total Hip Arthroplasty: A Systematic Review and Meta-Analysis. JBJS Rev. 2019 Apr;7(4):e11.
3. Charalambous A et al. Association of surgical Experience with risk of complication in total hip arthroplasty among patients with severe obesity. JAMA Netw Open. 2021;4(9):e2123478.
4. Godziuk K, Fast A, Righolt CH, Giori N, Harris AHS, Bohm ER. Consistent factors influence body mass index thresholds for total joint arthroplasty across health-care systems: a qualitative study.

**Premise 5:**

Care for patients living with obesity remains fragmented, and high-level evidence to inform treatment decisions is lacking.

**Recommendation 5:**

Establishment of a network of specialized obesity-arthroplasty centers with expertise in the perioperative, surgical, and post-operative care of patients living with obesity may be beneficial.

Collaborative clinical, educational, and research partnerships may be necessary to improve and optimize the care of this patient population.

Select References:


1. Godziuk K, Hawker GA. Obesity and body mass index: Past and future considerations in osteoarthritis research. Osteoarthritis Cartilage. 2024;32(4):452-59.
2. Charalambous A et al. Association of surgical Experience with risk of complication in total hip arthroplasty among patients with severe obesity. JAMA Netw Open. 2021;4(9):e2123478.