

# Management of Osteoarthritis of the Hip

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## Abstract

The American Academy of Orthopaedic Surgeons, in collaboration with the American Association of Hip and Knee Surgeons, the Hip Society, the American College of Radiology, the American Physical Therapy Association, the Limb-lengthening and Reconstruction Society, and the Pediatric Orthopaedic Society of North America, released Management of Osteoarthritis of the Hip: Evidence-Based Clinical Practice Guideline. The complete guideline is available on OrthoGuidelines ([www.orthoguidelines.org](http://www.orthoguidelines.org)). The guideline is intended to assist those taking care of patients with osteoarthritis of the hip in making decisions regarding the most appropriate treatment. A group of experts with knowledge of orthopaedic surgery, physical therapy, and musculoskeletal radiology developed 18 recommendations for nonoperative and operative treatment based on relevant literature. A companion article illustrates the use of these guidelines by discussing specific case examples and evidence-based treatments for osteoarthritis of the hip.

## Rationale

The American Academy of Orthopaedic Surgeons (AAOS) approved the clinical practice guideline on the Management of Osteoarthritis of the Hip: Evidence-Based Clinical Practice Guideline, on March 13, 2017.

This guideline was produced with input from representatives of the AAOS, American Association of Hip and Knee Surgeons, The Hip Society, the American College of Radiology, the American Physical Therapy Association, the Limb-Lengthening and Reconstruction Society, and the Pediatric Orthopaedic Society of North America and contains 18 recommendations for guidance on the treatment of osteoarthritis of the hip joint in patients 18 years of age or older. Guidance on treatment of other causes of hip arthritis is beyond the scope of this document. Participants in this guideline were required to have no financial

conflicts of interest related to treatment of hip osteoarthritis and to maintain that status for two years after the guideline development. The method of developing the guideline was followed using the same protocol as has been used previously for other AAOS guidelines.

This guideline is not intended to provide a dogmatic regimen for the treatment of hip osteoarthritis, but rather to provide guidance based on the best available evidence, to assist practitioners of all specialties, patients, and other stakeholders in deciding how to treat this common condition.

Osteoarthritis of the hip is a major public health problem. It is estimated that in 2030, there will be 41.1 million Americans affected by this condition, and as a result of this increasing prevalence of disease, the need for total hip replacement is expected to grow to 572,000 primary

surgeries.<sup>1</sup> Revision surgery is also expected to double.<sup>1</sup> However, hip replacement surgery has been shown to be a cost-effective treatment when nonsurgical means do not provide adequate relief of osteoarthritic pain.<sup>2</sup> Use of this guideline should help practitioners decide what interventions to try before recommending surgery and also which ones are most likely to provide cost-effective benefit. Recommendations regarding predictors of surgical complication risk, such as nicotine use, obesity, age, and mental health disorders, can be useful to help surgeons decide how to intervene to provide optimal outcomes. Finally, recommendations for perioperative care and physical therapy can help surgeons decide which approach and anesthesia type would be best for their patients.

To complete the guideline, 30,010 abstracts were returned from the initial literature search conducted by AAOS librarian staff. Twenty-eight thousand one hundred thirty-one abstracts were excluded from additional review based on pre-established criteria, leaving 1,879 articles for closer review. These remaining articles were subjected to full-text review, and 1,782 of these were excluded because they did not meet the inclusion criteria or were judged to be inferior in quality to other articles. Ninety-seven articles were ultimately appropriate for inclusion in the guideline.

Once completed, peer review was requested of 21 different organizations. Of those requested, seven reviewers representing six organizations provided review. In addition, a public comment period was provided, and an additional organization provided feedback. This clinical practice has been endorsed by the American Col-

lege of Radiology, the American Physical Therapy Association, the American Society of Anesthesiologists, and the Pediatric Orthopaedic Society of North America.

Although this guideline covers treatment decisions with sufficient evidence to make a recommendation, some available and established treatments for osteoarthritis of the hip are not supported by high-quality evidence. It is not possible to make definitive recommendations regarding these treatments, but their exclusion from the guideline is not intended to indicate that they are not useful for relief of hip osteoarthritis. Rather, those treatments are better evaluated in the setting of the Appropriate Use Criteria process, which blends lower-quality evidence with expert opinion in providing guidance. Therefore, the AAOS has developed an Appropriate Use Criteria document to address treatments not covered by this guideline, which is also available at <http://www.orthoguidelines.org/guidelines>. As an example, hip preservation surgery is best evaluated in the Appropriate Use Criteria process because of limited evidence.

### Strength of Recommendation Descriptions

**Strong:** strong evidence from two or more “high” quality studies with consistent findings recommending for or against the intervention. **Moderate:** moderate evidence from two or more “moderate” quality studies with consistent findings or evidence from a single “high” quality study for recommending for or against the intervention. **Limited:** low strength evidence or conflicting evidence. Evidence from two or more “low” quality studies with consistent find-

ings or evidence from a single “moderate” quality study recommending for or against the intervention or diagnostic test or the evidence is insufficient or conflicting and does not allow a recommendation for or against the intervention. **Consensus\* no evidence:** There is no supporting evidence. In the absence of reliable evidence, the guideline development group is making a recommendation based on their clinical opinion. Consensus statements are published in a separate, complementary document.

### Recommendations

The following list of recommendations is intended to summarize the best available evidence to answer the questions asked by the workgroup. It is not intended to stand alone, and readers are encouraged to review the full document which is available at <http://www.orthoguidelines.org/guidelines>. This list is also not intended to substitute for judgment on the part of a clinician or to obviate the need to consider the preferences and rights of patients to make decisions about their medical care.

### Risk Assessment Tools

Moderate strength evidence supports that the practitioner could use risk assessment tools to assist in predicting adverse events, assessing surgical risks, and educating patients with symptomatic osteoarthritis of the hip undergoing total hip arthroplasty (THA).

### Strength of Recommendation:

**moderate** ★★★★★

**Implication:** Practitioners should generally follow a moderate recommendation but remain alert to new information and be sensitive to patient preferences.

The complete document, Management of Osteoarthritis of the Hip Evidence-Based Clinical Practice Guideline, approved March 13, 2017, includes all tables, and figures, and is available at <http://www.orthoguidelines.org/topic?id=1021>.

## Obesity as a Risk Factor

- (1) Moderate strength evidence supports that obese patients with symptomatic osteoarthritis of the hip, when compared with non-obese patients, may achieve lower absolute outcome scores but a similar level of patient satisfaction and relative improvement in pain and function after THA.

### Strength of Recommendation:

moderate ★★★★★

Implication: Practitioners should generally follow a moderate recommendation but remain alert to new information and be sensitive to patient preferences.

- (2) Limited strength evidence supports that obese patients with symptomatic osteoarthritis of the hip, when compared with non-obese patients, have increased incidence of postoperative dislocation, superficial wound infection, and blood loss after THA.

### Strength of Recommendation:

limited ★★★★★

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

## Age as a Risk Factor

- (1) Moderate strength evidence supports that increased age is associated with lower functional and quality of life outcomes in patients with symptomatic osteoarthritis of the hip undergoing THA.

### Strength of Recommendation:

moderate ★★★★★

Implication: Practitioners should generally follow a moderate recommendation but remain alert to new information and be sensitive to patient preferences.

- (2) Limited strength evidence supports that increased age may be associated with a higher risk of mortality in patients with symptomatic osteoarthritis of the hip undergoing THA.

### Strength of Recommendation:

limited ★★★★★

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

- (3) Limited strength evidence supports that younger age may be associated with a higher risk of revision in patients with symptomatic osteoarthritis of the hip undergoing THA.

### Strength of Recommendation:

limited ★★★★★

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

## Mental Health Disorder as a Risk Factor

Moderate strength evidence supports that mental health disorders, such as depression, anxiety, and psychosis, are associated with decreased function, pain relief, and quality of life outcomes in patients with symptom-

atic osteoarthritis of the hip who undergo THA.

### Strength of Recommendation:

moderate ★★★★★

Implication: Practitioners should generally follow a moderate recommendation but remain alert to new information and be sensitive to patient preferences.

## Tobacco Use

Limited strength evidence supports that patients who use tobacco products are at an increased risk of complications after THA.

### Strength of Recommendation:

limited ★★★★★

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

## Non-narcotic Management

Strong evidence supports that NSAIDs improve short-term pain, function, or both in patients with symptomatic osteoarthritis of the hip.

### Strength of Recommendation:

strong ★★★★★

Implication: Practitioners should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

## Glucosamine Sulfate

Moderate strength evidence does not support the use of glucosamine sulfate because it did not do better than placebo for improving function, reducing stiffness, and decreasing pain for patients with symptomatic osteoarthritis of the hip.

### Strength of Recommendation:

moderate ★★★★★

Implication: Practitioners should generally follow a moderate recommendation but remain alert to new information and be sensitive to patient preferences

### Intraarticular Injectables

- (1) Strong evidence supports the use of intra-articular corticosteroids to improve function and reduce pain in the short term for patients with symptomatic osteoarthritis of the hip.

#### Strength of Recommendation:

**strong**★★★★★

Implication: Practitioners should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

- (2) Strong evidence does not support the use of intra-articular hyaluronic acid because it does not do better than placebo for function, stiffness, and pain in patients with symptomatic osteoarthritis of the hip.

#### Strength of Recommendation:

**strong**★★★★★

Implication: Practitioners should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

### Physical Therapy as a Conservative Treatment

Strong evidence supports the use of physical therapy as a treatment to improve function and reduce pain for patients with osteoarthritis of the hip and mild to moderate symptoms.

#### Strength of Recommendation:

**strong**★★★★★

Implication: Practitioners should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.

### Preoperative Physical Therapy

Limited evidence supports the use of preoperative physical therapy to improve early function in patients with symptomatic osteoarthritis of the hip after THA.

#### Strength of Recommendation:

**limited**★★★☆☆

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

### Anesthetic Types

Limited evidence supports the use of neuraxial anesthesia compared with general anesthesia to reduce complications in patients with symptomatic osteoarthritis of the hip undergoing THA.

#### Strength of Recommendation:

**limited**★★★☆☆

Implication: Practitioners should feel little constraint in following a recommendation labeled as limited, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

### Tranexamic Acid

Moderate strength evidence supports that the practitioner could use intravenous or topical tranexamic acid for patients with symptomatic osteoarthritis of the hip who are undergoing THA as a part of the effort to reduce blood loss.

#### Strength of Recommendation:

**moderate**★★★★☆

Implication: Practitioners should generally follow a moderate recom-

mendation but remain alert to new information and be sensitive to patient preferences.

### Approach Exposure

Moderate strength evidence supports that there were no clinically notable differences in patient-oriented outcomes related to the surgical approach for patients with symptomatic osteoarthritis of the hip undergoing THA.

#### Strength of Recommendation:

**moderate**★★★★☆

Implication: Practitioners should generally follow a moderate recommendation but remain alert to new information and be sensitive to patient preferences.

### Postoperative Physical Therapy

Moderate evidence supports the use of postoperative physical therapy because it could improve early function to a greater extent than no physical therapy management for patients with symptomatic osteoarthritis of the hip who have undergone THA.

#### Strength of Recommendation:

**moderate**★★★★☆

Implication: Practitioners should generally follow a moderate recommendation but remain alert to new information and be sensitive to patient preferences.

### References

References printed in **bold type** are those published within the past 5 years.

1. Nho SJ, Kymes SM, Callaghan JJ, Felson DT: The burden of hip osteoarthritis in the United States: Epidemiologic and economic considerations. *J Am Acad Orthop Surg* 2013;21(suppl 1):S1-S6.
2. Koenig L, Zhang Q, Austin MS, et al: Estimating the societal benefits of THA after accounting for work status and productivity: A markov model approach. *Clin Orthop Relat Res* 2016;474:2645-2654.