

General

Returning to Sports and High-Impact Exercise After Total Hip Arthroplasty: What Should We Be Recommending in 2026?

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The total number of total hip arthroplasties performed each year is expected to increase significantly over the coming decades. As a result, an increasing number of young patients are undergoing total hip arthroplasty while similarly, a growing subset of active elderly patients desire to return to sports or high-impact activity after surgery. Patients are typically provided restrictions and activities to avoid following surgery. For these patients, there is no clear consensus or guidelines regarding whether they should limit their activity level postoperatively and in particular, if returning to high-impact exercise increases their risk of complications and subsequent revision surgery. This article will discuss the most common complications after total hip arthroplasty and whether patients who return to sports or a high-impact activity after surgery may be more predisposed to these complications in comparison to their more sedentary peers.

INTRODUCTION

Patients are often provided restrictions and activities to avoid following total hip arthroplasty (THA). However, an increasing number of young patients undergo THA each year while similarly, a growing subset of active elderly patients desire to return to sports or high-impact activity after surgery.¹ For these patients, there is no clear consensus or guidelines regarding whether they should limit their activity level postoperatively and in particular, if returning to high impact exercise increases their risk of complications and subsequent revision surgery.

To date, many surgeons recommend against high-impact activity following arthroplasty due to concern for implant failure or accelerated wear. A prior study surveyed patients 50 years of age and younger regarding their post-THA activity levels and found that 29% of patients stopped activities due to fear of injury while 26% stopped due to physician recommendations.² Prior guidelines from the American Association of Hip and Knee Surgeons recommended against jogging, racquetball/squash, and high-impact aerobics after THA. However, these recommendations were published almost 20 years ago.³ In contrast, a survey of the European

Hip Society reported minimal restrictions for their patients 6 months after surgery.⁴ While there is no clear consensus to guide patients, this article will discuss the most common complications after THA and whether patients who return to sports or a high level of activity after surgery may be more predisposed to these complications in comparison to their more sedentary peers based on currently available published literature.

DISLOCATION

Apart from infection, dislocation is arguably amongst the most distressing complications following THA, with an overall incidence of approximately 2%.⁵ While many surgeons implement hip precautions in the acute postoperative setting to allow for soft tissue healing, a recent prospective randomized controlled trial found that removal of hip precautions after a primary THA through the posterior approach was not associated with a higher dislocation rate.⁶ Additionally, at 6 weeks postoperatively, patients without restrictions endorsed less difficulty with activities of daily living, an earlier return to driving, and more time spent side sleeping. Ollivier et al compared THA

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dislocation rates of high and low activity patients and found no significant difference between the cohorts, with high activity patients having a dislocation rate of 1.4% in comparison to 2.1% for the low activity group ($p = 0.5$).⁷ In another study, twenty-two THAs in judo practitioners were followed postoperatively for an average of 9 years with no one sustaining a subsequent dislocation.⁸ Similarly, no dislocations or complications were reported in 19 THAs in 14 yoga instructors at a mean follow-up of 5 years.⁹

The growing use of dual mobility implants as well as the routine use of larger femoral head sizes due to thinner acetabular liners have further decreased the risk of dislocation, without increasing polyethylene wear given the advent and broad adoption of highly cross-linked polyethylene liners. Overall, there is limited data suggesting that high-impact activity will increase the risk of dislocation.

POLYETHYLENE WEAR

Historically, a major concern regarding high levels of activity after THA was greater mechanical loading through the prosthesis and accelerating liner wear. However, the introduction of highly cross-linked polyethylene liners in the late 1990s has substantially mitigated this concern.¹⁰ Harada and colleagues found a wear rate of 0.005 mm/year for highly cross-linked polyethylene liners after THA with sports participation, regardless of impact, providing no significant difference in steady wear rate.¹¹ Zitsch et al demonstrated a wear rate of only 0.017 mm per year in patients 50 years of age or younger.¹² A separate article compared wear rates of conventional liners to highly cross-linked polyethylene liners and demonstrated a wear rate of 0.181 mm per year for the conventional liner in comparison to 0.034 mm per year for highly cross-linked liners. Notably, revision rates were three times greater for the conventional polyethylene group.¹³ Baker and colleagues evaluated THAs with large femoral heads (36 mm) and highly cross-linked polyethylene liners and found that at a minimum 10-year follow-up, the mean femoral head liner penetration was only 0.042 mm per year.¹⁴ Over 5,500 cases of ceramic on highly cross-linked polyethylene THAs were analyzed between 2007 and 2017 and only two (0.04%) bearing surface failures occurred including one highly cross-linked polyethylene liner fracturing and the other one dissociating.¹⁵ Collectively, these findings suggest that polyethylene wear is no longer a clinically meaningful concern and should not serve as a basis for restricting patient activity levels following THA.

ASEPTIC LOOSENING

Aseptic loosening remains one of the most common causes of revision after THA.¹⁶ In the context of sports participation and high-impact activity, there remains a theoretical concern that increased mechanical load and stress may elevate the risk of implant loosening. This is clinically relevant given that loosening can result in substantial sec-

ondary bone loss, making adequate implant fixation more challenging to achieve in the revision setting.

A prior systematic review reported a significant association between higher levels of activity and aseptic loosening; however, the authors acknowledged that the available evidence was weak and emphasized the need for higher quality studies to better inform postoperative activity recommendations.¹⁷ In contrast, a separate study demonstrated a lower prevalence of aseptic loosening among patients who participated in sports compared to those who did not.¹⁸ Gschwend et al followed two groups, one that regularly participated in skiing after THA and one that did not participate in winter sports.¹⁹ Ironically, they found a higher aseptic loosening rate in the cohort that did not participate in winter sports.

Takenaga and colleagues followed 115 cementless THAs of patients that were 50 years of age or younger with a minimum 10-year follow-up and reported that none were revised for aseptic loosening.²⁰ Lastly, 23 patients who returned to jogging postoperatively were followed and no signs of osteolysis were found at a mean follow-up of 2.6 years.²¹ While there is no justification for restricting postoperative sports participation due to concern for aseptic loosening, it may be worthwhile to limit high-impact exercises until bony ingrowth or ongrowth occurs.

PERIPROSTHETIC FRACTURE

A less reported but nonetheless devastating complication following THA is periprosthetic fracture, with osteoporotic patients who sustain low energy trauma being the most susceptible. For patients playing sports or participating in high levels of activity, such activities are conversely likely to support bone health and if anything, decrease the risk of osteoporotic fracture. However, depending on the activity and associated risk profile, patients may be at an increased predilection for high energy trauma, resulting in potential fracture of their operative extremity. For example, McGrory reported on two cases of periprosthetic fracture in patients who returned to winter sports following THA.²² In contrast, as referenced above, Takenaga et al followed patients 50 years old or younger that underwent cementless THA, with only 2.6% of femoral stems being revised for periprosthetic fracture at a minimum follow-up of 10 years.²⁰ A separate systematic review found a THA 15-year survival rate of 80% in high-activity patients with a low risk periprosthetic fracture.²³ Overall, there is negligible data linking high-impact activity to an increased incidence of periprosthetic fracture. Nevertheless, patients should be counselled on the risks of sustaining an injury during sports participation and the potential for such injuries to involve the operative extremity and present as a periprosthetic fracture.

CONCLUSION

In conclusion, there is overall limited and low-quality evidence to suggest limiting patients' activity level after a primary THA. Conversely, there is also a lack of literature reinforcing safety for patients returning to sports and high level

or impact activity. As a larger number of younger patients are choosing to undergo THA, activity level after surgery is increasingly likely to be a topic of discussion. Future high-quality studies are necessary to address this void in the literature and better guide patients after surgery without

predisposing them to an increased complication risk while allowing them to maintain an active and healthy lifestyle.

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