

## Do patients return to sport activities after total hip replacement?

Total hip replacement (THR) is a successful procedure to treat end-stage hip osteoarthritis. The procedure is increasingly performed in adults of working age, who often wish to return to highly demanding activities, including a return to sports (RTS). Although some research has been performed on RTS after THR, the actual extent of and time to RTS remain largely unknown. Our aim was to systematically review (1) the extent to which patients RTS after THR, including (2) the time to RTS.

We searched two scientific databases (MEDLINE, Embase) from inception until October 2017. Two authors screened and extracted the data, including study information, patient demographics, rehabilitation protocols and pre- and postoperative sports and work participation. Methodological quality was assessed using the Newcastle–Ottawa scale. Data on pre- and postoperative sports participation were pooled using descriptive statistics.

Preoperative reference for RTS	No. of patients participating in any sport preoperatively	No. of patients participating in any sport postoperatively	RTS (%)
Overall (14 studies)	1125	1130	100
Pre-surgery participation as reference for RTS (10 studies)	938	977	104
Pre-symptomatic participation as reference for RTS (4 studies)	187	153	82
High quality studies; pre-surgery participation as reference for RTS (2 studies)	214	280	131
High quality studies; lifetime participation as reference for RTS <sup>a</sup> (1 study)	408	218	53

Tab. 1. Pooled data for number of patients participating in any sport pre- and postoperatively  
No.: number, RTS: return to sports

<sup>a</sup> One study reported both the pre-surgery and lifetime sports participation

RTS was reported in 15 studies, of which two were prospective studies and 13 were retrospective studies. Methodological quality was high in two studies, moderate in eight studies, and low in five

studies.

Ten studies described the preoperative sports level as the moment before surgery (pre-surgery level) and four studies described preoperative sports participation as the moment before the onset of restricting hip symptoms (pre-symptomatic level). Mean RTS was 104% to the pre-surgery level and 82% to the pre-symptomatic sports level (Tab. 1).

In total, 11 studies described specific numbers of sports that were practiced pre- and postoperatively (Tab. 2), including 1605 patients (65% male, median age 63.0 years). Preoperatively, 1,605 patients practiced an average of 1.1 sports, including 62% low-impact sports, 24% intermediate-impact sports, and 14% high-impact sports. Postoperatively, 1,605 patients practiced an average of 1.0 sports, including 69% low-impact sports, 23% intermediate-impact sports, and 8% high-impact sports (Tab. 2).

Our most important finding was that eight out of ten patients return to a sports level equal to their pre-symptomatic level after THR and time to RTS varied from 16 to 28 weeks with an average of 21 weeks. We believe that the pre-symptomatic level represents a more appropriate reference point for RTS than the pre-surgery level, since many patients limit their sports participation before THR because of pain and functional limitations.

We also found a decrease in participation in high-impact sports activities and an increase in participation in low-impact activities. A return to high-impact sports activities is less likely but is definitely possible in experienced patients. Preoperative sports participation and lower age are predictive of a successful return to sports.

Impact level	Sports participation preoperatively (n = 11 studies)			Sports participation postoperatively (n = 11 studies)		
	Sports (n)	Patients (n)	Average sports/patient, n (%)	Sports (n)	Patients (n)	Average sports/patient, n (%)
Low (e.g. cycling, swimming, golfing)	1115	1605	0.69 (62)	1090	1605	0.68 (69)
Intermediate (e.g. hiking, downhill skiing)	427	1605	0.27 (24)	372	1605	0.23 (23)
High (e.g. tennis, running, ball sports)	250	1605	0.16 (14)	122	1605	0.08 (8)
Total	1792	1605	1.12	1584	1605	0.99

Tab. 2. Pooled data for pre- and postoperative sports participation for different types of sport impact levels.

A limitation of the present analysis is the low availability of high-quality, prospective studies. Most studies had a retrospective design, thus increasing the risk of recall bias (patients do not exactly recall their prior sports participation). Future studies on the current topic are therefore recommended. However, for the increasingly younger THR population, this meta-analysis contains valuable information that can be used in the preoperative shared decision-making process.

In conclusion, eight out of ten patients return to sports after total hip replacement.

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## **Publication**

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