

Physical Activity Resumption and Quality of Life following Total Joint Arthroplasty

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INTRODUCTION:

The established intervention for end staged osteoarthritis is total joint arthroplasty (TJA), with primary aims to eliminate pain and improve functional capability. With technological advancements and widespread publicization regarding the benefits of an active lifestyle, a greater proportion of patients expect to resume physical activity postoperatively. While pain relief and functional improvement following TJA has been demonstrated in the past, studies in current literature do not evaluate the actual level of physical activity resumption and specific activity recommendations following surgery. Concerningly, there is currently no consensus regarding specific activity recommendations follow TJA.

METHODS:

As a retrospective prospective study, the electronic medical record of a single large healthcare system was queried for patients who underwent total joint arthroplasties between January 2017 and December 2020. The patient sample size included both total hip and knee arthroplasties. Within this cohort, patients who had completed preoperative patient-reported outcome measures (PROMs) were recruited for this study.

Patients were sent an initial survey to measure changes in their physical activity from pre-to post-TJA, as well as to identify specific limitations hindering their return to desired physical activity participation. Through email correspondence, patients were requested to complete the Patient-Reported Outcome Measures (PROMs), Forgotten Joint Score questionnaire, and Knee/Hip Injury and Osteoarthritis Outcome Score. Demographic information was obtained from the medical record. All surveys were completed by patients independently. Linear regression analyses were performed to determine the correlations between HOOS JR, KOOS JR, BMI, age, weekly activity frequency, and satisfaction score.

RESULTS:

A total number of 5,536 patients were identified from the query and 1,166 patients completed surveys. Among them, 401 underwent total hip arthroplasty (THA), 675 underwent total knee arthroplasty (TKA), and 90 underwent both. Approximately 92.10% of patients were White, 56.41% of patients were female, and the average age of patients was 64.0 ± 8.61 (Figure 1).

Approximately 88.20% patients reported experiencing more than 6 months of pain prior to surgery (Figure 2). Joint-related pain prevented 84.20% of patients from participating in activities. Following surgery, 93.20% of patients attempted at least one activity listed in the physical activity survey. The most common reported preoperative activities were walking, gardening, cycling, and hiking at 89.62%, 50.34%, 48.28%, and 39.28% respectively (Figure 3). The most common reported postoperative activities were walking, gardening, cycling, and hiking at 87.99%, 42.37%, 40.74%, and 33.10% respectively. Jogging, running, gardening, and swimming saw the largest decrease in participation at -11.06%, -8.66%, -7.98%, and -7.89% respectively. There was a slight increase in patients participating in other or none of the listed activities at 0.51% and 2.66% respectively.

There was a 6.5% increase in the number of patients who reported exercising daily, 3.50% increase in patients exercising 4-5 times per week, and 1.61% increase in patients never exercising (Figure 4).

When compared to preoperative KOOS JR and HOOS JR scores, there was a statistically significant increase noted in postoperative scores of 2.64 and 1.57 respectively ($p < 0.05$), indicating that scores increased over time. Patients reported a mean satisfaction level of 8.33 ± 2.21 . Moreover, as KOOS JR score increased, mean satisfaction score increased by 0.146 ($p < 0.001$). As HOOS JR score increased, mean satisfaction score increased by 0.008 ($p = 0.018$). The mean patient BMI was 31.04 ± 6.44 . As BMI increased, mean satisfaction score decreased by 0.0287 ($p < 0.001$). In contrast, there was no significant correlation between patient age and satisfaction, age and weekly activity frequency prior to TJA, or age and weekly activity frequency postoperatively.

DISCUSSION AND CONCLUSION:

Patients return to a wide variety of activities post TJA, with walking, gardening, cycling, and hiking being the most pursued activities. Overall, patients achieve a high level of satisfaction and continue to exercise at the same or higher level of frequency following surgery. Patients engage in fewer types of activity postoperatively and the most significant drops in participation occurred in these activities: jogging, running, gardening, swimming, and cycling. Jogging and running are the two most common activities that patients report being told to refrain from. While BMI had a negative correlation with level of satisfaction, patient age did not have correlation with satisfaction or weekly activity frequency.

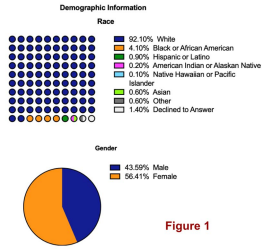


Figure 1

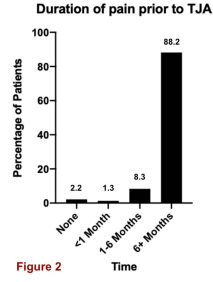


Figure 2

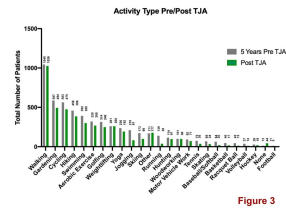


Figure 3

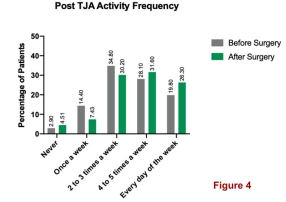


Figure 4