

Smoking Adversely Affects Patient Reported Outcomes Following Total Joint Arthroplasty

Mohamad J. Halawi, MD, Jay R. Lieberman, MD, Vincent J. Williams, MD,
Donald A. Allen, MD, **Mark P. Cote, PT**

Introduction: While smoking is well accepted as a risk factor for surgical complications after total joint arthroplasty (TJA), little is known about the effects of smoking on patient reported outcomes (PROs). In this study, we investigated the association between smoking and a panel of commonly used PROs.

Methods: A retrospective review of prospectively collected joint registry data on 713 primary, unilateral total hip and knee replacements was performed. Two cohorts were compared: 1) active smokers and 2) former/never smokers. The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), Short-Form Physical and Mental Health Composite Score (SF-12 PCS and MCS) Oxford Hip Score (OHS), and the University of California Los Angeles activity level (UCLA) were assessed preoperatively and at 6 and 12 months postoperatively. The primary outcomes were the net changes in PROs as well as absolute scores at final follow up. A linear-mixed effects regression was used to examine the change in the outcome scores for the two groups.

Results: Nonsmokers demonstrated higher baseline preoperative PROs than active smokers. With the exception of SF-12 MCS ($p=0.671$) and UCLA ($p=0.178$), nonsmokers showed significantly greater improvements in WOMAC ($p=0.002$), SF-12 PCS ($p=0.005$), and OHS ($p=0.033$). Additionally, for each unit increase in packs per day smoked, the WOMAC scores decreased by 7.7 points ($p=0.003$), SF-12 PCS by 4.8 points ($p=0.001$) and OHS by 3.0 points ($p=0.033$). At final follow-up, nonsmokers had better absolute scores for all PROs measured ($p<0.05$).

Conclusions: Previous and never smokers achieved statistically and clinically greater improvement in most PROs after TJA when compared to active smokers. There was a dose-dependent inversely proportional relationship between smoking and outcomes. Since smoking is a modifiable risk factor, smokers should be counseled to quit smoking to optimize outcomes.