Factors Predicting Return to Work Following Primary Rotator Cuff Repair – An Analysis of 1502 Cases

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INTRODUCTION: Return to work is an important endpoint for patients undergoing arthroscopic rotator cuff repair. Preliminary evidence suggests that patients who had less physically strenuous jobs, who sustained rotator cuff tears of their non-dominant shoulder, and who were of male gender were more likely to return to work following rotator cuff repair. The aims of the present study were to perform a comprehensive analysis of demographic, pre-injury, preoperative, intraoperative and 6 months postoperative factors to identify predictors of (1) return to work at any level and (2) return to pre-injury level of work in a large cohort.

METHODS: A post-hoc analysis of prospectively collected data from consecutive patients who underwent primary arthroscopic rotator cuff repairs using a single row inverted mattress technique performed by a single surgeon between January 2005 and December 2020 was performed. Backwards stepwise multiple logistic regression analysis was performed on (A) demographic/pre-injury (n=4), preoperative (n=27) and intraoperative (n=8) factors, and (B) 6 months postoperative (n=22) factors to identify factors that predicted (1) return to work at any level, and (2) return to pre-injury level of work.

RESULTS: 1502 consecutive cases met our inclusion criteria. The mean age was 55±10 years and 60% (900/1502) of patients were males. At 6 months postoperatively, 76% (1142/1502) of patients had returned to work at some level, and 40% (602/1502) had returned to pre-injury levels of work. Multivariate analysis of demographic/pre-injury, preoperative and intraoperative factors revealed that a more strenuous post-injury, preoperative level of work (Wald statistic [W]=28, p<0.0001), greater preoperative internal rotation strength (W=12, p<0.0001), female gender (W=7, p=0.009), intraoperative assessment of a full thickness tear (W=7, p=0.009), a lower preoperative level of pain with overhead activities (W=5, p=0.021), greater intraoperative tissue mobility (W=5, p=0.025) and a higher quality repair during intraoperative assessment (W=4, p=0.035) predicted return to work at any level at 6 months; a less strenuous pre-injury level of work (W=173, p<0.0001), a more strenuous post-injury, pre-operative level of work (W=22, p<0.0001), greater preoperative behind the back lift-off strength (W=8, p=0.004) and less preoperative passive external rotation range (W=5, p=0.034) predicted return to pre-injury level of work at 6 months postoperatively. Multivariate analysis of 6-month postoperative factors identified that higher patient-rated overall shoulder rating (W=23, p<0.0001), higher level of exercise (W=16, p<0.0001), less passive external rotation range (W=8, p=0.006), greater passive abduction range (W=7, p=0.010), not having a re-tear on ultrasound (W=5, p=0.029) and greater internal rotation strength (W=5, p=0.030) predicted return to work at any level at 6 months; a more strenuous 6-month postoperative level of work (W=220, p<0.0001) and lower frequency of extreme pain (W=10, p=0.002) predicted return to pre-injury level of work at 6 months postoperatively.

DISCUSSION AND CONCLUSION: Patients who had a more strenuous post-injury, but preoperative level of work were the most likely to return to work at some level at 6 months. Patients who reported less preoperative pain with overhead activities, who had full thickness tears, who had higher surgeon-ranked tissue mobility and repair quality, who did not experience retears, who were satisfied with their shoulders postoperatively, who had greater postoperative abduction range, and who were stronger in internal rotation and stiffer in external rotation were likely to return to work at 6 months. Patients who had less strenuous work prior to their injury, and more strenuous work post-injury but before their surgery were the most likely to return to pre-injury levels of work. Those who experienced extreme pain less frequently, who had less passive external rotation and who were stronger in behind the back lift-off and stiffness were likely to return to their pre-injury levels of work.

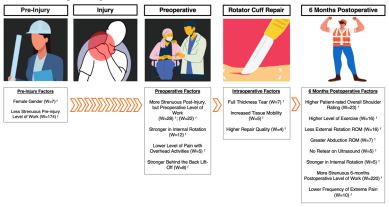

Figure 1. Significant predictors of return to work at any level, and return to pre-injury levels of work respectively on backwards stepwise multiple logistic regression analysis. †, significantly predicted return to work at any level; ‡, significantly predicted return to pre-injury levels of work; ROM, passive range of motion; W, Wald statistic.

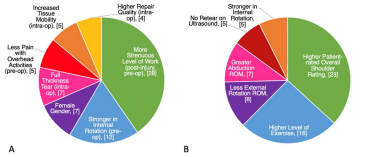

Figure 2. Significant predictors of return to work at any level from multivariate analysis of (A) pre-injury, preoperative, and intraoperative factors, and (B) 6 months postoperative factors only. ROM, passive range of motion; [Wald statistic].

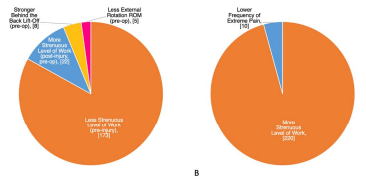

Figure 3. Significant predictors of return to pre-injury level of work from multivariate analysis of (A) pre-injury, preoperative, and intraoperative factors, and (B) 6 months postoperative factors only. ROM, passive range of motion; [Wald statistic].