

Kinesiophobia and Pain Catastrophizing Leads to Decreased Return to Sport following Autologous Chondrocyte Implantation but Does Not Affect Return to Work

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INTRODUCTION: This study is to evaluate the effect of fear of reinjury on return to sport (RTS), return to work (RTW), and clinical outcomes following autologous chondrocyte implantation.

METHODS:

A retrospective review of patients who underwent autologous chondrocyte implantation (ACI) with a minimum of 2-year clinical follow up was conducted. Patient-reported outcomes collected included the Visual Analog Scale (VAS) and Knee Injury and Osteoarthritis Outcome Score (KOOS). Kinesiophobia and pain catastrophizing was assessed using the Tampa Scale of Kinesiophobia-11 (TSK-11) and Pain Catastrophizing Scale (PCS), respectively. Patients were surveyed on their RTS and RTW status.

RESULTS:

Fifty-seven patients (50.9% female) were included in our analysis. Twenty-two (38.6%) patients did not RTS. Of the 35 patients (61.4%) who returned, nearly half (48.6%) returned at a lower level of play. TSK-11 scores ($p=0.003$), PCS ($p=0.001$), and VAS pain scores ($p<0.001$) were significantly greater in patients that did not RTS compared to those who returned. All KOOS subscores analyzed were significantly lower ($p < 0.001$) in patients that did not RTS compared to those who returned at the same level or higher. Of the 44 (77.2%) patients previously employed, 97.7% returned to work. Increasing TSK-11 scores were associated with lower odds of returning to sport ($p=0.003$).

DISCUSSION AND CONCLUSION:

Fear of reinjury decreases the likelihood that patients will return to sport after autologous chondrocyte implantation. Patients that do not return to sport report significantly greater levels of fear of reinjury and pain catastrophizing, and lower clinical knee outcomes. Nearly all patients were able to return to work after surgery.

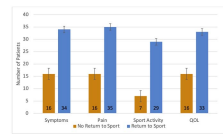


Figure 1. Number of patients that reported improvement in outcomes between patients that returned to sport and those that did not.

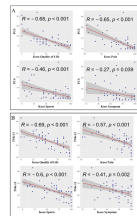


Figure 3. Scatter plots depicting correlations of fear of reinjury (TSK-11) and pain catastrophizing (PCS) with patient-reported outcomes. A. Relationship between TSK-11 and KOOS-B. Relationship between PCS and KOOS-B.

Outcome	TSK-11	PCS	OR (95% CI)	p-value
RTS	28 (31.2%)	28 (31.2%)	0.530	0.003
RTW	44 (48.8%)	44 (48.8%)	0.977	0.998
KOOS Total	38 (41.7%)	38 (41.7%)	0.542	0.001
KOOS-Pain	38 (41.7%)	38 (41.7%)	0.671	0.001
KOOS-ADL	38 (41.7%)	38 (41.7%)	0.571	0.001
KOOS-Sport	38 (41.7%)	38 (41.7%)	0.571	0.001
KOOS-QoL	38 (41.7%)	38 (41.7%)	0.571	0.001

Table 1. Outcome Scores, Complication Rates, and Logistic Odds for Return to Sport Status

Outcome	% Return to Sport	Return to Sport Level	p-value
RTS	48.6%	48.6%	0.003
RTW	97.7%	97.7%	0.998
KOOS Total	48.6%	48.6%	0.001
KOOS-Pain	48.6%	48.6%	0.001
KOOS-ADL	48.6%	48.6%	0.001
KOOS-Sport	48.6%	48.6%	0.001
KOOS-QoL	48.6%	48.6%	0.001

Table 2. Outcome Scores, Complication Rates, and Logistic Odds for Return to Work Status

Outcome	% Return to Sport	Return to Sport Level	p-value
RTS	48.6%	48.6%	0.003
RTW	97.7%	97.7%	0.998
KOOS Total	48.6%	48.6%	0.001
KOOS-Pain	48.6%	48.6%	0.001
KOOS-ADL	48.6%	48.6%	0.001
KOOS-Sport	48.6%	48.6%	0.001
KOOS-QoL	48.6%	48.6%	0.001

Table 3. Logistic Odds for Return to Sport Status

TSK-11: Tampa Scale of Kinesiophobia-11, PCS: Pain Catastrophizing Scale, OR: Odds Ratio, CI: Confidence Interval, RTS: Return to Sport, RTW: Return to Work, KOOS: Knee Injury and Osteoarthritis Outcome Score, P: p-value.