

# INCREASED KINESIOPHOBIA LEADS TO LOWER RETURN TO SPORT AND CLINICAL OUTCOMES FOLLOWING OSTEOCHONDRAL ALLOGRAFT TRANSPLANTATION OF THE KNEE

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# I (and/or my co-authors) have something to disclose.

All relevant financial relationships have been mitigated.

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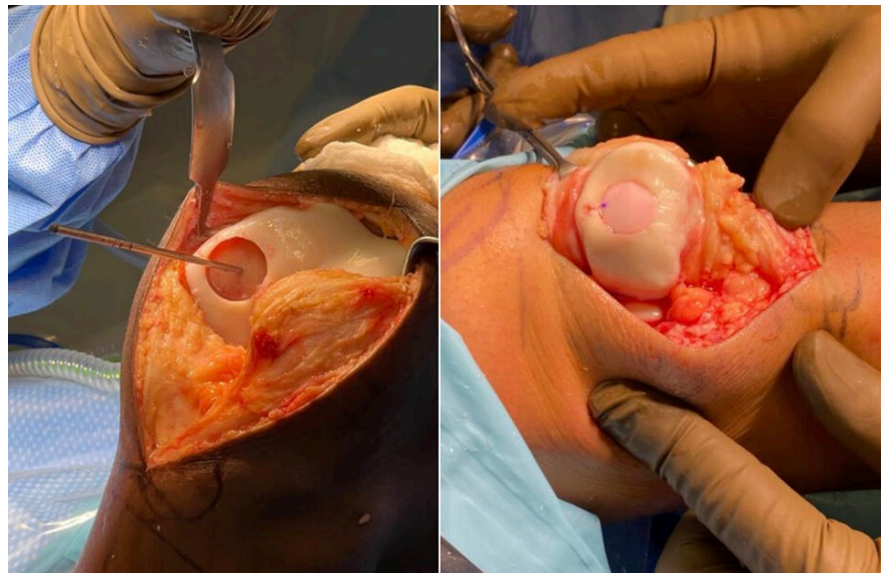
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# Background

- Osteochondral allograft (OCA) transplantation is commonly used to treat articular cartilage defects of the knee
- Despite good outcomes and high rates of return to sport (RTS) after OCA, there is a discrepancy between overall RTS and the ability to regain full activity
- Growing evidence suggests that **kinesiophobia (fear of movement/reinjury)** may **negatively contribute** to outcomes in this population



## Objective



To determine whether patient-perceived kinesiophobia is associated with the rate of RTS.

### *Hypothesis:*

- ❖ Increased fear of reinjury, measured by the Tampa scale for kinesiophobia (TSK-11), would be associated with poor patient-reported outcomes and lower rates of RTS among patients following OCA procedures.

# Methods

- Retrospective review from 2010-2020
- Single institution
- Patients undergoing knee OCA for high grade (Outerbridge Grade III or IV) lesions
- Minimum 2-year follow-up
- Demographic factors: Age, sex, body mass index (BMI), Lesion characteristics
- Outcome Measures:
  - KOOS Scores
  - Visual Analog Score (VAS) for pain/satisfaction
  - Tampa Scale of Kinesiophobia (TSK-11)
  - Return to sport (status and level of return)

# Results- Patient Demographics

	Overall (n=38)	Did Not Return to Sport (n=14)	Returned to Sport (n=24)	P-value
<b>Sex</b>				n.s.
<b>Female</b>	20 (52.6%)	7 (50.0%)	13 (54.2%)	
<b>Male</b>	18 (47.4%)	7 (50.0%)	11 (45.8%)	
<b>Age (y)</b>	34.0 ± 10	33.0 ± 8	35 ± 12	n.s.
<b>BMI (kg/m<sup>2</sup>)</b>	27.1 ± 6	27.0 ± 5	27.3 ± 6	n.s.
<b>Follow up(m)</b>	51.0 ± 22	41.0 ± 9	57 ± 25	n.s.
<b>Primary Lesion area (cm<sup>2</sup>)</b>	3.5 ± 1.6	3.2 ± 1.3	3.8 ± 1.6	n.s.

## Results- Higher Kinesiophobia in No RTS Group

	Overall (n=38)	Did Not Return to Sport (n=14)	Returned to Sport (n=24)	p-value
Satisfaction	71 ± 30	66 ± 32	74 ± 29	n.s.
VAS Pain	29 ± 29	36 ± 32	24 ± 27	n.s.
KOOS Pain	79 ± 19	70 ± 18	83 ± 17	0.019
KOOS Symptom	76 ± 17	74 ± 15	78 ± 19	n.s.
KOOS QOL	64 ± 19	55 ± 15	69 ± 20	0.027
Tampa Kinesiophobia Score	25 ± 6	28 ± 5	23 ± 6	0.014

## Higher Kinesiophobia is Associated with RTS at Lower Level

Predictors	Return to Sport			p	Return to Sport at Lower Level		
	Odds Ratio	CI			Odds Ratio	CI	p
Age (y)	1.96	1.17 – 9.96	n.s.	0.99	0.90 – 1.09	n.s.	
Sex (M)	0.00	0.00 – 0.02	n.s.	1.42	0.14 – 18.23	n.s.	
BMI (kg/m <sup>2</sup> )	2.92	1.17 – 41.22	n.s.	0.86	0.69 – 1.03	n.s.	
Follow Up (m)	2.06	1.19 – 13.54	n.s.	0.98	0.93 – 1.04	n.s.	
Lesion Area (cm <sup>2</sup> )	1162.54	8.65 – 1290.66	n.s.	0.65	0.30 – 1.32	n.s.	
Preoperative Pain	1.17	1.01 – 1.71	n.s.	1.01	0.96 – 1.06	n.s.	
TSK-11	0.07	0.00 – 0.43	n.s.	<b>1.33</b>	<b>1.11 – 1.74</b>	<b>0.009</b>	



## Higher Kinesiophobia is Associated with Worse Outcomes

KOOS QOL Subscale			KOOS Pain Subscale	
Predictor	Estimate	p	Estimate	p
Age (y)	-0.05	n.s.	-0.16	n.s.
Sex (M)	-6.16	n.s.	-9.38	n.s.
BMI (kg/m <sup>2</sup> )	0.39	n.s.	0.68	n.s.
Follow up (m)	0.07	n.s.	0.20	n.s.
Lesion area (cm <sup>2</sup> )	0.07	n.s.	0.57	n.s.
<b>TSK-11</b>	<b>-2.39</b>	<b>&lt;0.001</b>	<b>-1.95</b>	<b>&lt;0.001</b>

# Results- Summary

- ❖ 24 patients (**63.2%**) returned to sport; 12 (**50%**) of those returned at a lower level
- ❖ Kinesiophobia (TSK-11) was **significantly higher** among patients that did not return to sport while satisfaction and pain intensity were comparable between group
- ❖ Patients were 1.33 times more likely to **return to sport at a lower level** with increasing TSK-11 levels
- ❖ Increase in TSK-11 is associated with **worse** patient-reported outcomes



# Conclusion

- ❖ Fear of reinjury decreases the likelihood that patients will return to their preoperative level of sport after OCA transplantation. Patients that do not return to sport report significantly greater fear of reinjury and inferior clinical outcomes, despite similar levels of satisfaction and pain compared to those that return

***Surgeons should have conversations regarding kinesiophobia, either with or without TSK-11 supplementation, to optimize patient outcomes.***

***An emphasis on both physical and psychological therapy should be made for patients who have been or are likely to be affected by fear of reinjury.***

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