



Performance Is Regained Within 2 Seasons After Quadriceps Tendon Tears in National Basketball Association Players

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DISCLOSURES

- No Relevant Disclosures

BACKGROUND

- One-third of basketball players report knee tendonitis^{1,2} → ↑ risk of tear in the patellar or quadriceps tendons³
- Return to play rate of NBA players after patellar tendon tears is 75%⁴
 - Preinjury performance regained immediately
- No current literature on quadriceps tendon tears in NBA players



PURPOSE STATEMENT



To characterize quadriceps tendon injuries over 30 NBA seasons and assess the effects on player performance upon return to play

METHODS

- Publicly available injury records from the 1990-2022 NBA seasons
 - Player statistics: games played (GP), minutes per game (MPG), points per game (PPG), player efficiency rating (PER), true shooting % (TS%), usage % (USG%)
- Univariate analysis of statistics between preindex season vs. postindex seasons
- Univariate analysis of changes in player performance between injury subjects and matched controls
 - Matched controls identified using the Similarity Score provided by Basketball-Reference.com

RESULTS

Table 2. Injury characterization of Each Quadriceps Tendon Tear in National Basketball Association Players From the 1990-1991 to 2021-2022 Seasons

Player Age, y	Tear	Surgery	RTP	Cumulative Minutes Played	
				Preinjury	Postinjury
25	Partial	Yes	Yes	2,165	7,210*
26	Partial	No	Yes	14,907	10,074*
28	Partial	Yes	Yes	14,453	173*
30	Partial	Yes	No	21,655	0
31	Partial	Yes	Yes	27,694	3,321
32	Partial	Yes	Yes	17,351	274
26	Complete	Yes	Yes	12,655	1,906*
34	Complete	Yes	Yes	42,098	2,141
36	Complete	Yes	No	43,559	0

RTP, return-to-play.

*Currently active as of the 2021-2022 regular season.

- **78% of players return to play after quadriceps tendon tear**

RESULTS

Table 3. Univariate Analysis of Player Performance in the Preindex Season Compared With the First Two Postindex Seasons

	Preindex Season*	Postindex Season 1*	Change*	P Value
GP	73.2 ± 6.6	41.8 ± 10.8	-31.3 ± 7.6	<u>.009</u>
MPG	27.2 ± 2.9	23.0 ± 3.7	-4.3 ± 1.6	<u>.042</u>
PPG	13.3 ± 3.1	10.8 ± 3.2	-2.5 ± 1.9	.235
Per	16.6 ± 2.2	12.2 ± 3.5	-4.4 ± 3.0	.209
TS%	0.54 ± 0.01	0.48 ± 0.06	-0.06 ± 0.06	.336
USG%	22.35 ± 2.31	21.03 ± 2.23	-1.32 ± 0.89	.200
	Preindex Season*†	Postindex Season 2*†	Change*†	P Value
GP	79.6 ± 1.9	51.2 ± 4.6	-28.4 ± 5.4	<u>.006</u>
MPG	29.3 ± 2.6	24.7 ± 3.6	-4.6 ± 1.4	<u>.032</u>
PPG	14.7 ± 3.5	14.1 ± 3.4	-0.6 ± 1.8	.768
PER	17.5 ± 2.4	15.6 ± 1.4	-1.9 ± 2.0	.386
TS%	0.53 ± 0.01	0.53 ± 0.01	-0.02 ± 0.02	.288
USG%	22.82 ± 5.11	23.80 ± 3.31	0.98 ± 2.08	.662

- Significant decrease in playing time (GP, MPG) through both postindex seasons
- Slight nonsignificant decrease in performance (PPG, PER, TS%, USG%) in postindex season 1 → improves by postindex season 2

RESULTS

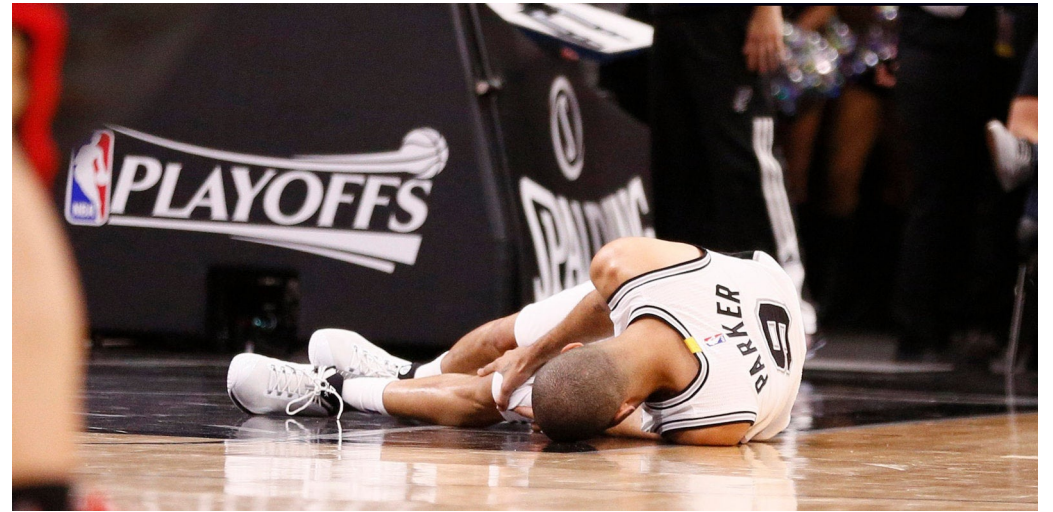
Table 4. Univariate Analysis of Changes in Player Performance Compared With Matched Controls

	Change From Preindex Season		P Value
	Injured Group*†	Control Group*†	
GP			
Postindex Season 1	-31.3 ± 7.6	1.4 ± 8.2	<u>.004</u>
Postindex Season 2	-28.4 ± 5.4	4.2 ± 7.9	<u>.005</u>
MPG			
Postindex Season 1	-4.3 ± 1.6	-3.0 ± 2.3	.643
Postindex Season 2	-4.6 ± 1.4	-2.5 ± 1.8	.351
PPG			
Postindex Season 1	-2.5 ± 1.9	-1.7 ± 1.7	.716
Postindex Season 2	-0.6 ± 1.8	-2.4 ± 1.5	.396
PER			
Postindex Season 1	-4.4 ± 3.0	-1.9 ± 1.3	.326
Postindex Season 2	-1.9 ± 2.0	-1.2 ± 0.9	.651
TS%			
Postindex Season 1	-0.06 ± 0.06	-0.03 ± 0.02	.512
Postindex Season 2	-0.02 ± 0.02	0.00 ± 0.00	.528
USG%			
Postindex Season 1	-1.32 ± 0.89	-0.28 ± 1.37	.506
Postindex Season 2	0.98 ± 2.08	-1.57 ± 1.47	.261

- Only the decrease in games played (GP) is significantly different from healthy controls

DISCUSSION

- RTP rate of other major NBA knee injuries:
 - Patellar tendon tear (75%)⁴
 - ACL tear (74-78%)⁵
 - Knee microfracture (79%-83%)^{6,7}
 - Meniscus tear (81%)⁸
 - **Quadriceps tendon tear (78%)**
- Consistent with current study, no significant changes in PER of NBA players sustaining patellar tendon⁴ or meniscus tears⁸ upon return to play



CONCLUSION

- 78% of NBA players with quadriceps tendon tears return to play
- Upon return to play, players achieve preinjury levels of performance within the first 2 seasons, but with reduced games played per season



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Images

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