Return to Play and Continued Participation in Elite Sport After Microfracture for Chondral Lesions in the Knee – a Matched Controlled Cohort Study

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Disclosures

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Chondral Lesions in the Knee

- in elite sport, full-thickness articular cartilage defects can be career limiting or threatening (Salzmann et al. 2017)
- microfracture can promote cartilage repair (Welton et al. 2018) – BUT the resultant mixed fibrocartilaginous tissue is believed to be less resilient than native hyaline cartilage (Minas et al. 1997, Saris et al. 2008, DiBartola et al. 2016)

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Purpose

- determination of the factors affecting RTP and continued participation in elite sport by athletes after microfracture of the knee

- comparison with matched cohorts (soccer/football and rugby players
  - playing rates at 2 and 5 years
  - performance level

** RTP – return to play*

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Material and Methods I

- consecutive series of elite athletes with chondral injuries in the knee treated with microfracture by the lead surgeon (AW) between 2011 and 2020

- surgery indications
  - full thickness chondral lesions ≤ 2cm^2
    - failure of resolution of symptoms after non-operative treatment for ≥ 12 weeks
    - lesions causing loose bodies requiring arthroscopic removal and lesion stabilization with remaining symptoms 8 weeks later

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Material and Methods II

- control group (5:1 propensity match) of non injured soccer/football and rugby players matched for
  - age
  - league level
  - field position
  - minutes played
- compiled to compare playing rates at 2 and 5 years and performance level

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Surgical Technique and Rehabilitation

- debridement of the lesion to create stable vertical edges
- curetting the base of the lesion – not damaging the subchondral bone
- marrow stimulation - chondral pick or MicroFx drill (Stryker™, Michigan, USA)

- *Rehab* – principle to offload the lesion for 6 weeks using CPM machine during this time

* *CPM – continuous passive motion*

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Results I

- 50 elite athletes
- mean age – 24.7a (± 4.0a)
- age band
  - <25a – 24 (48%)
  - ≥25a – 26 (52%)
- 2 female athletes (4%)
- sports
  - soccer/football – 30 (60%)
  - rugby – 13 (26%)
  - other – 7 (14%)

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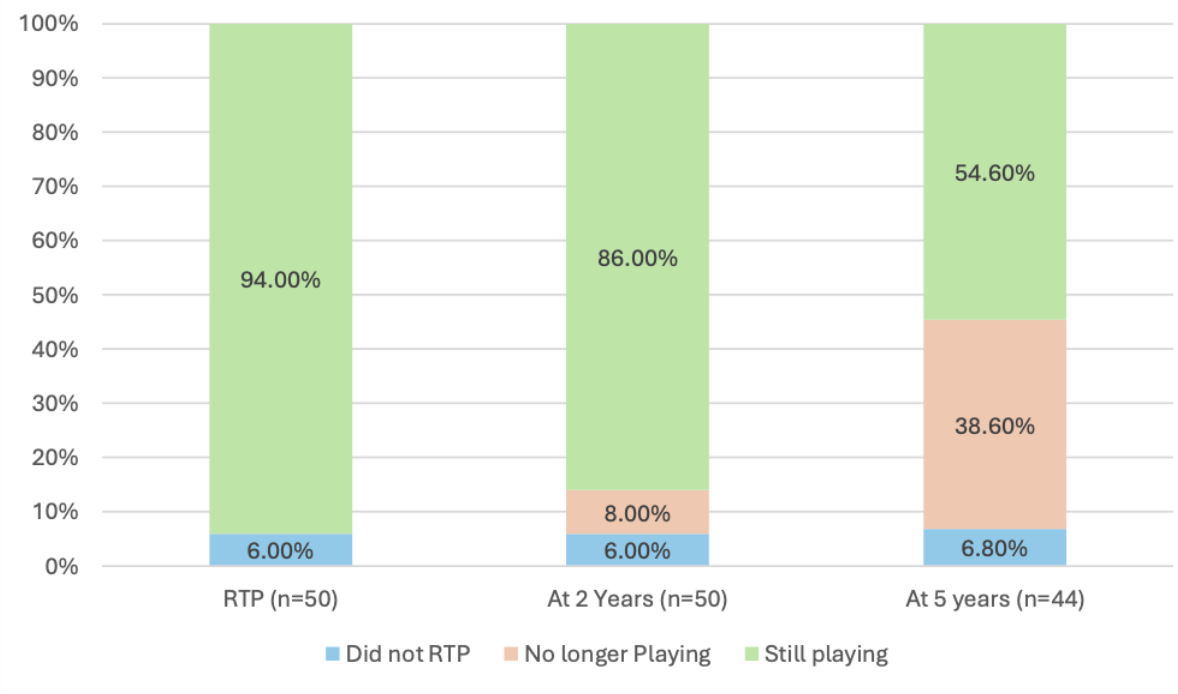
Results II

- 94% RTP at a mean of 9.3 (± 4.1) months

RTP and playing rates at 2 and 5 years



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Affecting Factors

- <u>for Career Longevity</u>
  - 2 years post-operative
    - number of lesions ($p<0.001$)
  - 5 years post-operative
    - size of the lesion ($p=0.051$)
    - number of lesions ($p=0.002$)
- <u>for RTP</u>
  - none

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Matched Control Group

- Career Longevity
  - no statistically significant difference in playing rates
    - at 2 years – 87.1% vs 91.5% (control group) – p=0.496
    - at 5 years – 53.6% vs 70.3% (control group) – p=0.122

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Conclusion

- high RTP rates of professional athletes after microfracture in the knee
- no difference of career longevity compared to non-injured athletes over time
- career longevity affected by size and number of lesions
- Microfracture has a place in the treatment of full thickness chondral lesions, at least in elite athletes.

** RTP – return to play*

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