

# Intramusculaire peesletsels



# Managing acute hamstring injuries in athletes

*Gustaaf Reurink*



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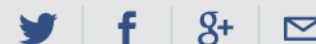






# Ousmane Dembélé medical announcement

WWW.FCBARCELONA.COM - 17/09/2017 | 13:44



The French player ruptures his tendon in the femoral bicep in his left thigh and will be operated on by Dr. Sakari Orava in Finland this week

## Barcelona's Ousmane Dembele set to miss four months with ruptured tendon

By Eurosport  
17/09/2017 at 14:07 | Updated 17/09/2017 at 19:41



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# 'Serious thigh muscle strains': beware the intramuscular tendon which plays an important role in difficult hamstring and quadriceps muscle strains

Peter Brukner,<sup>1,2</sup> David Connell<sup>2,3</sup>

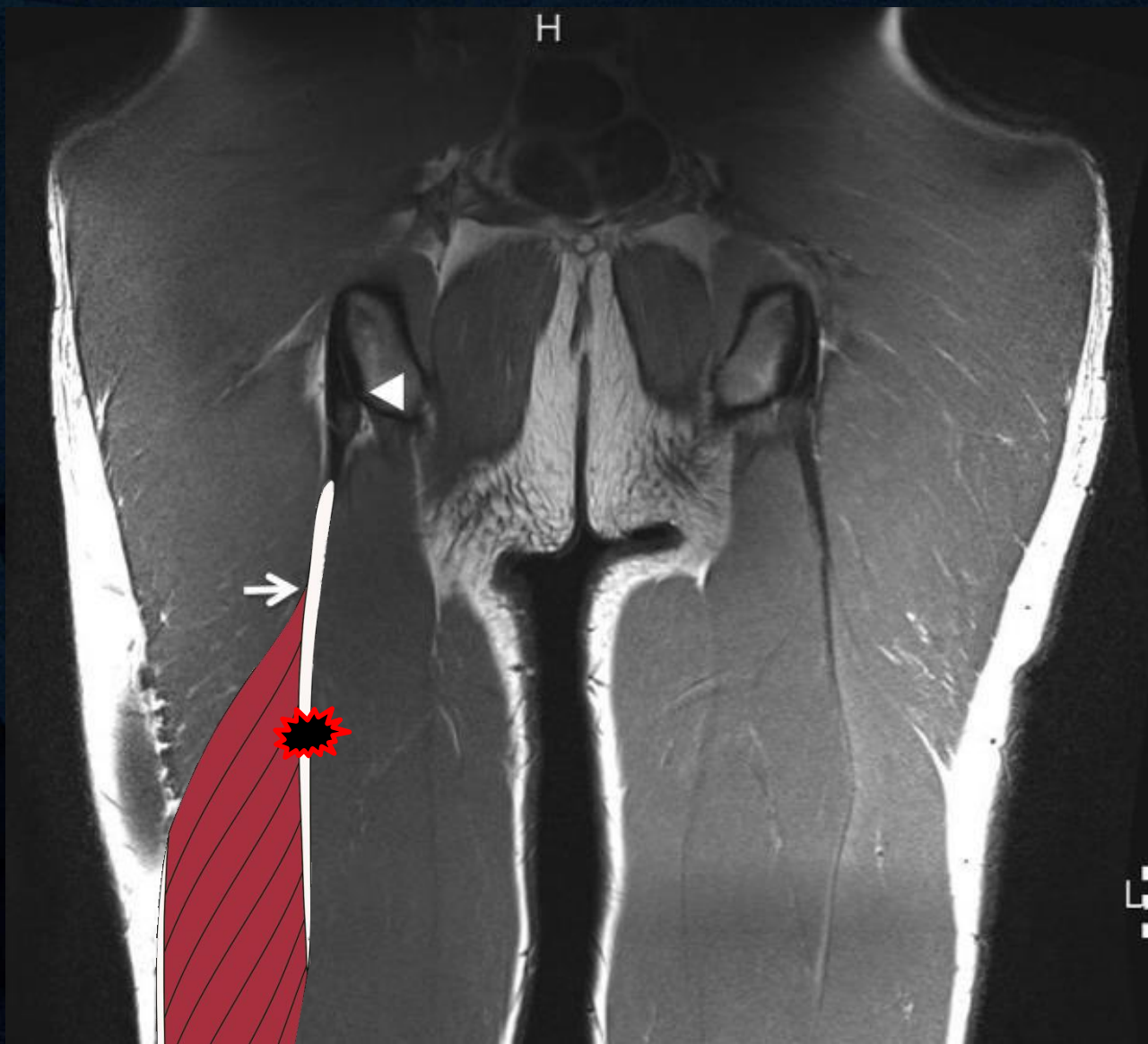




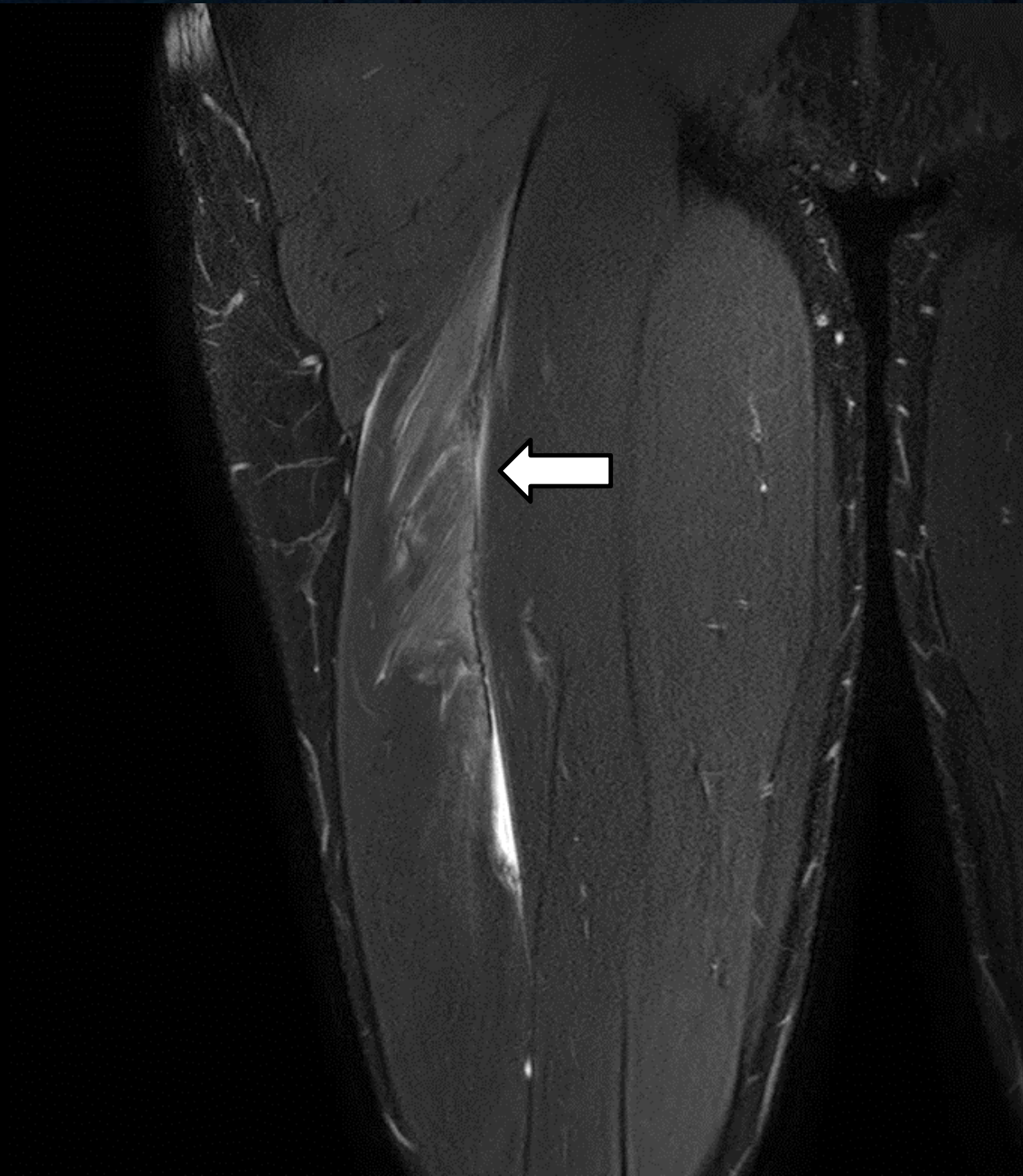
Free tendon

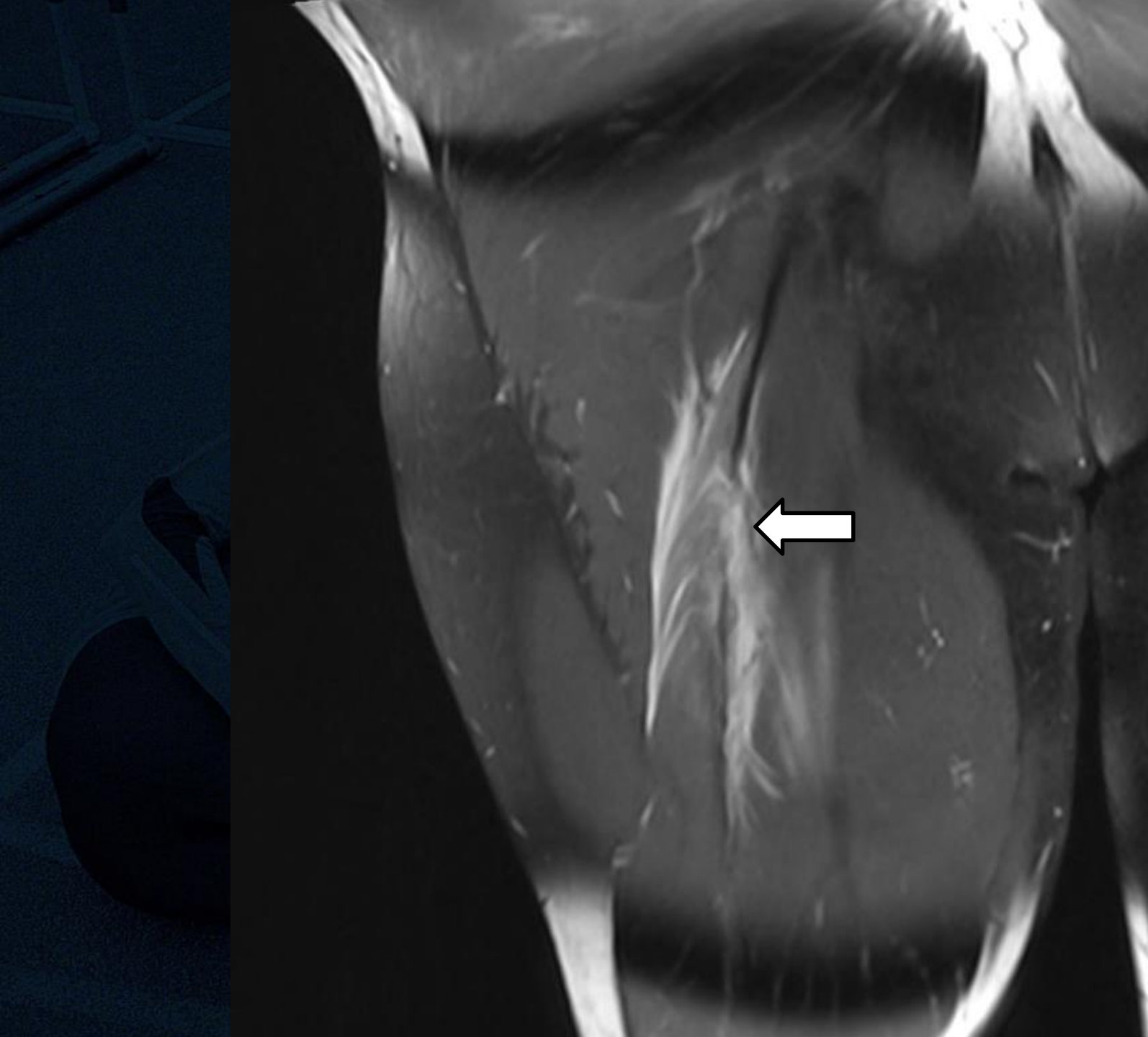
Intramuscular tendon



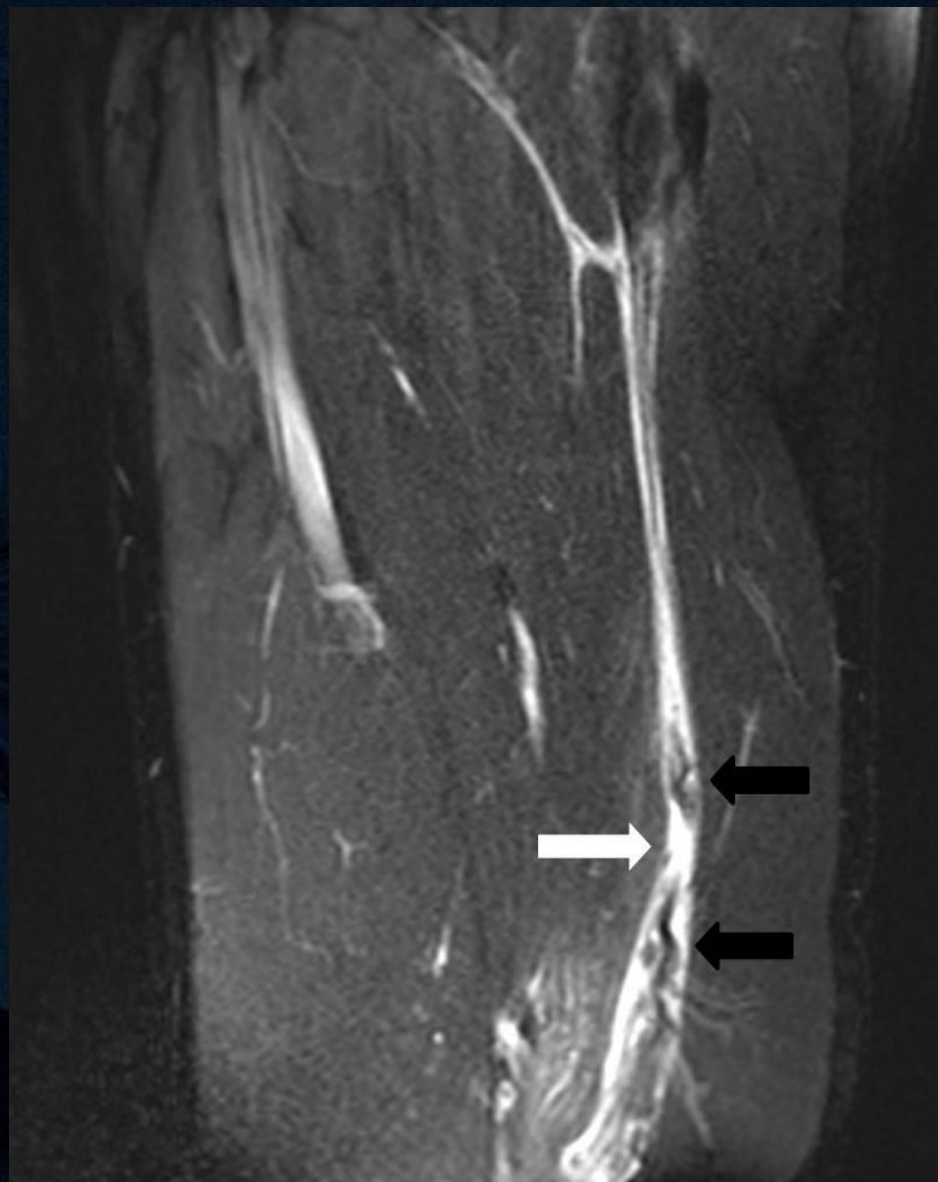












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Brukner and Co





# Return to Competitive Play After Hamstring Injuries Involving Disruption of the Central Tendon

Jules Comin,<sup>\*†</sup> MBBS, Peter Malliaras,<sup>†</sup> PhD, Peter Baquie,<sup>‡</sup> MBBS,  
Tim Barbour,<sup>‡</sup> MBBS, and David Connell,<sup>†§</sup> MBBS

TABLE 1  
Number and Median Recovery Time of Hamstring Injuries

	No.	Median Recovery Time (interquartile range), d
Biceps femoris, total	45	21 (12-56)
Central tendon, intact	33	21 (9-28)
Central tendon, disrupted	9 <sup>a</sup>	72 (42-109) <sup>a</sup>
Semimembranosus	11	32 (21-35)
Semitendinosus	6	14 (12-22)
Total hamstring injuries	62	21 (14-42)

<sup>a</sup>There were 3 further central disruptions that went on to surgical repair and were excluded from further analysis. These 3 injuries had a median recovery time of 91 days.

Time to return to full training is delayed and recurrence rate is higher in intratendinous ('c') acute hamstring injury in elite track and field athletes: clinical application of the British Athletics Muscle Injury Classification

Noel Pollock,<sup>1</sup> Anish Patel,<sup>2</sup> Julian Chakraverty,<sup>3</sup> Anu Suokas,<sup>4</sup> Stephen L J James,<sup>2</sup> Robin Chakraverty<sup>5</sup>

**Table 3** Mean (SD; range) TRFT in days and injury recurrence rate in different British Athletics classifications, n=65

British Athletics classification	n	Mean TRFT* in days: (SD; range)	Recurrence rate (%)
0	21	10 (4.7; 4–21)	1 (5%)
1a	5	18 (3.8; 13–21)	0
1b	4	18 (11.0; 12–31)	2 (50%)
2a	2	25 (5.7; 21–29)	0
2b	17	21 (10.2; 12–49)	1 (6%)
2c	8	27 (6.8; 18–35)	5 (63%)
3a	0	NA	NA
3b	1	41 (NA)	0
3c	7	84 (49.4; 40–128)	4 (57%)
4	0	NA	NA

\*Six injuries that occurred prior to return to full training excluded from the mean TRFT (1b(1); 2b(1); 2c(1); 3c(3)).

NA, not applicable; TRFT, time to return to full training.



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## **Return to Competitive Play After Hamstring Injuries Involving Disruption of the Central Tendon**

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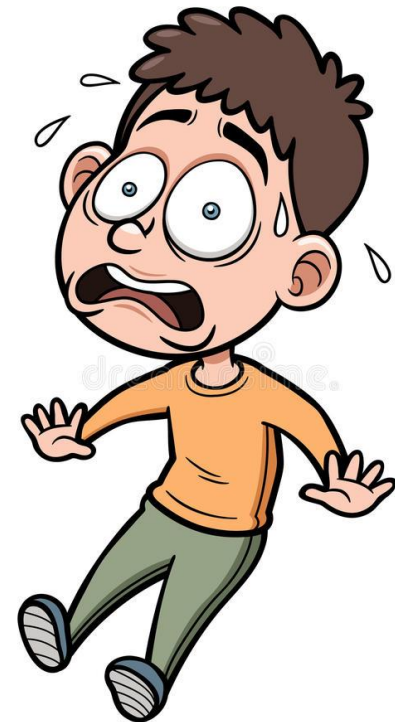
- 2 retrospective case series
- Total 27 documented intramuscular tendon injuries

# 'Serious thigh muscle strains': beware the intramuscular tendon which plays an important role in difficult hamstring and quadriceps muscle strains

Peter Brukner,<sup>1,2</sup> David Connell<sup>2,3</sup>



Brukner and Co





# Intramuscular tendon involvement on MRI has limited value for predicting time to return to play following acute hamstring injury

Anne D van der Made,<sup>1,2,3,4</sup> Emad Almusa,<sup>1</sup> Rod Whiteley,<sup>1</sup> Bruce Hamilton,<sup>5</sup> Cristiano Eirale,<sup>1</sup> Frank van Hellemond,<sup>1</sup> Johannes L Tol<sup>1,3</sup>



Injury

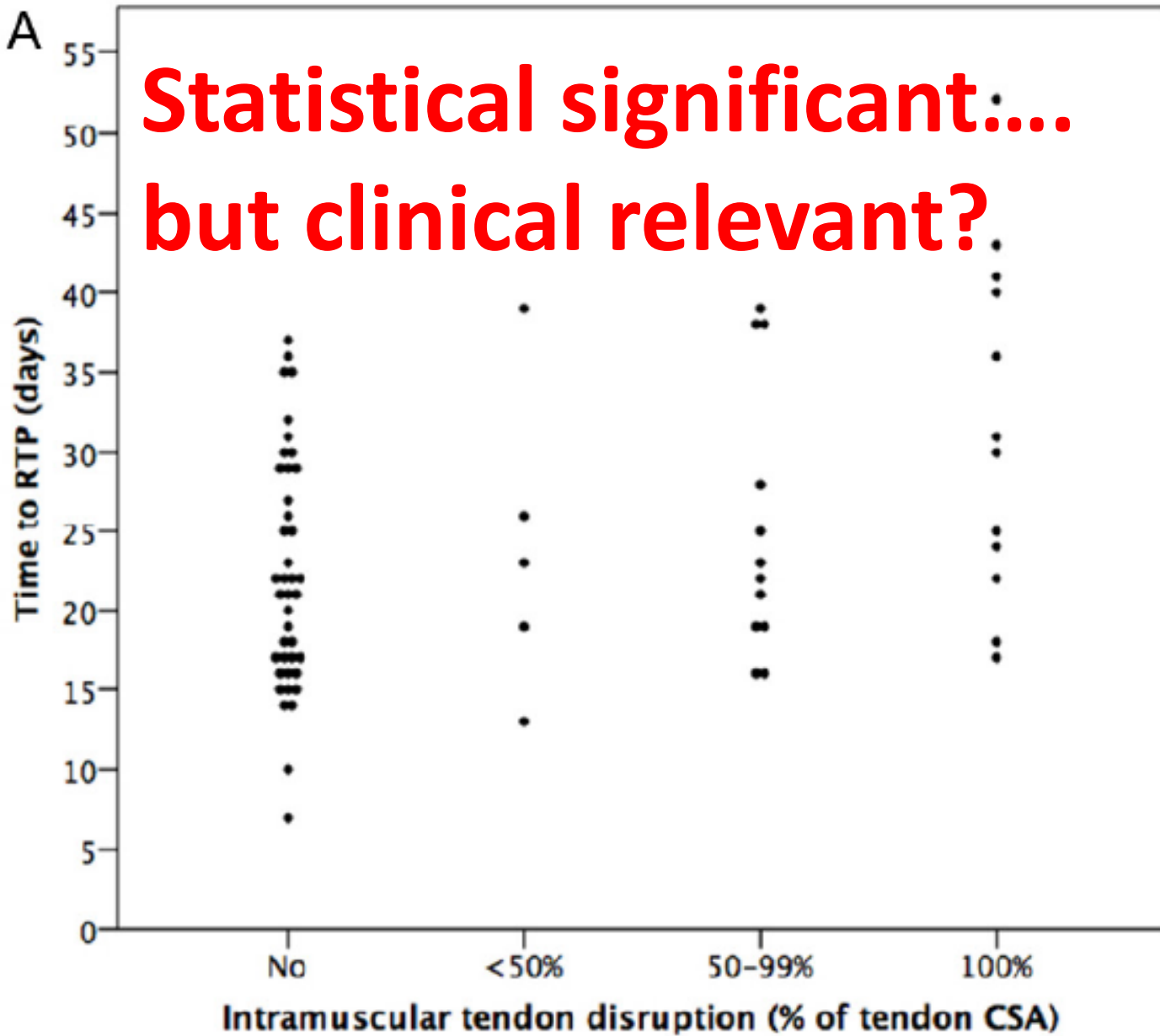


Return to play

Intramuscular tendon involvement

Association?

A

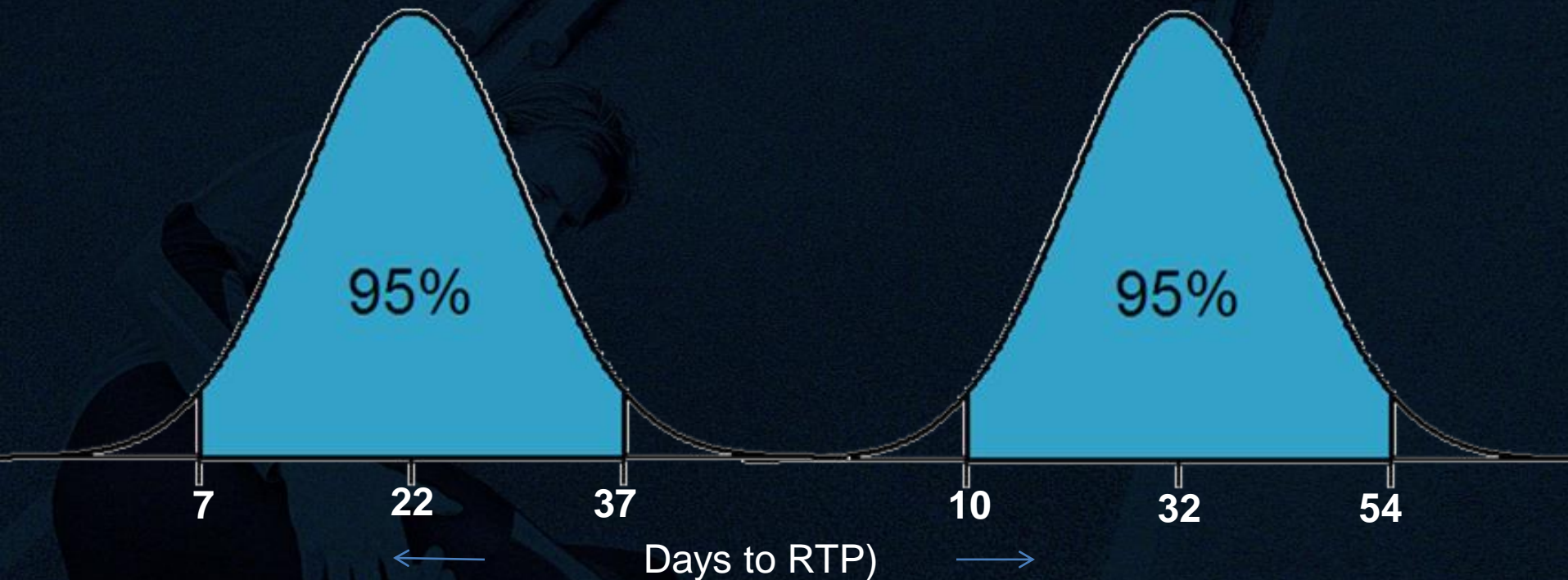




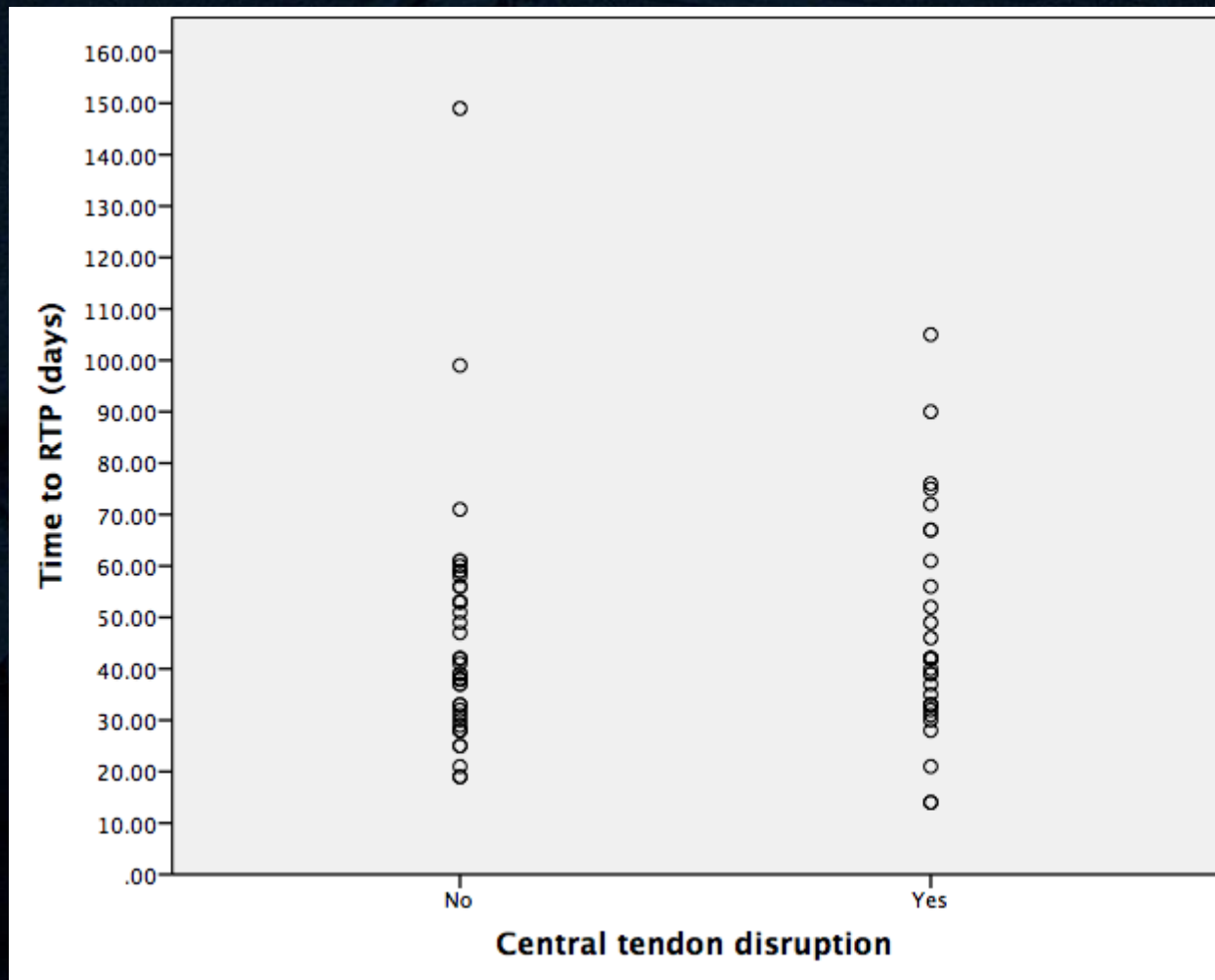
# Overlap between groups

No tendon disruption

Full-thickness disruption



# HIT data





# Time to RTP

- Total disruption takes 1 week longer.....  
at group level!
- Limited value in individual athlete

# Intramuscular tendon injury is not associated with an increased hamstring reinjury rate within 12 months after return to play

Anne D van der Made,<sup>1,2,3,4</sup> Emad Almusa,<sup>1</sup> Gustaaf Reurink,<sup>2,3,5</sup> Rod Whiteley,<sup>1</sup> Adam Weir,<sup>1,6</sup> Bruce Hamilton,<sup>7</sup> Mario Maas,<sup>3,4,8</sup> Aston S H Ngai,<sup>1</sup> Maarten H Moen,<sup>5</sup> Gert Jan Goudswaard,<sup>1</sup> Johannes L Tol<sup>1,3,4</sup>



Injury



Return to play

1 year

Re- injury?

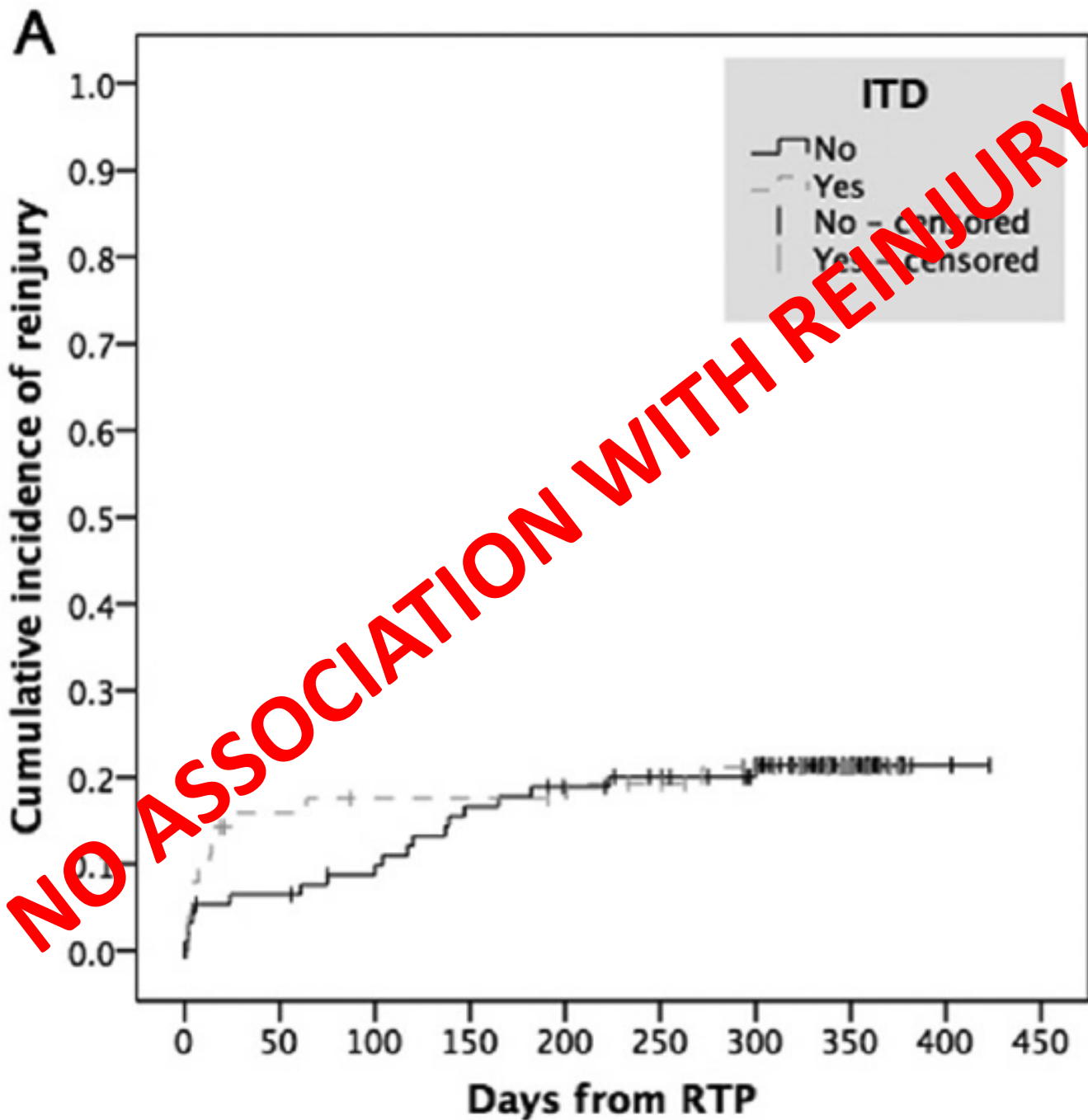
Intramuscular tendon involvement



# Intramuscular tendon injury is not associated with an increased hamstring reinjury rate within 12 months after return to play

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- 165 athletes
  - 64 intramuscular tendon disruption
- 32 reinjuries
  - Intramuscular tendon disruption: 20%
  - No tendon disruption: 20%





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Brukner and Co



# Take home messages

## Intramuscular tendon injury

- Time to RTP
  - Takes (a bit) longer to recover....at group level
  - Limited value in individual athlete
- Reinjury
  - Conflicting results
  - Probably not at increased risk
- Based on above:
  - I would not recommend surgery



