

# **ACL injury: Is it a problem and can we prevent it from happening?**

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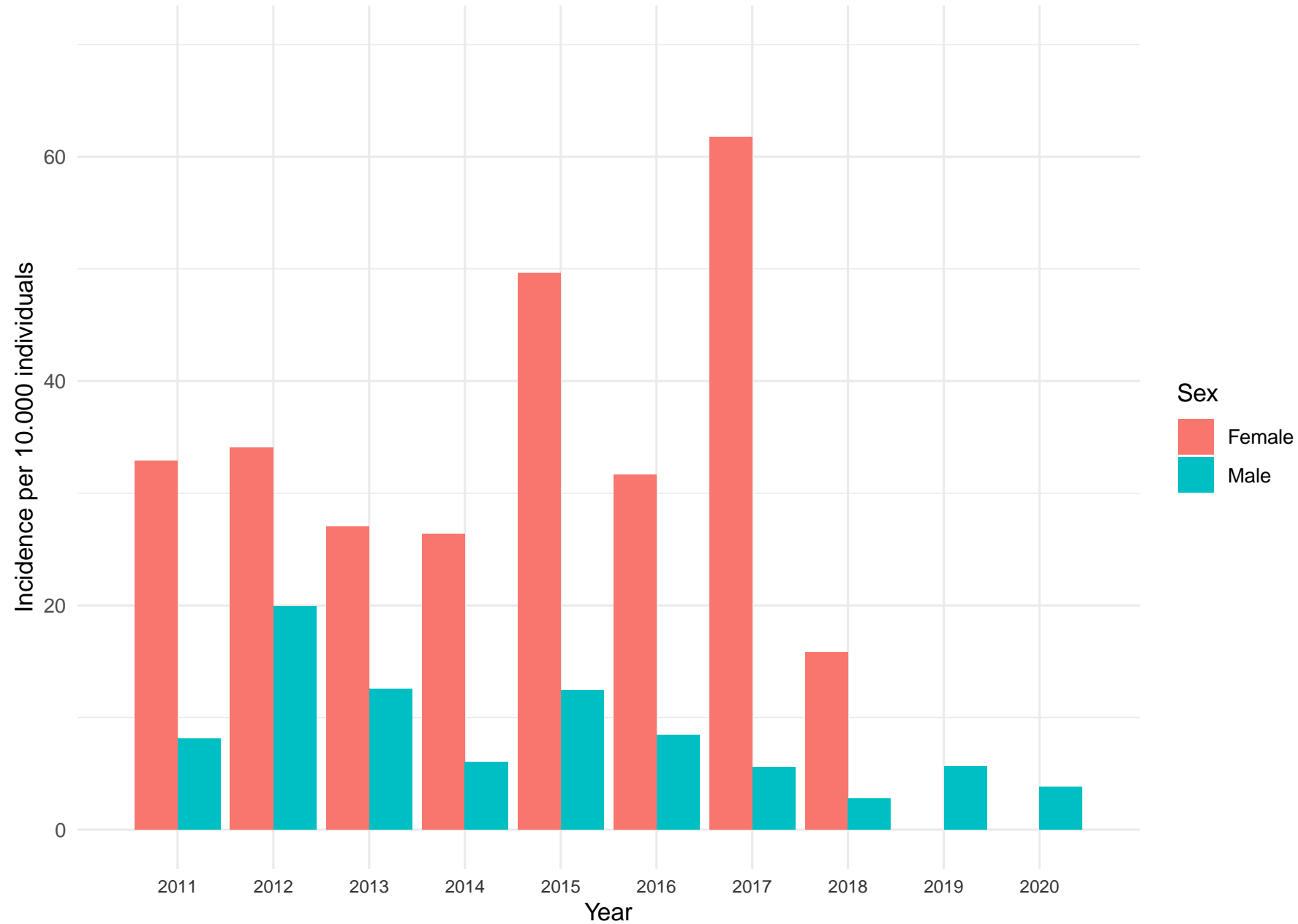
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# Is ACL injury a problem in badminton?



# Return to sport and return to performance after anterior cruciate ligament rupture and injury mechanism in world elite badminton players. Tan, Kaldau et al (unpublished)

- 90 players invited, 87 completed survey
- 43 % Asian, 41 % European
- 66 players from 32 countries
- 23 ( $\pm 3.9$ SD) years
- The mean world ranking: 70 ( $\pm 56.6$ SD)
- 63 % non-dominant leg.



# Return to badminton

- In total 57 (86%) out of 66 athletes aimed to return to the elite level of competition.
- **48 (84%) return to badminton**
- no significant difference: age, sex, discipline and world ranking at time of injury
- Mean time between surgery and return to sport was **423 (±284) days.**



# Return to performance

Return to performance criteria:

BWF world ranking within 10 spots or higher after the ACL injury compared to the world ranking at the time of injury.

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- **Twenty-nine out of 57 (50.9%)**
- No significant difference: sex, age, world ranking at time of injury, continent of origin.



# Return to badminton play following an ACL injury is common but only 19 % return to previous performance. (Kaldau et al. unpublished)

- 626 of 900 (70%) players intended to return to badminton
- **396 (63%) return to badminton**
- 273 (44%) same level
- **117 (19%) return to performance**
- RTS was higher among males (68% vs 58%,  $p=0.007$ )
- Young tournament players did not differ from the general population: RTS 68% and RTP 20%.





# Background

- Women
- Block jump in backhand side, lunge
- High valgus ankle
- **Kimura et al 2010, 2012**

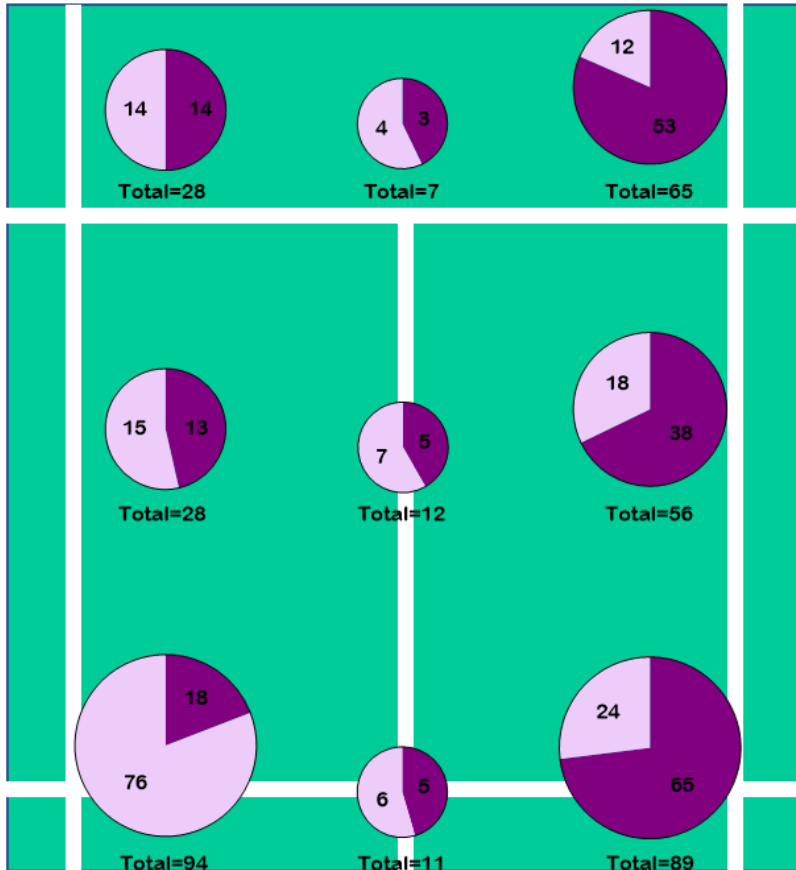


# Injury mechanism (Tan, Kaldau et al. unpublished)

- 49 of 66 (74%) during competition
- 44 of 49 (86%) during the last 2/3 of the set
- 43 of 63 (68%) in the backhand site
- 47 of 66 (70%) landing after jump



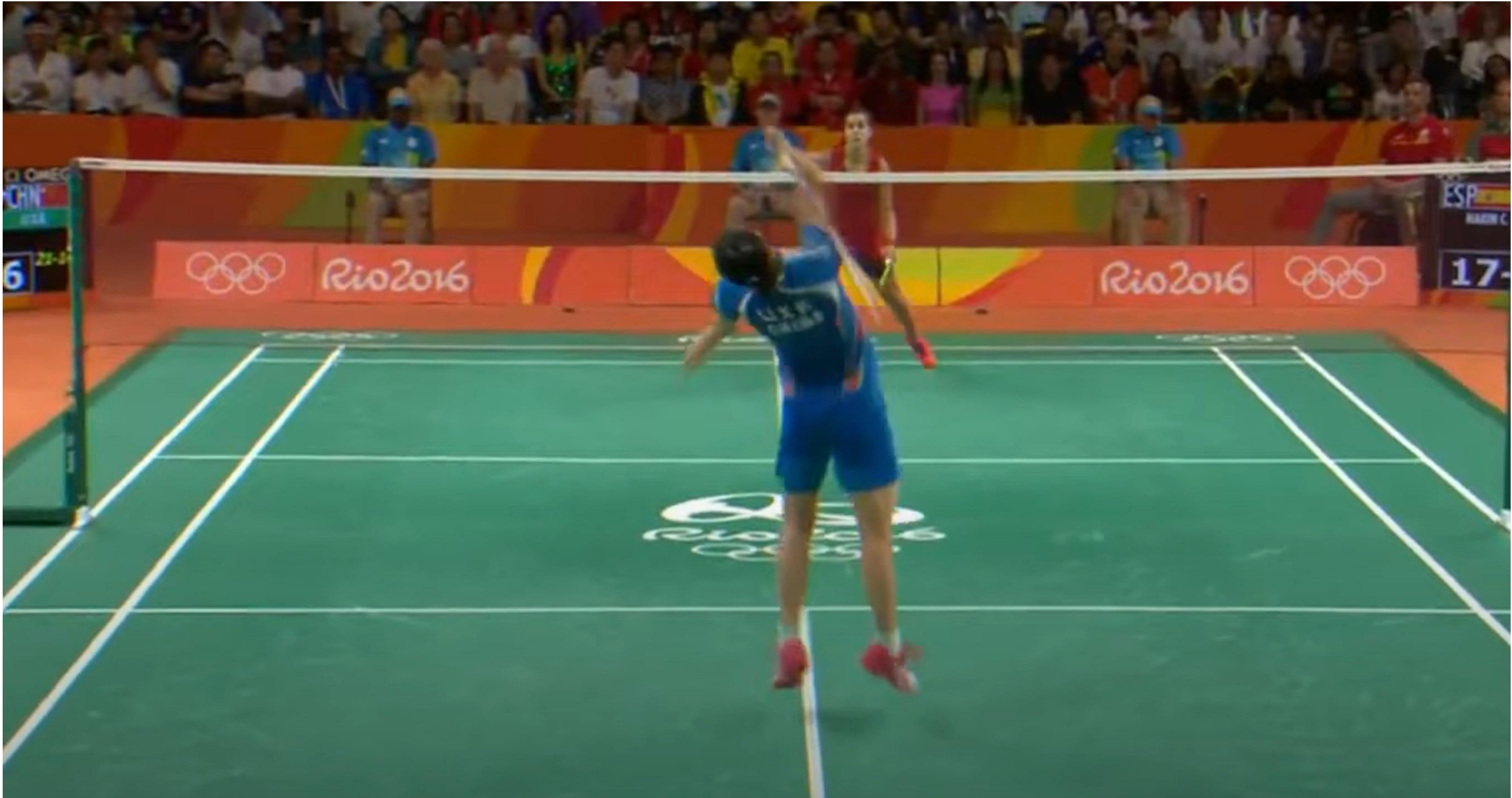
# ACL injury mechanism in badminton (Kaldau et al. unpublished)



■ Dominant  
■ Non-Dominant



■ Tegner <8  
■ Tegner ≥8





# How can we prevent acl injuries?

- **Prevention of anterior cruciate ligament injuries in female team handball players: a prospective intervention study over three seasons.**  
Myklebust et al. Clin J Sport Med. 2003
- **A randomized controlled trial to prevent noncontact anterior cruciate ligament injury in female collegiate soccer players.**  
Gilchrist J, Am J Sports Med. 2008

# Compliance with preventive training

- **Higher rates** of compliance with neuromuscular training programs were **associated** with **lower rates of anterior cruciate ligament (ACL) injury** incidence among physically active young females.
- **A potential inverse dose-response** relationship exists between compliance with neuromuscular training and the incidence of ACL injury in young female athletes
- **Attending and completing** prescribed neuromuscular training sessions **seem to be** integral components of preventing ACL injuries in young female athletes.

# Technique and physical capacity

- **Avoid stiff landings on almost fully extended knee** (Bencke, Aagaard and Zebis, 2018)
- **Train high activation of medial hamstrings to reduce the risk** (Bencke, Aagaard and Zebis, 2018)
- **Single kettle bell swing**
- **Nordic hamstrings**
- **Train trunk stability and hip muscle strength** (Krosshaug *et al.*, 2007; Carlson, Sheehan and Boden, 2016)



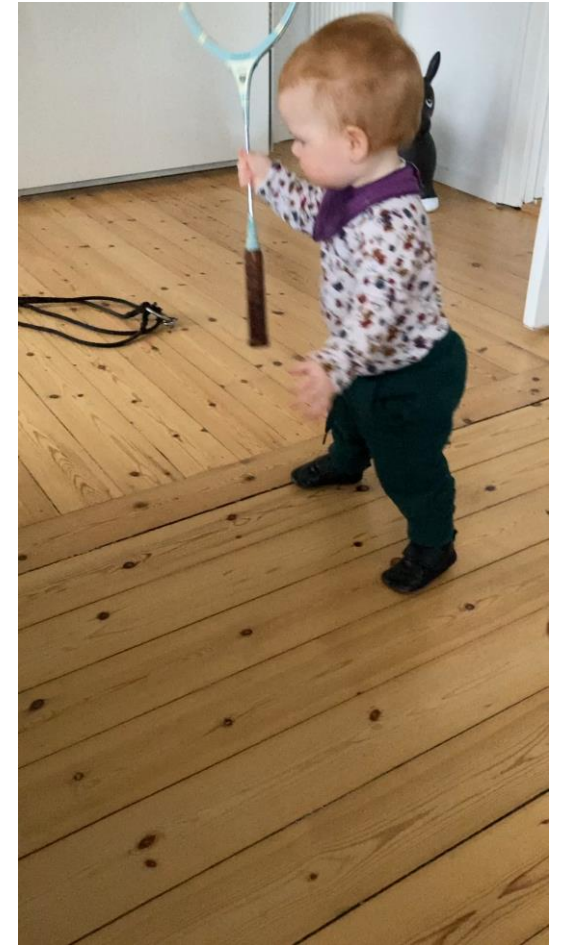


# Possible target areas to achieve better Return to play

- Time from injury to surgery
- Pre-surgery rehab
- Mental coaching during the recovery
- Support by the team



# Injury prevention starts early in life



**Thank You**

