

# A one year prospective study on ankle stability and landing technique: the occurrence of ankle and knee injuries in elite ball team athletes

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# Background

## Injury characteristics in team and individual sports.

	Injuries in team sports (n = 299) n (%)	Injuries in individual sports (n = 184) n (%)
Injury location*		
Upper limb	39 (13.0)	40 (21.7)
Lower limb	233 (77.9)	113 (61.4)
Trunk	25 (8.4)	24 (13.0)
Head/neck	2 (0.7)	7 (3.8)

*Theisen et al 2013*

Sport	Most common injured body sites [weighted percentage (%)]				
Basketball	Ankle (15.9)	Knee (10.7)	Trunk (6.5)	Thigh (5.4)	Leg (5.0)
Volleyball (indoor)	Ankle (45.6)	Arm (15.4)	Knee (11.4)	Shoulder (4.8)	Hand (4.3)
Netball	Ankle (39.8)	Knee (17.8)	Hand (10.5)	Head (8.7)	Leg (5.6)

*Fong et al 2007*

# Background

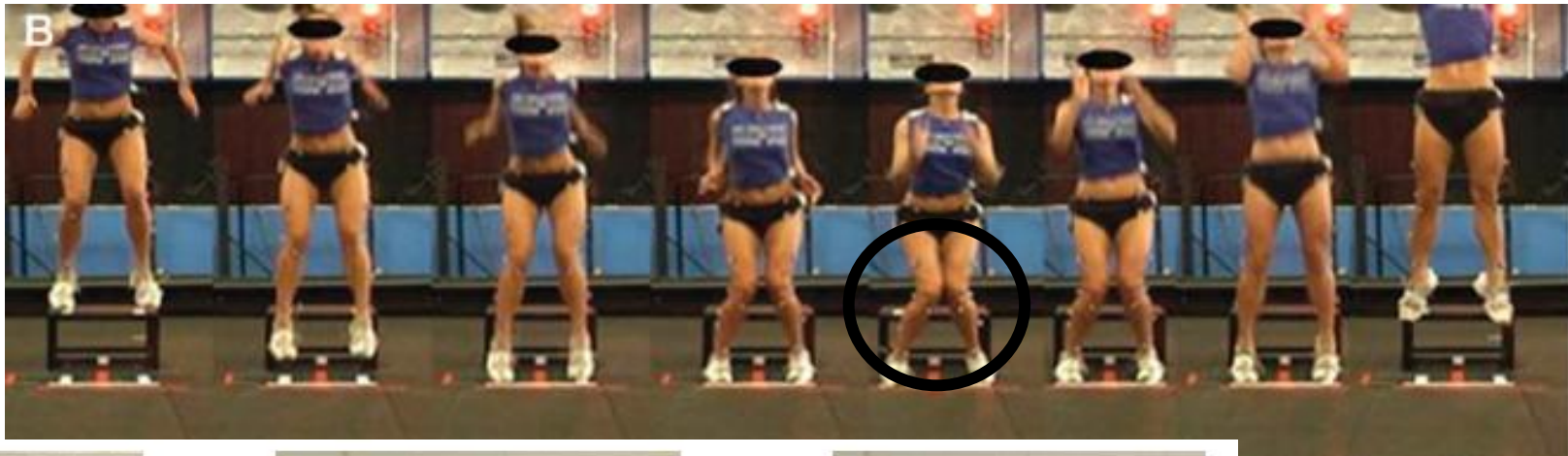
- Static stability
- Dynamic postural stability index – sensitive tool functional unstable ankles (Wikstrom, 2007)



<b>Variable</b>	<b>Group</b>	<b>Mean ± SD</b>
DPSI	STABLE	0.73 ± 0.12
	FAI*	0.85 ± 0.17

# Background

- Landing Technique – worse biomechanics with poor landing technique



*Myer et al 2011*

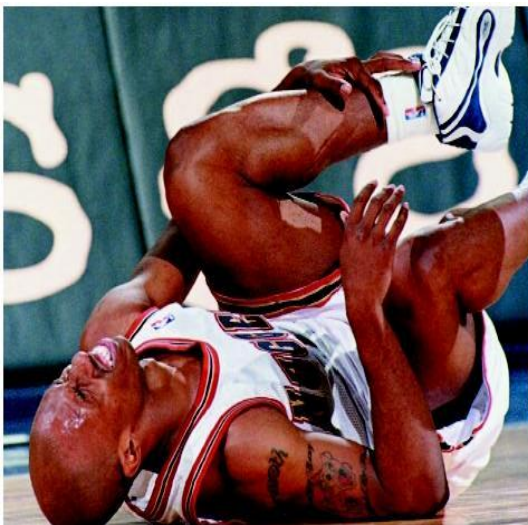
*Padua et al 2009*



# AIM



Investigate the predictive value of ankle stability and landing technique at baseline for ankle and knee injury occurrence during the consecutive season in indoor team sport athletes.



# Design

Prospective longitudinal cohort study

42 sub-elite and elite team sport athletes

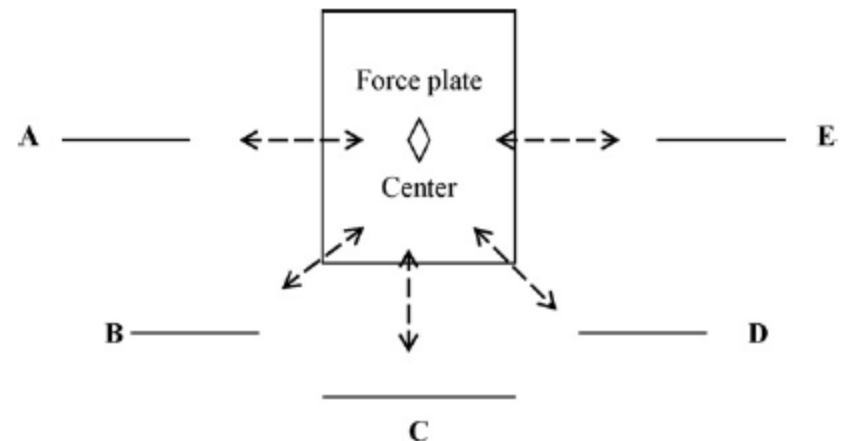
Age (yr)	Body Weight (kg)	Length (cm)	Male / Female (N)	Volleyball / Basketball / Korfball (N)
22.2 ± 3.9	79.0 ± 15.2	184.5 ± 11.8	22 / 20	10 / 11 / 21

# Tools: ankle injury screening



SLJL-test (Wikstrom et al 2008)

- Dynamic Stability Index (DSI)
  - ml, ap, v
- High DSI poor stability



# Tools: knee injury screening





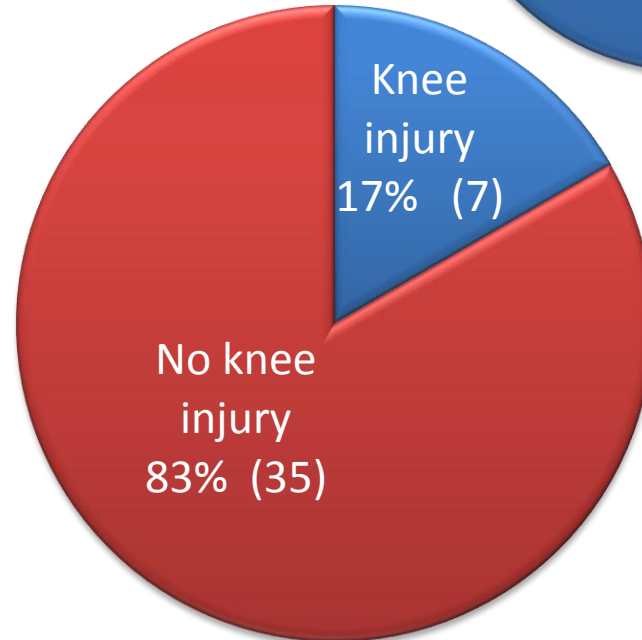
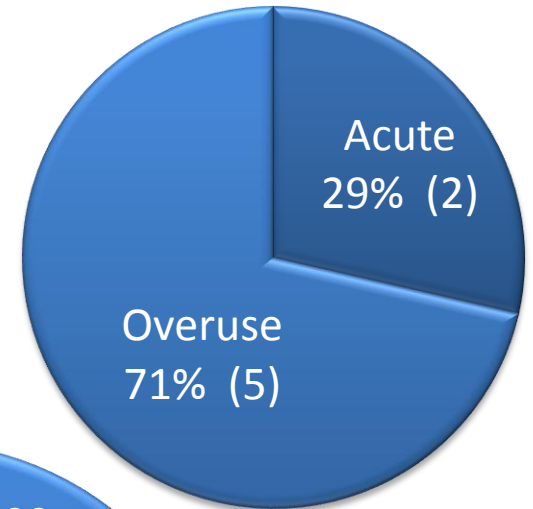
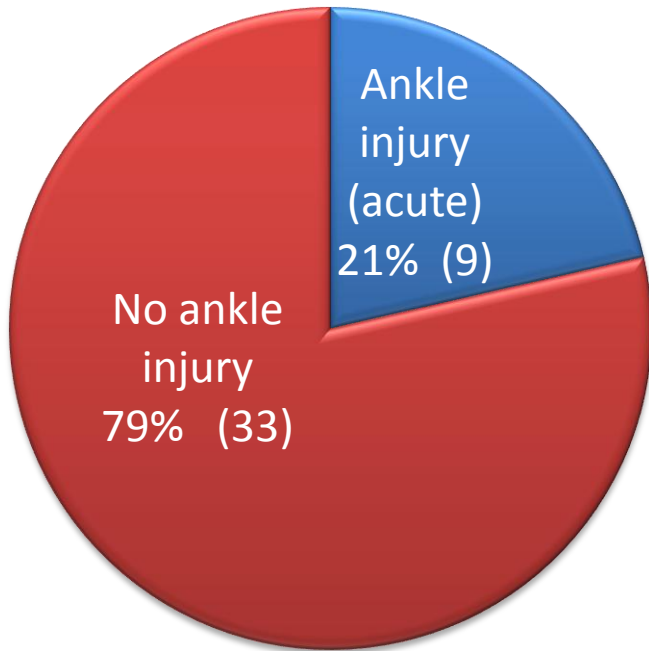
# Methods

- Injury registration – physical therapists

Any physical complaint sustained by a player that results from a match or training, irrespective of the need for medical attention or time loss from activities. *Fuller et al 2006*

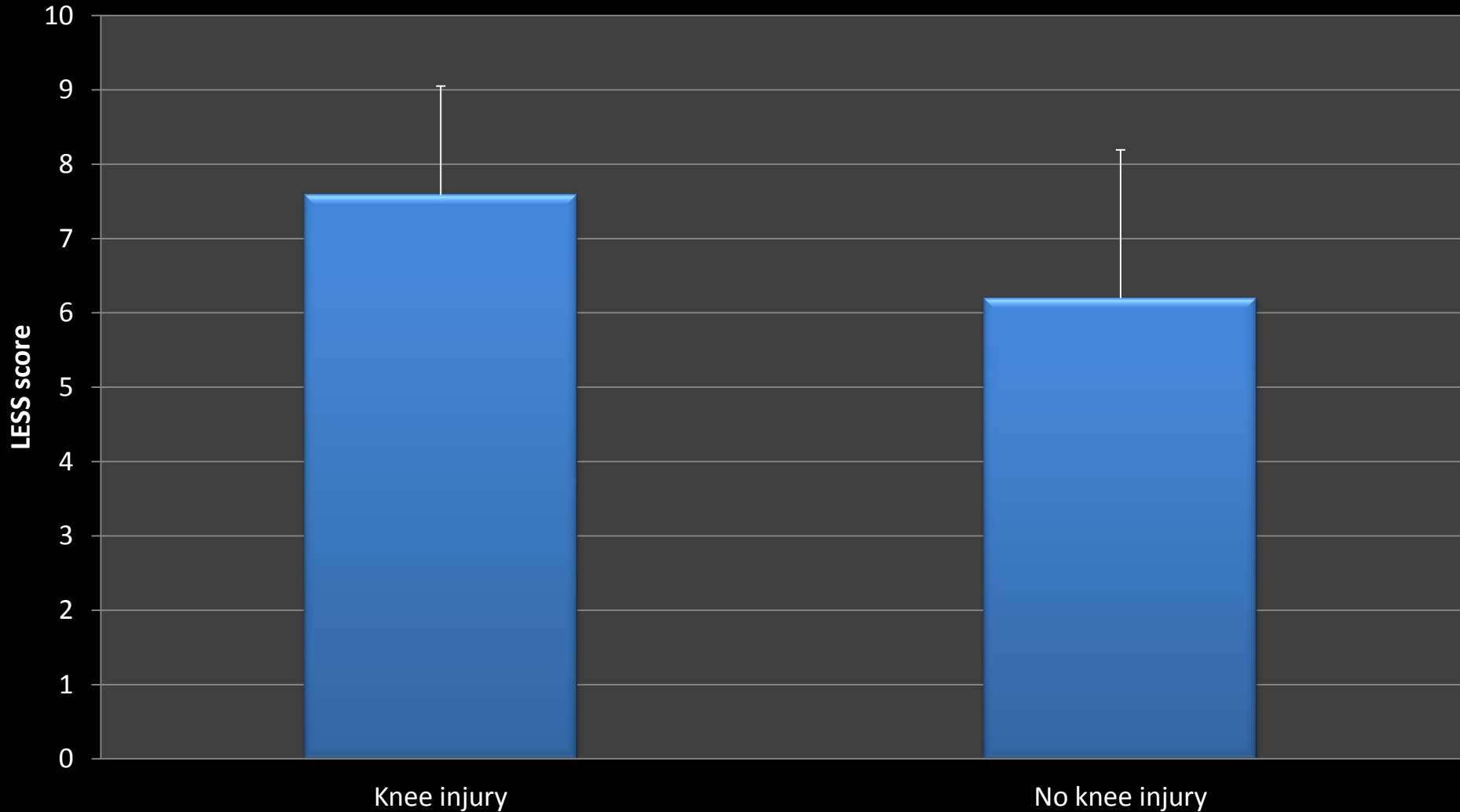
- Independent T-test

# Results



# Results

## Landing technique



# Discussion / Conclusion

- Ankle injury – higher baseline DSI
    - Diagonal & Lateral jump direction
  - Knee injury – tendency poor landing technique
    - No significant difference
- > prospective screen high risk athletes for prevention program



# Thank you for your attention

## Questions?

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