

The difference between abductor and adductor strength of the dominant vs. non-dominant leg in elite women ice hockey players to understand which leg is more prone to groin injuries.

Experimental Research in Health
and Physical Activity
SHSS6069

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GB WOMEN'S
ICE HOCKEY PROGRAMME



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Context and Rationale for the study



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- Ice hockey players have the highest rates of groin injuries (13.1% and 12% of all practice injuries) compared to other contact sports (Epstein et al., 2013)
- In elite ice hockey the groin injuries account for 10% of all injuries (Whittaker et al., 2015)
- A study by Tyler et al. (2001) showed that players are 17 times more likely to sustain an ADD muscle strain if the ADD strength was less than 80% of the ABD strength or if the percentage difference between ABD and ADD was $\geq 20\%$ (Tyler et al., 2001)
- No research shows which leg is more prone to groin injuries
- The primary aim of this study is to examine the difference between abductor and adductor strength of the dominant vs. non-dominant leg in elite women ice hockey players to understand which leg is more prone to groin injuries.

Hypotheses

The difference between abductor and adductor strength of the dominant vs. non-dominant leg in elite women ice hockey players will be greater in the dominant leg. Therefore the dominant leg will be more prone to groin injuries.

Null - Hypotheses

No statistically significant difference in adductor/abductor strength between the dominant and non-dominant leg

Method

Participants

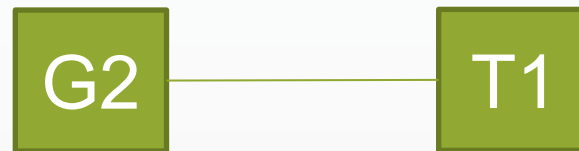
8 female elite ice hockey players of age = 27 ± 5 years without previous groin injury in the past 6 months

Design

Observational research



Independent Samples T -Test



Independent – Dominance (dominant leg; non-dominant leg)

Dependent – Strength difference (% difference between ABD and ADD of the dominant leg;
% difference between ABD and ADD of the non-dominant leg)

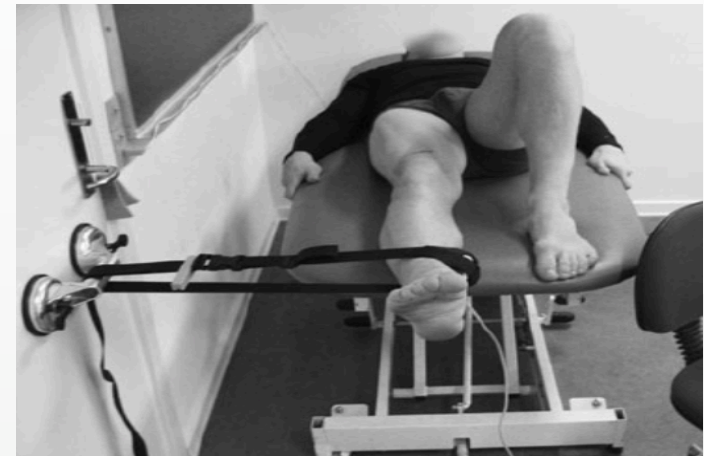
Method

Protocol – How to carry out the research

- 4 isometric tests: ABD, ADD by their dominant and non-dominant leg
- in supine
- stabilise themselves by holding on to the sides of the table with their hands
- tested limb was secured by external belt fixture with hand-held dynamometer and the person being tested exerted a 5-s isometric maximum voluntary contraction (MVC) against the dynamometer
- the standardized command was “go ahead-push-push-push-push and relax”
- the mean value of the test was recorded
- each test was repeated only once



Picture 1. ABD testing illustration taken from Thorborg *et al.* (2012)



Picture 2. ADD testing illustration taken from Thorborg *et al.* (2012)

Data Analysis



- Findings will be tabulated into an excel spread sheet
- ABD/ADD strength difference will be calculated in excel spread sheet by using equation:
$$\text{ADD} \times (\text{ABD} / 100) = y \text{ (ADD strength in \% in relation to ABD)}$$
$$\text{Percentage difference between ABD and ADD} = 100 - y$$
- Independent samples T-Test to evaluate the difference between adductor/abductor strength of the dominant leg vs. non-dominant leg
- Box plot: X axis – dominance (dominant and non-dominant leg)
Y axis – % difference between strength of the abductor and adductor

Ethical Consideration and Limitations

- Medical Screening and Confidential Information

- Ethics E1 Form

- Participants Rights

- Limitations

- Number of participants treated
- Only females took part in this research



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Medical Screening and Confidential Information

PLEASE FILL IN IN BLOCK CAPITALS.

This form is to be completed by all players or parents/guardians.

Please update if information changes.

By filling in the form below you consent to receiving treatment from a member of the GB medical team upon full explanation of proposed activities. Please adapt this form or inform a member of staff responsible for your care of any changes in your medical condition (including possible pregnancy). Failure to inform GB medical team, will amount to the athlete taking full responsibility for any circumstances that might arise, as a result of any undeclared changes in medical circumstances. If the athlete is under 18 at the time of filling in the form, the next of kin is responsible for any changes in their medical information.

Player details	
Surname	
Date of Birth	Age
Height (cm)	Weight (Kg)
Current Club	Position
Health card number	Shoots/Catches
Date of last Tetanus	
Next of Kin	
Name	
Relationship	
Address	
Phone (Main)	Mobile (if different)
Email	
Family Doctor	
Name of G.P.	
Name of Surgery	
Address	
Postcode	Phone Number
Email	

Reference List

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