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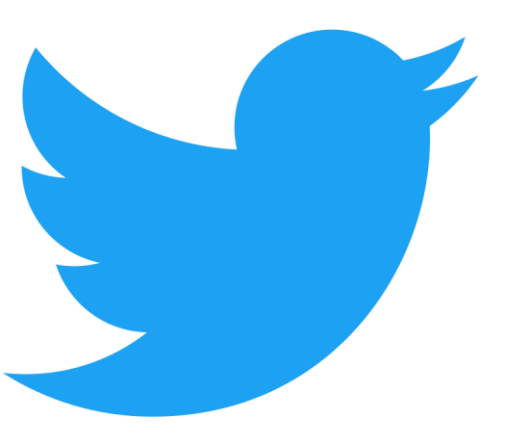
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The effect of an acute bout of rugby training on plasma concentrations of intestinal fatty acid binding protein



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CARNEGIE SCHOOL
OF SPORT

Sarah Chantler^{1,2}, Alex Griffiths¹, Greg Roe^{1,3}, Padraic Phibbs^{1,2}, Cameron Owen^{1,2}, Carlos Ramirez-Lopez^{1,2}, Glen Davison⁴, Ben Jones^{1,2} & Kevin Deighton¹



1
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2



3

4
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Introduction

- Exercise appears to elicit damage to the gut endothelial cell lining as demonstrated through increases in concentration of plasma intestinal fatty acid binding protein (i-FABP).
- The majority of previous research has focussed on endurance exercise, with limited data on high intensity contact sports.
- The high intensity nature of rugby exercise, combined with trauma from collisions, suggests that this may cause considerable increases in gastrointestinal damage and permeability
- Therefore, the purpose of the study was to investigate the effects of a standardised rugby conditioning session on plasma i-FABP concentrations as a marker of gut endothelial damage.

Methods

- Nineteen academy level male rugby players completed a standardised high intensity rugby training session at the start of their preseason training period. Players were rotated through attacking and defending positions (Figure 1).
- The participants arrived after an overnight fast and abstaining from alcohol, spicy food, caffeine and exercise in the previous 24-hours.
- A venous blood sample and body weight were taken immediately before and after exercise.
- Skin fold measures were also taken by an ISAK accredited practitioner.

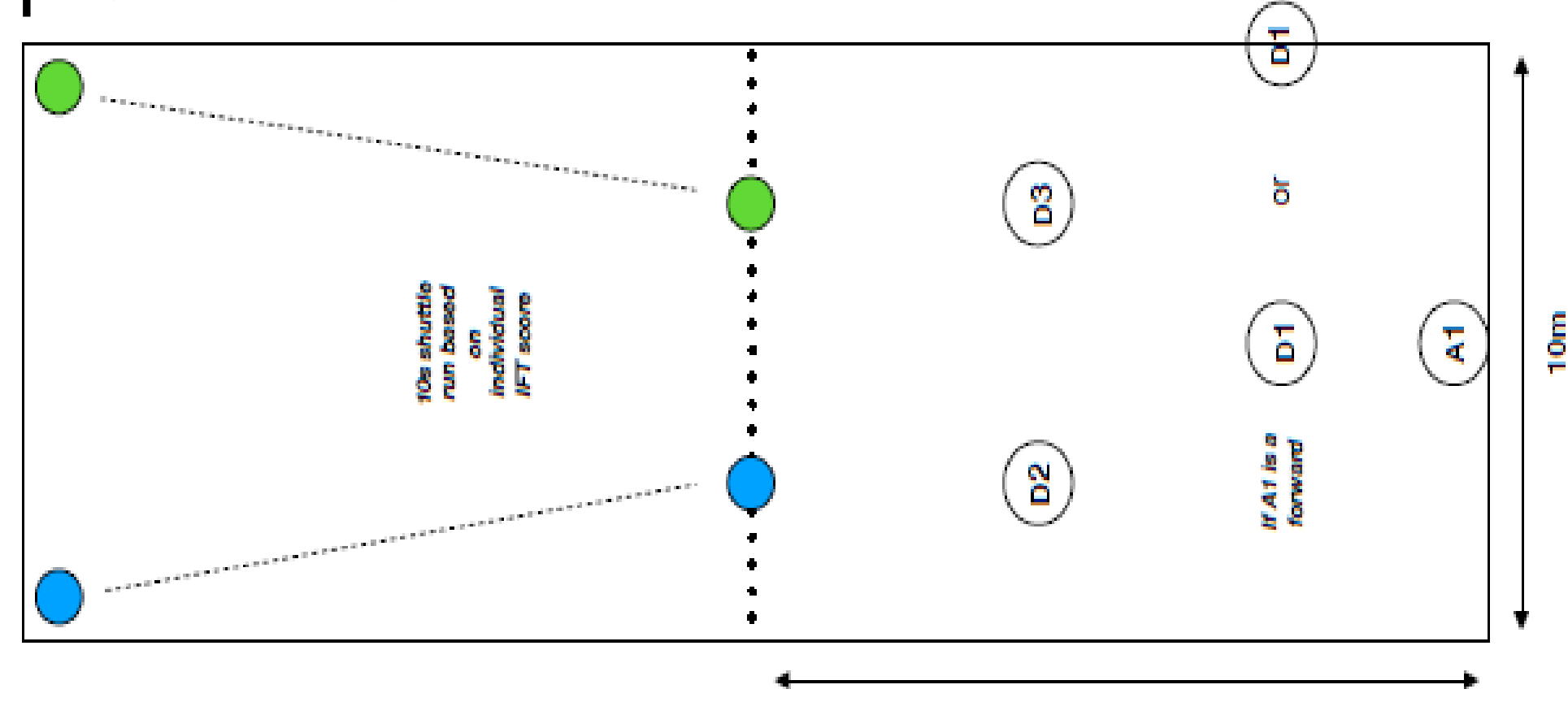


Figure 1: Schematic representation of the rugby training session

Results

Table 1: Anthropometric characteristics of academy level rugby participants

	All (n=19)	Forwards (n=9)	Backline (n=10)
Age (years)	20 (1.2)	20 (1.2)	20 (1.2)
Weight (kg)	100.0 (13.9)	111.8 (7.6)	89.3 (8.4)
Height (cm)	184.4 (7.2)	188.6 (7.1)	181.1 (5.6)
Σ SF (mm)	94.6 (32.5)	119.1 (26.8)	72.6 (18.5)

Data presented as mean (±SD) Σ SF, skin folds taken over 8 sites

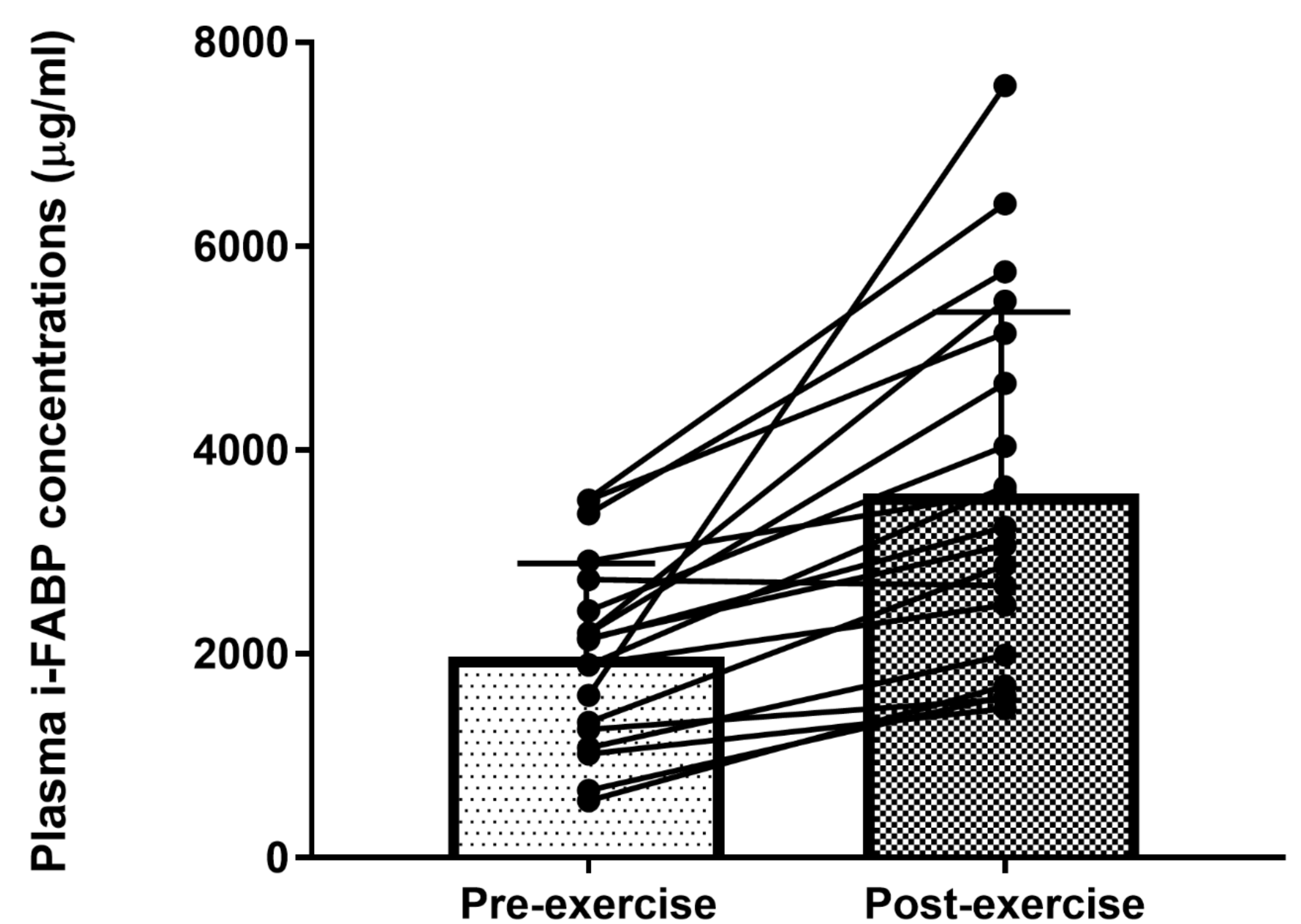


Figure 2: Plasma concentrations of intestinal fatty acid binding protein (i-FABP) before and after an acute bout of rugby training. Data presented as mean (±SD) as well as individual changes for plasma i-FABP ; n=19, *p=0.003

Discussion

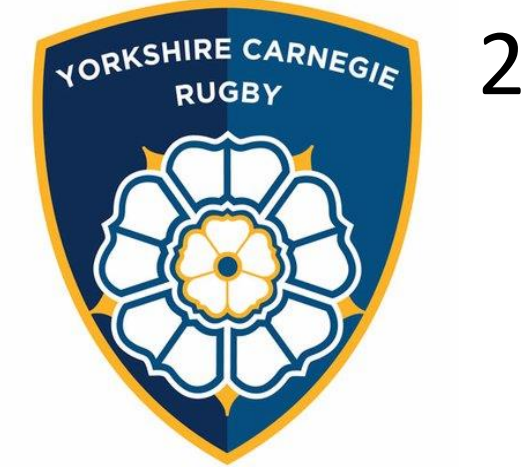
- There was a significant increase in plasma i-FABP concentrations in response to an acute bout of rugby training, which is indicative of damage to the gut endothelial lining.
- Further research is needed to determine if this damage is associated with increased gut permeability and how this is related to gastrointestinal symptoms experienced by rugby players around training.

This work is supported by the Carnegie School of Sport and the Yorkshire Carnegie Rugby club



INTERNATIONAL
SPORT + EXERCISE NUTRITION
CONFERENCE 2018

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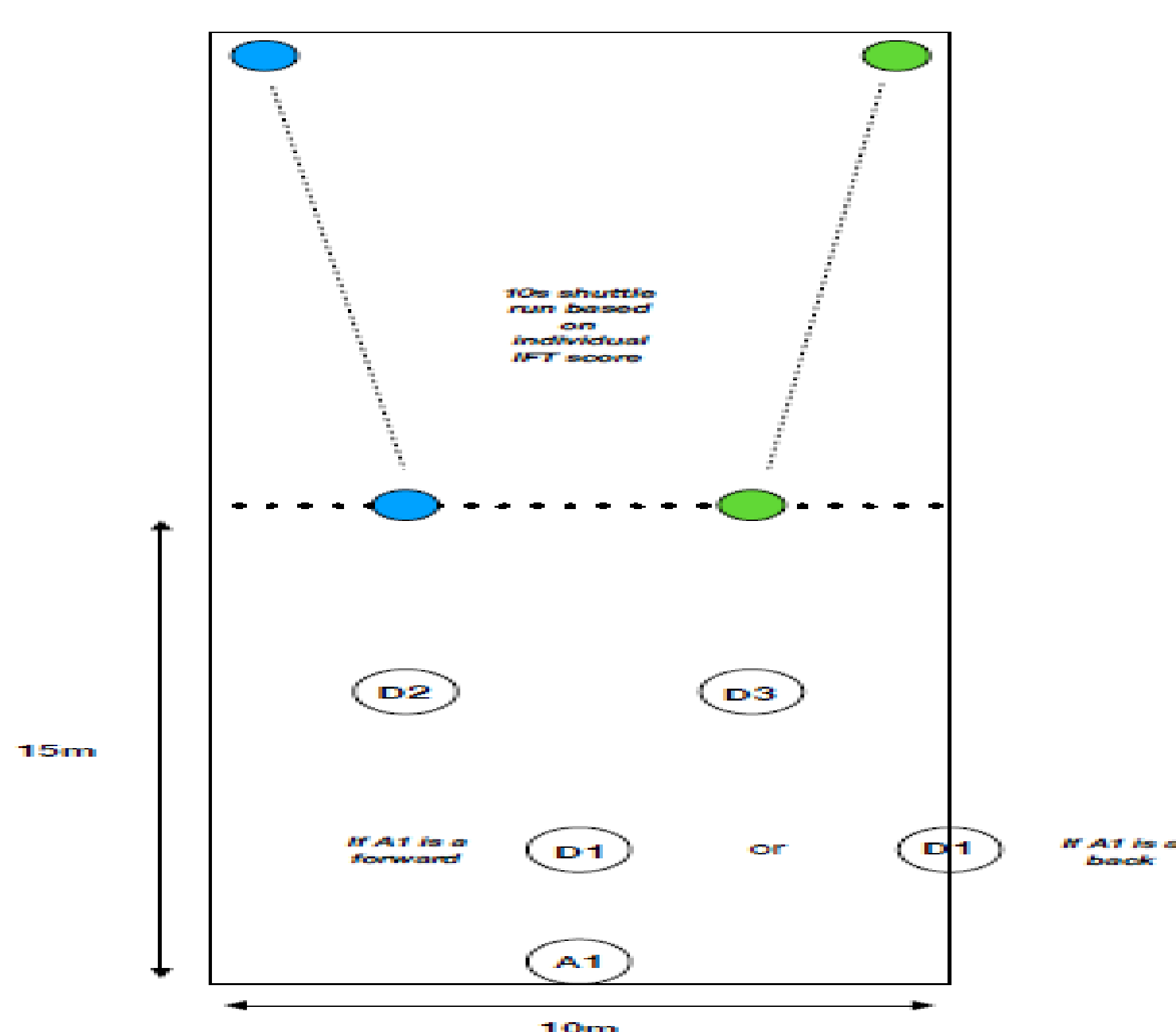


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Age (years)	20 (1.2)	20 (1.2)	20 (1.2)
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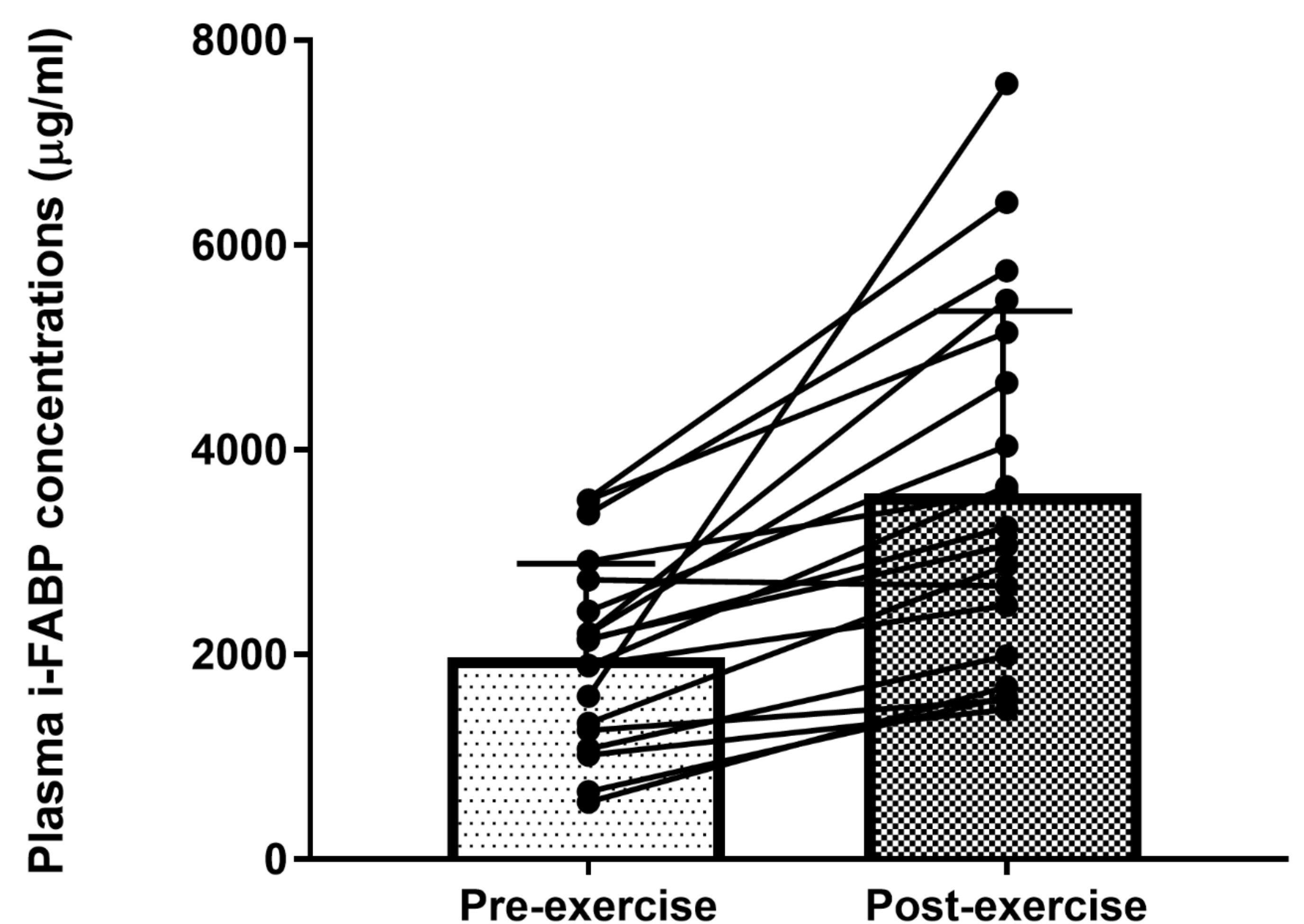


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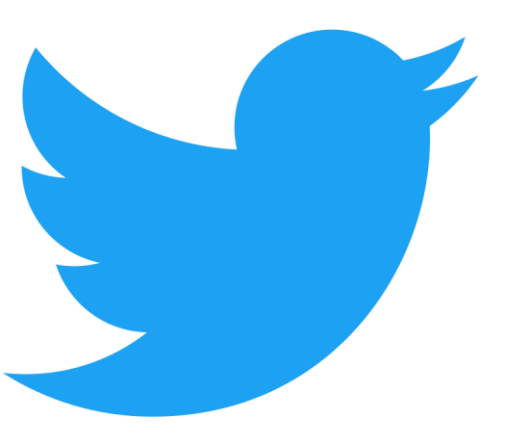
Discussion

- There was a significant increase in plasma i-FABP concentrations in response to an acute bout of rugby training, which is indicative of damage to the gut endothelial lining.
- Further research is needed to determine if this damage is associated with increased gut permeability and how this is related to gastrointestinal symptoms experienced by rugby players around training.

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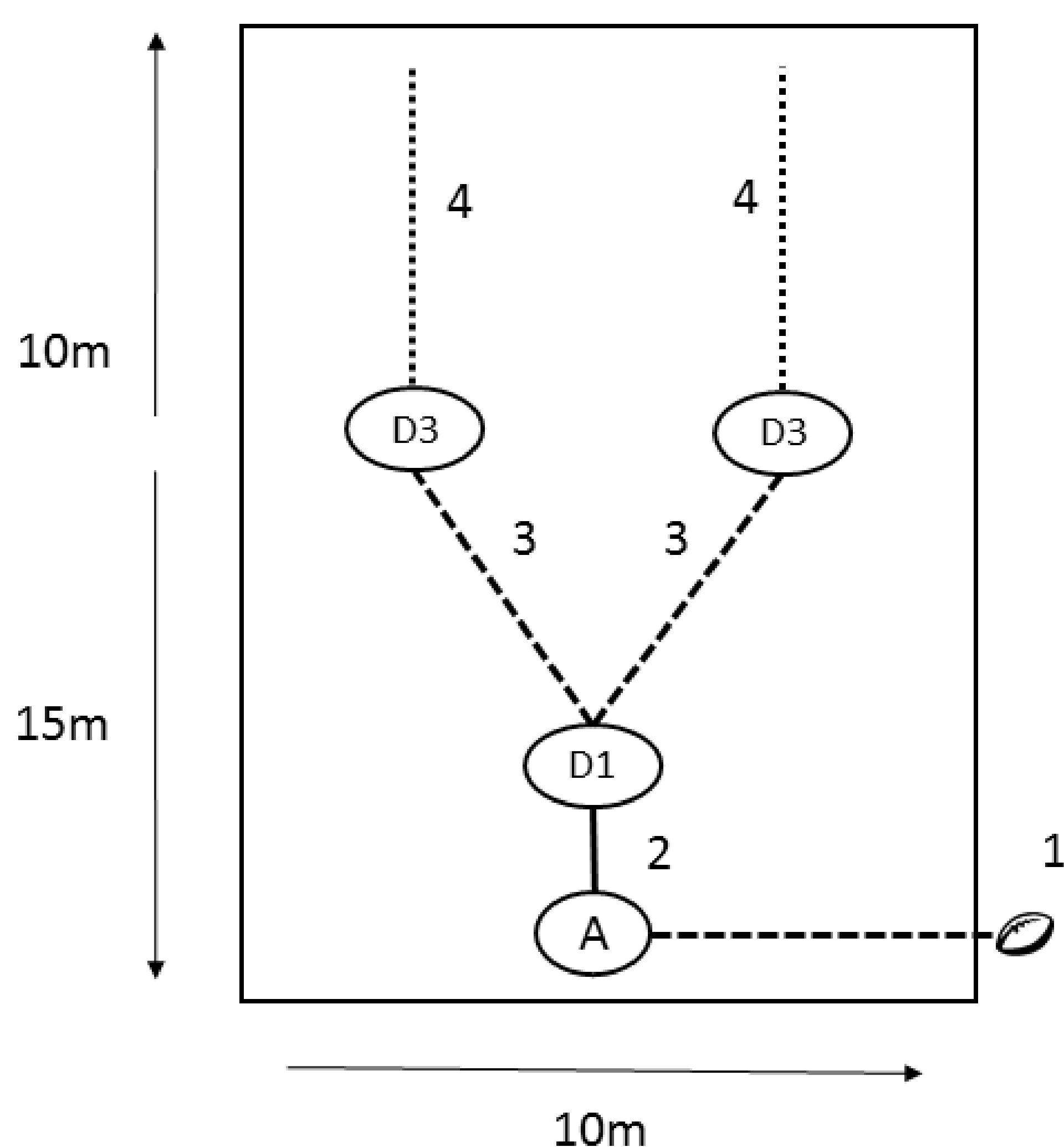


Figure 1: Schematic representation of the rugby training session A, attacker, D1, D2, D3, defender. The ball moves from position 1 to 2, and the players move~@

- The participants arrived after an overnight fast and abstaining from alcohol, spicy food, caffeine and exercise in the previous 24-hours.
- A venous blood sample were taken immediately before and after exercise.

Results

Table 1: Anthropometric characteristics of the participants

	All (n=19)	Forwards (n=9)	Backline (n=10)
Age (years)	20 (1)	20 (1.2)	20 (1.2)
Weight (kg)	100.0 (14)	111.8 (7.6)	89.3 (8.4)
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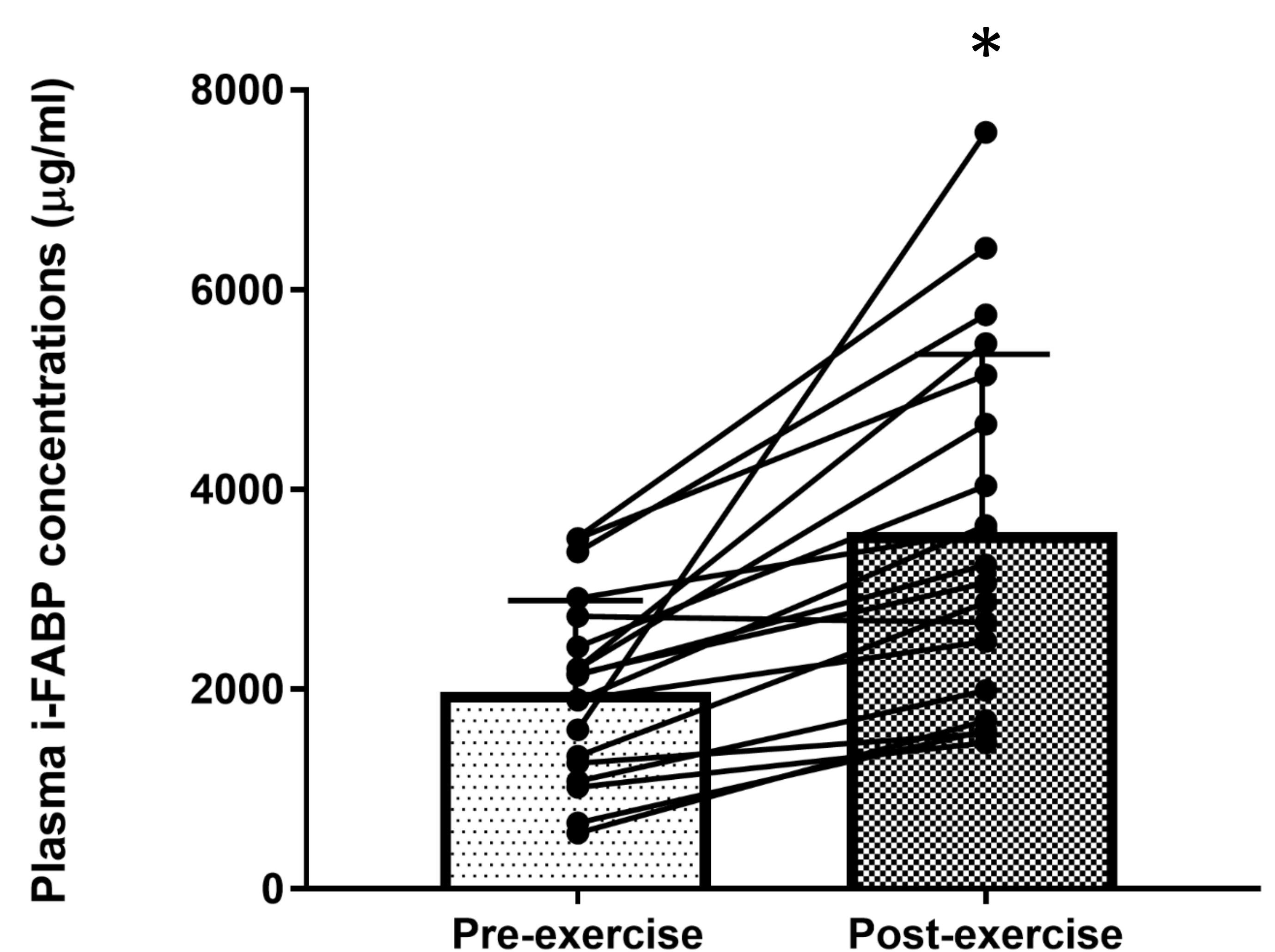


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