

Personal Evaluation – to support your academic progress please complete the section below **BEFORE** submitting your work

What do you consider to be the best aspects of this work?		The layout of the poster, followed given guidelines and included a number of aspects of the research.							
Which aspects do you consider could have been improved in this piece of work?		More details about the box plots							
What have you found most satisfying whilst undertaking this submission?		How to create and familiarise myself with poster production							
ASSESSMENT CRITERIA	Learning outcome	GRADE							
		Poor 0 – 25%	Unsatisfactory 26 – 39%	Satisfactory 40 – 49%	Good 50 – 59%	Very Good 60 – 69%	Excellent 70 – 85%	Exceptional 86 – 100%	
THE POSTER Introduction & contextualisation (10%)	1,2,3								
Justification, description and explanation of methods used, including research design diagram where appropriate (40%)	1,2,3								
Results, main discussion points and conclusion (50%)	1,2,3								
It is expected that students will present work that is <u>proof read</u> and follows the School Reference Guide and Assessment Checklist. <u>Therefore</u> a range of 0 – 10 marks will be deducted for non-completion of any of the points on the checklist below.									
TUTOR COMMENTS:									
Submission date: 11 th May 2020		Return date: (within 1 week of submission date)		Tutor: Dr Simon Williams			Mark:		

Proprioception difference in forwards and backs male rugby players.

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Introduction

Balance is a fundamental element of rugby. Proprioception, in particular balance, is a player position specific skill, for example in forwards to utilize during a lineout, scrummaging or in a maul, on the other hand, backs utilize balance whilst kicking and jumping to receive a high ball¹. Stability of the ankle is important to avoid ankle injuries, as the more ankle injuries you receive the worse it affects your ankle stability². Rugby players have a tendency to adopt an unbalanced posture which makes it difficult to control foot stability, therefore, having a knock-on effect on the number of ankle injuries³. The present research suggests a strong understanding that instability is the most common risk factor of ankle sprains and 70% of athletes suffer from a re-injury⁴. The research suggests forwards have an inability to control posture in a posterior movement, whilst balancing the ankle in dorsiflexion⁵. As well as this, forwards tend to carry more body mass than backs, which gives the ankle more pressure to stabilize the joint.

Objectives

The aim of this study was to determine if there's a difference in proprioception between forwards and backs male rugby players.

Method

With institutional ethical approval, this study involved 14 healthy and fit division one rugby players (age = 24.9 ± 2.8 years, height = 177.2 ± 8.1 cm, mass = 80.6 ± 10.7 kg). The testing followed the Y balance protocol (YBT) (shown in figure 1), points at anterior (A), posterior medial (PM) and posterior lateral (PL). A point was 135° away from the PM and PL and 90° in between⁶. The participants' dominant leg length was measured (from anterior-superior iliac spine to medial malleolus). The participants reached down each point three times as far as they could whilst standing on their dominant leg and an average of each point was calculated, standardising for leg length.

Figure 1- YBT testing positions

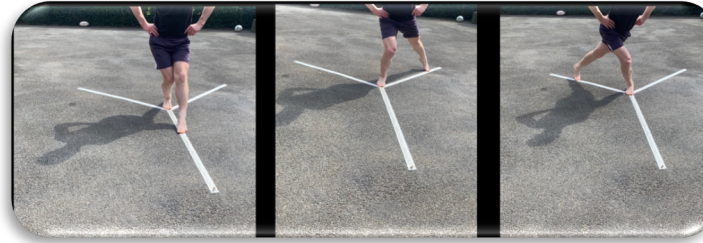
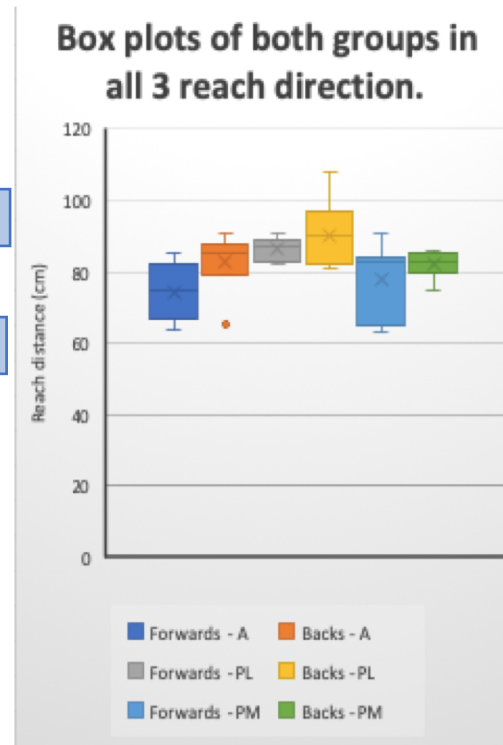


Figure 2 - Box plots showing each group in A, PM and PL reach directions.



Results

The YBT showed that there were no significant difference in forward and backs dominant leg in the A direction ($p=0.071$, $\eta^2=0.25$) with a large effect size. In the PL direction there was no significant difference ($p=0.379$, $\eta^2=0.07$) with a moderate effect size and in the PM direction there was also no significant difference ($p=0.303$, $\eta^2=0.08$) with a moderate effect size. Therefore, whilst standardising for leg length there is no significant difference between player position and YBT scores.

Conclusion

Following the hypothesis that backs would reach further than forwards, it was observed that no significant difference was present between positions. Similar research by Coughlan *et al.*, (2014) came to the same conclusion. However, participant numbers meant that the whole squad was not measured and therefore all positions weren't accounted for in the scores. The data collected on the participants are still valued and used to determine injury prevention and rehabilitation programmes. Although no significant differences found in reach directions, it was observed that forwards were overall heavier than the backs which was not standardised for.

References

1. Kaux, J.-F., Julia, M., Delvaux, F., Croisier, J.-L., Forthomme, B., Monnot, D., Chupin, M., Crielaard, J.-M., Goff, C., Durez, P., Ernst, P., Guns, S., and Laly, A. (2015) 'Epidemiological Review of Injuries in Rugby Union', *Sports*, 3(1), pp.21–29.
2. Ferran, N. and Maffulli, N. (2006). Epidemiology of Sprains of the Lateral Ankle Ligament Complex. *Foot and Ankle Clinics*, 11(3), pp.659–662.
3. Johnston, W., Duignan, C., Coughlan, G. F., and Caulfield, B. (2019) 'Dynamic balance performance varies by position but not by age group in elite Rugby Union players – a normative study', *Journal of Sports Sciences*, 37(11), pp.1308–1313.
4. Liu, K. (2012) *An examination of various diagnostic frameworks used to differentiate subjects with chronic ankle instability*, University of Delaware.
5. Puckree, T. (2014) 'Injury incidence and balance in rugby players', *Pakistan Journal of Medical Sciences*, 30(6), pp.1346–1350.
6. Gribble, P. A., Hertel, J., and Plisky, P. (2012) 'Using the Star Excursion Balance Test to Assess Dynamic Postural-Control Deficits and Outcomes in Lower Extremity Injury: A Literature and Systematic Review',
7. Coughlan, G. F., Delahun, E., O'Sullivan, E., Fullam, K., Green, B. S., and Caulfield, B. M. (2014) 'Star excursion balance test performance and application in elite junior rugby union players', *Physical Therapy in Sport*, 15(4), pp.249–253.

Figure 3 – research design diagram.

