

# Physiological Characteristics Of Female Varsity Rugby Union Players.

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## Introduction

Rugby Union is now played competitively in 95 countries throughout the World. Currently, women's teams compete at the national, club, high school and mini levels all across the country. However, few scientific investigations have attempted to characterize the physiological attributes of rugby players and those that have, have recruited only male players<sup>2-4</sup>. As well, there is clearly a lack of research documenting the characteristics of elite rugby players compared to those in the club and developmental levels<sup>2</sup>. Furthermore, there are presently no fitness standards for coaches and trainers to compare their players to those who compete at the elite or sub elite levels.

Therefore, it was the aim of this research to evaluate the anthropometric and physiological characteristics of female players from the Edmonton and surrounding area to document both the unique positional characteristics of female rugby players but also to evaluate the differences between elite (National and Provincial) compared to non elite (club and high school) players.

## Objective

The purpose of this study is to evaluate the anthropometric and physiological characteristics of female rugby players. A secondary aim will be to assess the position specific and standard specific differences between these players.

## Design

Single group, quasi-experimental.

## Setting

University of Alberta, Edmonton.

## Subjects

Twenty-nine female rugby athletes (1 did not complete testing due to injury) completed the battery of tests. (Forwards (n=16) and Backs (n=12)). This study was approved by a University Research Ethics Board.

## Intervention/Main Outcome Measures

The anthropometric characteristics of all subjects are listed in Table 1 and the physiological assessment outcomes are presented in Table 2. All testing was performed in the Sport and Health Assessment Centre and other associated facilities at the University of Alberta.

## Main Results

**Table 1.** Anthropometric measurements. Values are means and SD.

Variables	Squad	Backs	Forwards
Age (yrs)	22.6 ± 3.0	23.1 ± 3.1	22.3 ± 3.0
Experience (yrs)	6.4 ± 2.4	6.8 ± 1.7*	6.1 ± 2.9
Height (cm)	168 ± 6	164 ± 5	171 ± 6*
Weight (kg)	71.1 ± 12.1	65.3 ± 6.1	75.5 ± 13.8*
Skinfold (mm)	181.4 ± 40.2	162.1 ± 25.3	195.9 ± 43.8*

**Table 2.** Physiological measurements. Values are means and SD.

Variables	Squad	Backs	Forwards
Sit & Reach (cm)	36.4 ± 7.2	35.1 ± 6.4	37.4 ± 7.8
1RM Bench (kg)	49.5 ± 10.9	54.9 ± 13.6*	45.2 ± 5.6
1RM Squat (kg)	87.9 ± 21.1	97.1 ± 16.4	80.7 ± 22.1
VO <sub>2</sub> max (ml/kg/min)	43.7 ± 3.7	44.0 ± 3.0	43.4 ± 4.2
VO <sub>2</sub> max (l/min)	3.1 ± 0.4	2.9 ± 0.4	3.2 ± 0.3*
35m Sprint (sec)	5.66 ± 0.32	5.48 ± 0.19*	5.80 ± 0.35
Illinois Agility (sec)	21.03 ± 1.83	19.86 ± 0.72*	22.04 ± 1.37

\* = Significant difference between back and forward results ( $p \leq 0.05$ )

## Conclusions

Forwards were taller, heavier and had a greater SOS and absolute VO<sub>2</sub>max than backs. In contrast the backs were faster, more agile and had a higher bench press than the forwards. These results correspond to positional requirements and are consistent with previous work with males [1,2] except for the superior upper body strength of the backs.

The finding that the backs were stronger than the forwards was unexpected as the requirements of forward play are mainly associated with ball winning and retention which requires a high level of strength. These differences may be explained by the significantly longer playing experience and training history of the backs in this sample.

Further evaluation is now required to substantiate these findings and establish differences between specific positions as well as between players at different representative levels.

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## Commentary

Women's rugby is one of the fastest growing sports in Alberta and now there are teams for females at junior, high school, varsity, club and representative level. Alberta is one of the countries strongest provinces for female rugby and provides approximately 12-15 players to the full Canadian Squad and U23 developmental team. In addition to this the University of Alberta team is one of the strongest varsity teams in the country and the cities of Edmonton and Calgary both boast a number of very competitive female club sides. As well, Edmonton will be hosting the Women's Rugby World Cup in the fall which will further the interest in women's rugby. The results from this study give coaches fitness standards for their players to strive to achieve and will ultimately raise the level of women's rugby in the province.