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A Comparison of Skill-Related Fitness Components Between UiTM Football and Rugby Players

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I. INTRODUCTION

Skill-related fitness (SRF) components, including agility, speed, power, balance, coordination, and reaction time, are critical determinants of athletic performance in field sports such as football and rugby. Although both sports are physically demanding, they differ substantially in playing style and physical contact intensity. Football emphasises rapid changes in direction and sustained sprinting, whereas rugby often prioritises absolute strength and stability during physical confrontations such as scrums. Despite their popularity, limited comparative data are available on the specific SRF profiles of university-level athletes in Malaysia. This study aimed to address this gap by comparing these six SRF components between football and rugby players at UiTM Seremban.

II. METHODS

This study used a non-experimental, cross-sectional research design. A total of 46 male student-athletes (23 football players and 23 rugby players) aged 18 to 25 years participated. Purposive sampling was used to select active representatives of university teams. Six standardised tests were employed: Illinois Agility Test (agility), 30 m Sprint (speed), Standing Broad Jump (power), Stork Stand (balance), Wall Toss (eye-hand coordination), and Nelson Hand Reaction Test (reaction time). Data were analysed using descriptive statistics and independent samples t-tests via Jamovi (Version 2.5), with significance set at $p < 0.05$.

III. RESULTS AND DISCUSSION

Normality was confirmed for all variables via the Shapiro–Wilk test ($p > .05$). The results revealed significant differences in five of the six tested components, with football players demonstrating superior performance in most categories (Table I). Football players recorded significantly better agility times ($p < .001$) and faster reaction times ($p = .003$). They also showed significantly greater lower-body power ($p < .001$), static balance ($p < .001$), and coordination ($p < .001$). No significant difference was found in 30 m sprint speed ($p = .318$), indicating

similar explosive acceleration capabilities. Superior agility and balance among football players may be attributed to frequent single-leg support and multidirectional movement demands.

TABLE I
COMPARISON OF SKILL-RELATED FITNESS (SRF) PERFORMANCE SCORES BETWEEN FOOTBALL AND RUGBY PLAYERS

Variable	Group	Mean	SD	t	p
Agility (s)	Football	14.92	0.58	-5.94	<.001
	Rugby	16.86	0.41		
Power (m)	Football	2.59	0.18	3.97	<.001
	Rugby	2.36	0.21		
Balance (s)	Football	34.27	3.24	5.71	<.001
	Rugby	27.30	4.87		
Coordination (hits)	Football	29.17	2.57	6.63	<.001
	Rugby	23.61	3.10		
Reaction time (s)	Football	0.19	0.02	-3.12	.003
	Rugby	0.21	0.02		
Speed (s)	Football	4.46	0.23	-1.01	.318
	Rugby	4.54	0.31		

*All independent t-tests $df = 5$. * $p < .05$; ** $p < .001$.

Independent samples t-tests revealed that the football group demonstrated significantly superior performance in agility ($t(29.39) = -5.94, p < .001$), with faster times (14.92 ± 0.60 s) than the rugby group (16.86 ± 1.45 s). Significant differences were also found in explosive power, where football players achieved greater distances in the standing broad jump (2.59 ± 0.18 m) than rugby players (2.36 ± 0.21 m; $t(44) = 3.97, p < .001$). Furthermore, the football group outperformed the rugby group in static balance (34.27 ± 3.24 s vs. 27.30 ± 4.87 s; $t(44) = 5.71, p < .001$) and eye-hand coordination (29.17 ± 2.57 hits vs. 23.61 ± 3.10 hits; $t(44) = 6.63, p < .001$).

Football players also exhibited significantly faster reaction times (0.19 ± 0.02 s) than rugby players (0.21 ± 0.02 s; $t(44) = -3.12, p = .003$), while no meaningful difference was observed in 30 m sprint speed ($p = .318$). These findings align with previous literature suggesting that sport-specific demands,

such as frequent multidirectional sprinting in football, lead to more refined neuromuscular synchronisation and agility. In addition, the superior jump and agility performance in the football group may be attributed to a more favourable power-to-weight ratio compared with the significantly heavier rugby group (64.52 ± 6.73 kg vs. 79.70 ± 14.36 kg; $p < .001$).

IV. CONCLUSIONS

The study concludes that sport-specific demands lead to a more refined SRF profile in football players compared to rugby players at the university level. These findings suggest that coaching staff should implement specialized conditioning programs to address the specific physiological gaps identified in each sport to optimize performance.

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