

## RUNNING MOVEMENT PATTERNS IN RUGBY SEVENS FOOTBALL

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### Introduction

Rugby sevens, an increasingly popular variant of rugby union, is played over two 7 min halves with seven players on each team. The physical demands of rugby sevens competition are not well understood. The aim of this study was to quantify the movement patterns of elite-level rugby sevens players during competition.

### Methods

Movement patterns of 19 international-level male rugby sevens players were recorded using a Global Positioning System (GPS) device (Team Sport v2.5, Catapult Innovations, Australia) recording at 5 Hz during 27 matches. A total of 174 match files were analyzed. Movement patterns were quantified based on distance covered in velocity zones (0 to 2, 2 to 3.5, 3.5 to 5, 5 to 6 and >6 m.s<sup>-1</sup>) and number of moderate (2 to 4 m.s<sup>-2</sup>) and high (>4 m.s<sup>-2</sup>) accelerations and decelerations (-2 to -4 m.s<sup>-2</sup>; <-4 m.s<sup>-2</sup>, respectively). Results are expressed per min of playing time to account for player substitutions.

### Results & Discussion

Players spent a total of 10:48 ± 4:22 min:s (mean ± SD) on the field covering 120 ± 17 m.min<sup>-1</sup> and reaching a peak velocity of 8.3 ± 1.1 m.s<sup>-1</sup>. Although most locomotor activity occurred at low velocity (35 ± 6% at 0 to 2 m.s<sup>-1</sup>), a substantial proportion of distance was covered at high velocity (e.g. 10 ± 5% at >6 m.s<sup>-1</sup>) (Table 1). Total distance covered per min and distance travelled at >5 m.s<sup>-1</sup> per min were substantially greater (by ~45 and 135%, respectively) in rugby sevens than in 15-player rugby union (1).

Table 1. Movement patterns relative to playing time

Variable (per min)	Mean ± SD
Distance (m) at 0-2 m.s <sup>-1</sup>	41.3 ± 6.2
Distance (m) at 2-3.5 m.s <sup>-1</sup>	32.1 ± 7.4
Distance (m) at 3.5-5 m.s <sup>-1</sup>	24.5 ± 6.6
Distance (m) at 5-6 m.s <sup>-1</sup>	10.6 ± 4.6
Distance (m) at >6 m.s <sup>-1</sup>	11.8 ± 7.3
Moderate accelerations (#)	1.1 ± 0.5
High accelerations (#)	0.4 ± 0.3
Moderate decelerations (#)	1.3 ± 0.6
High decelerations (#)	0.3 ± 0.2

### Conclusion

Rugby sevens is characterized by a high frequency of changes in velocity and repeated high velocity sprints. Game-specific training should include relatively high running volumes incorporating intermittent maximal or near-maximal sprint efforts.

### References

1. Cunniffe, B. et al. (2009). *J Strength Cond Res*, 23(4): 1195-1203.