

DECISION-MAKING STRATEGIES ALTER AGILITY SKILL EXECUTION IN RUGBY UNION

Keane Wheeler¹, Christopher Askew¹ & Mark Sayers¹

¹Centre for Healthy Activities, Sport and Exercise, University of the Sunshine Coast

Email: kwheeler@usc.edu.au

INTRODUCTION

Evading the defence, breaking tackles and advancing the ball beyond the advantage line are crucial agility skills in rugby union [3]. The open skilled nature of match-play means that effective decision-making strategies are key components of agility in rugby union [1]. The reactive conditions associated with rugby union would likely alter agility technique compared to planned movements [2]. As such, there is considerable scope to examine reactive agility skill execution and with specific reference to technical proficiency.

The objectives of this study consisted:

- Determine the modification to agility skill execution in rugby union with the inclusion of reactive conditions.
- Determine the variation to reactive agility skill execution between performance speeds.

METHODS

Eight high level rugby union athletes completed planned and reactive agility conditions. Participants carried a rugby ball and ran at maximal effort through an agility course (Figure 1). The initial task did not include decision-making elements. The second task included the presence of a decision-making element, where the attacker reacted and traversed the opposite running line to the movements of a defender.

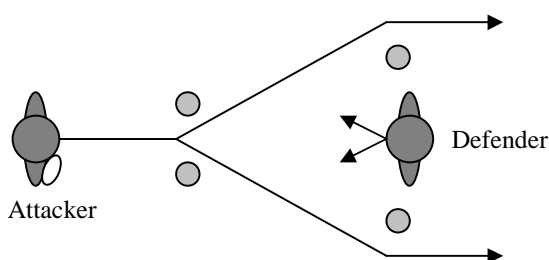


Figure 1: Overhead view of agility course.

Three dimensional analysis using the APAS system examined foot placements and velocity. Variations to agility skill execution with respect to performance speed (fast, moderate and slow) were then explored. The mean coefficient of variation for intra-tester reliability of digitising ranged between .42 - 3.12% for the raw position of landmarks and was 3.60% for joint angular displacement.

RESULTS AND DISCUSSION

The inclusion of the decision-making element to testing meant that the development of lateral velocity during the side-step was restricted (planned = $.69 \pm .43$ m/s vs. reactive = $.25 \pm .42$ m/s, $p < .001$). A decrease in lateral foot position observed during reactive conditions (reactive = 41.35 ± 5.85 % leg length vs. planned = 44.52 ± 6.10 % leg length, $p = .011$) no doubt limited the magnitude of lateral velocity achieved during agility skill execution.

Despite this, fast performances exhibited greater lateral movement during the side-step ($.52 \pm .34$ m/s) compared to moderate ($.20 \pm .37$ m/s, $p = .034$) and slow ($-.08 \pm .31$ m/s, $p < .001$) for reactive conditions. The negative lateral velocity displayed by slow performances indicated that momentum was towards the opposite direction required in response to the defender.

It was then shown that the lateral foot position when side-stepping did not vary significantly between speed groups. However, fast performances did execute the side-step earlier and closer to the initial change of direction markers ($.01 \pm .38$ m) than slow performances ($-.53 \pm .43$ m, $p = .003$). This suggests that fast performances predicted the appropriate evasive strategy during the early stages of the defender's movements.

CONCLUSIONS

- Reactive conditions altered lateral foot placement patterns when side-stepping and consequently restricted the development of lateral momentum during agility skill execution.
- Fast performers displayed superior decision-making strategies that enhanced the ability to generate lateral momentum during agility skill execution.

ACKNOWLEDGEMENTS

Thank you to New Zealand Rugby Union and the University of the Sunshine Coast for funding this project.

REFERENCES

1. Abernathy B. *Int J Sport Psychol.* **22**: 189-210, 1991.
2. Farrow D, et al. *J Sci Med Sport.* **8**(1): 52-60, 2005.
3. Sayers M, et al. *Int J Perform Anal Sport.* **5**:126-138, 2005.