

A dark silhouette of a person in a running pose, centered on a blue background. The person is captured mid-stride, with one leg forward and arms pumping. The background has a subtle gradient and a vertical crease on the left side.

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Folland, J.P. and A.G. Williams, Morphological and neurological contributions to increased strength. *Sports medicine*, 2007. 37(1): p. 145-168.

Taylor, N.A. and J.G. Wilkinson, Exercise-induced skeletal muscle growth hypertrophy or hyperplasia? *Sports medicine*, 1986. 3(3): p. 190-200.

Attia, A., et al., Reliability and Validity of a 20-s Alternative to the Wingate Anaerobic Test in Team Sport Male Athletes. *PLoS One*, 2014. 9(12).

Predictors of Sprint Ability in Elite Women's Rugby Sevens Athletes

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Introduction: Rugby Sevens is a contact team sport characterised by periods of high-speed running, maximal effort sprinting, with multiple accelerations and decelerations. Sprint acceleration is a key attribute for success in Rugby Sevens. However, minimal research has been conducted on female rugby sevens athletes. We aimed to determine the best predictors of sprint acceleration ability in female rugby sevens athletes. **Methods:** Twelve elite female rugby sevens athletes performed 10 m sprints, and horizontal and vertical jump profiling over a 7-day period. Pearson-product moment correlations (r) were used to identify potential predictors of sprint acceleration ability. **Results:** Unilateral 3-hop distance ($r = -0.50$; $p = 0.047$), vertical jump height ($r = -0.47$; $p = 0.064$) and horizontal jump distance ($r = -0.36$; $p = 0.126$) were the best predictors of 10 m sprint acceleration ability. **Take home message:** Although, bilateral vertical jump and horizontal unilateral jump performance were *moderately* correlated with 10 m sprint times, these findings indicate a relatively low-shared variance ($r^2 = 13 - 25\%$) with sprinting ability. Therefore, we suggest that sprint ability is an independent physical quality with specific training requirements. This information should be used to better inform strength, jump and sprint training practices for female rugby sevens athletes.

The effect of functional movement training on sprint performance in youth males

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Introduction. Understanding the role biological maturity plays in responsiveness to changes in speed post training may have implications for athlete development programmes. The purpose of this study was to identify the effect of functional movement training on sprint performance in youth males. **Methods.** High school males were categorised by maturation (pre, circa, or post peak height velocity (PHV)) and allocated to either a 6-week (2 sessions per week) functional movement training or control group. Forty-seven participants completed a 10m sprint assessment pre and post 6-week intervention period. Training consisted of body weight strength and sprint technique activities. **Results.** Relative to the control group the training group netted small to moderate improvements in 10m sprint time post 6-weeks of training for pre-PHV (N=8; %change= -2.4, $\pm 2.4\%$; $d = -0.35$; $p = 0.085$), circa-PHV (N=8; %change= -3.7, $\pm 2.3\%$; $d = -0.78$; $p = 0.012$) and post-PHV individuals (N=8; %change= -1.8, $\pm 1.1\%$; $d = -0.25$; $p = 0.014$). **Discussion.** Within

training group responses seem to be sensitive to the maturation status of the individuals. Specifically, training elicited small effects on 10m sprint performance for pre and circa-PHV individual's whereas post-PHV individual's responses were trivial. **Take home message.** A 6-week functional movement training programme induces meaningful improvements in sprint performance for youth males circa-PHV.

References

- Lloyd, R. S., Oliver, J. L., Radnor, J. M., Rhodes, B. C., Faigenbaum, A. D., & Myer, G. D. (2015). Relationships between functional movement screen scores, maturation and physical performance in young soccer players. *Journal of Sports Sciences*, 33(1), 11-19.
- Mirwald, R. L., Baxter-Jones, A. D., Bailey, D. A., & Beunen, G. P. (2002). An assessment of maturity from anthropometric measurements. *Medicine & Science in Sports & Exercise*, 34(4), 689-694.
- Read, P. J., Oliver, J. L., Myer, G. D., De Ste Croix, M. B. A., & Lloyd, R. S. (2017). The effects of maturation on measures of asymmetry during neuromuscular control tests in elite male youth soccer players. *Pediatric Exercise Science*, (ahead of print) 1-23. doi: 10.1123/pes.2017-0081
- Rumpf, M. C., Cronin, J. B., Pinder, S. D., Oliver, J., & Hughes, M. (2012). Effect of different training methods on running sprint times in male youth. *Pediatric exercise science*, 24(2), 170-186.
- Oliver, J. L., Lloyd, R. S., & Rumpf, M. C. (2013). Developing speed throughout childhood and adolescence: The role of growth, maturation and training. *Strength & Conditioning Journal*, 35(3), 42-48.

Functional movement, maturation and physical performance in youth female netball athletes

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Introduction. The need to understand how maturation and functional movement relate to physical performance in female netballers is important to aid in the facilitation of their performance enhancement. The purpose of this study was to examine the relationship between movement competency, maturation and physical performance outcomes of youth female netball players. **Methods.** A cross sectional sample of 8 female senior high school Netball players (Age: 16.4 ± 0.6 y; maturity offset 3.9 ± 0.5 y) had their movement competency assessed utilising the Functional Movement Screen (FMS). Physical performance tests including speed, agility and both horizontal and vertical bilateral jumps were assessed utilising Netball New Zealand guidelines. **Results.** FMS scores demonstrated a very large ($r=0.75$) and large ($r=0.56$) relationship with horizontal Jump and vertical jump respectively. FMS competency was moderately correlated with maturation ($r=0.41$) and locomotive tasks ($r=-0.37$ to -0.45). There were trivial to moderate relationships between maturation and physical performance test outcomes. A very large correlation between maturation and vertical jump height ($r=0.72$) was identified. **Discussion.** The findings demonstrate that aspects of physical performance may be influenced by functional movement ability and maturation. **Take Home Message.** Consideration of strategies that increase functional movement competency may be advantageous in improving physical performance in youth female netball players.