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Journal of Sports Sciences ›
Volume 31, 2013 - Issue 15

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Leg mass characteristics of accurate and inaccurate kickers – an Australian football perspective

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Pages 1647-1655 | Accepted 03 Apr 2013, Published online: 20 May 2013

Cite this article https://doi.org/10.1080/02640414.2013.793377

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Abstract

Athletic profiling provides valuable information to sport scientists, assisting in the optimal design of strength and conditioning programmes. Understanding the influence these physical characteristics may have on the generation of kicking accuracy is advantageous. The aim of this study was to profile and compare the lower limb mass characteristics of accurate and inaccurate Australian footballers. Thirty-one players were recruited from the Western Australian Football League to perform ten drop punt kicks over 20 metres to a player target. Players were separated into accurate (n = 15) and inaccurate (n = 16) groups, with leg mass characteristics assessed using whole body dual energy x-ray absorptiometry (DXA) scans. Accurate kickers demonstrated significantly greater relative lean mass ($P \leq 0.004$) and significantly lower relative fat mass ($P \leq 0.024$) across all segments of the kicking and support limbs, while also

exhibiting significantly higher intra-limb lean-to-fat mass ratios for all segments across both limbs ($P \leq 0.009$). Inaccurate kickers also produced significantly larger asymmetries between limbs than accurate kickers ($P \leq 0.028$), showing considerably lower lean mass in their support leg. These results illustrate a difference in leg mass characteristics between accurate and inaccurate kickers, highlighting the potential influence these may have on technical proficiency of the drop punt.

Keywords:

lean fat relative muscle mass asymmetry drop punt

Acknowledgements

The authors would like to thank and acknowledge Chris Dorman (strength and conditioning coach, West Perth Football Club) and his athletes for their participation in this project. No external funding was received for this work.



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