

The Physical and Physiological Profile of Professional Muay Thai Boxers

Authors : Lucy Horrobin, Rebecca Fores

Abstract : Background: Muay Thai is an increasingly popular combat sport worldwide. Further academic research in the sport will contribute to its professional development. This research sought to produce normative data in relation to the physical and physiological characteristics of professional Muay Thai boxers, as, currently no such data exists. The ultimate aim being to inform appropriate training programs and to facilitate coaching. Methods: N = 9 professional, adult, male Muay Thai boxers were assessed for the following anthropometric, physical and physiological characteristics, using validated methods of assessment: body fat, hamstring flexibility, maximal dynamic upper body strength, lower limb peak power, upper body muscular endurance and aerobic capacity. Raw data scores were analysed for mean, range and SD and where applicable were expressed relative to body mass (BM). Results: Results showed similar characteristics to those found in other combat sports. Low percentages of body fat (mean±SD) 8.54 ± 1.16 allow for optimal power to weight ratios. Highly developed aerobic capacity (mean ±SD) 61.56 ± 5.13 ml.min.kg facilitate recovery and power maintenance throughout bouts. Lower limb peak power output values of (mean ± SD) 12.60 ± 2.09 W/kg indicate that Muay Thai boxers are amongst the most powerful of combat sport athletes. However, maximal dynamic upper body strength scores of (mean±SD) $1.14 \text{ kg/kg} \pm 0.18$ were in only the 60th percentile of normative data for the general population and muscular endurance scores (mean±SD) 31.55 ± 11.95 and flexibility scores (mean±SD) 19.55 ± 11.89 cm expressed wide standard deviation. These results might suggest that these characteristics are insignificant in Muay Thai or under-developed, perhaps due to deficient training programs. Implications: This research provides the first normative data of physical and physiological characteristics of Muay Thai boxers. The findings of this study would aid trainers and coaches when designing effective evidence-based training programs. Furthermore, it provides a foundation for further research relating to physiology in Muay Thai. Areas of further study could be determining the physiological demands of a full rules bout and the effects of evidence-based training programs on performance.

Keywords : fitness testing, Muay Thai, physiology, strength and conditioning

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