

Sample abstract

Differences in fat-free mass and muscle thicknesses at various sites according to performance level among judo athletes

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The purpose of this study was to investigate differences in fat-free mass and thicknesses of various muscles among judo athletes of different performance levels. The subjects were 69 male judo athletes of 3 different performance levels. Group A was composed of athletes who participated in the Olympic Games or Asian Games (n = 13). Groups B (n = 21) and C (n = 35) were composed of judo athletes at a university who did or did not participate in intercollegiate competitions (including qualifying matches), respectively. Muscle and fat thicknesses were measured by B-mode ultrasound at 9 sites. Fat percentage was calculated from fat thicknesses using a previously reported equation. Fat-free mass was calculated from fat percentage and body weight. Muscles thicknesses were normalized to the height of the individual. Group A had significantly larger fat-free mass than Group C ($p < 0.05$). The normalized thicknesses of the elbow extensor and flexor muscles were significantly larger in Group A than in Group C. The normalized thickness of the elbow flexor muscle was significantly larger in Group A than in Group B. The results of this study showed that judo athletes with low performance levels such as those in Group C had lower fat-free mass, and the degree of development of the brachialis muscles differed according to performance level.

Key Words; ultrasonography, Olympic Games, training

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