Special Strength and Conditioning Profile of Elite Chinese Female Wrestlers

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Abstract: Our hypothesis that measures of special strength and conditioning parameters would differentiate between more successful and less successful elite Chinese female wrestlers. The Olympic and world championship medallists had the highest value for dead lift and hold and squat, but other parameters did not attain significant difference. This indicates strength and power, but not aerobic ability differentiates between very successful female wrestlers and less successful female wrestlers. The percentile physiological profiles can help wrestlers and coaches to individualize the training program to minimize physiological weaknesses and develop wrestling strategies to take advantage of individual wrestler's strengths.

1 INTRODUCTION

Wrestling as a sport demands several specific characteristics, including maximal strength, aerobic endurance, and anaerobic capabilities to achieve success in competition. Therefore, the major aim of the present study was to investigate the physiological profiles of elite female wrestlers and how physiological characteristics relate to success in competition.

2 METHODS

Fifty elite female wrestlers were divided into three groups according to their best performance. Group 1 included the athletes who ranked in the top-3 in the Olympic Games and World Championship. Group 2 included the athletes who ranked in the top-3 in the National Games and National Championship. Group 3 included the athletes who ranked in 5-8 in the National Championship. The special strength and conditioning profile included testing of 3,200 m run time, 400 m run time, and one repetition maximums (1 RM) in specified exercises(dead lift, deep squat, prone rowing, power clean and hold and squat). Percentile method was used to evaluate the parameter profile. The measurements were performed from 2006 to 2012 when the athletes were in national team preparing for Olympic Games.

3 RESULTS

The above P70 value of 3200m and 400m run time were≤13min 43 second and ≤1min 6 seconds, respectively. Above P70 absolute (relative) value for 1RM were dead lift: $\geq$ 140kg (2.19); deep squat: $\geq$ 110kg (1.70); prone rowing: $\geq$ 77kg (1.25); power clean: $\geq$ 79kg (1.30) and hold and squat: $\geq$ 115kg (1.90). Dead lift and hold and squat were significant higher in Group1 than Group2 and Group3, but other parameters were no significance among three groups.

4 DISCUSSION

Female wrestling has grown in popularity since being accepted into the Olympic Games in 2004. We are aware of only one study profiling the physiological characteristics of female wrestlers. Our initial hypothesis that measures of special strength and conditioning parameters, would differentiate between more successful and less successful elite Chinese female wrestlers, was in part supported. The Olympic and world championship medalists had the highest value for dead lift and hold and squat, but other parameters did not attain significant difference. This indicates strength and power, but not aerobic ability differentiates between very successful female wrestlers and less successful female wrestlers. The

percentile physiological profiles can help wrestlers and coaches to individualize the training program to minimize physiological weaknesses and develop wrestling strategies to take advantage of individual wrestler's strengths.