

Anthropometric characteristics evolution in elite rhythmic gymnasts

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Key words: Rhythmic Gymnastics, Talent, Anthropometry and Age

SUMMARY

The aims of this research were to assess anthropometric characteristics of high-level senior and junior rhythmic gymnasts; and was to investigate the changes of anthropometric characteristics over a 4 years period, in different senior and junior groups of the same technical level.

Twenty anthropometric variables of 63 participants were collected and body composition and sitting-height-to-stature-ratio measures were calculated. The two-way (gymnast category and time) ANOVA of the anthropometric characteristics showed significant main effect of time period for biacromial and bicristal diameters indicating that the majority of variables had similar values in 2002 and 2006. A significant main effect of category (junior or senior) was present in most the analyzed variables with higher values in senior gymnasts than juniors. The significant category by time interaction for height, weight, limbs' length, and fat-free mass, indicated that some differences between junior and senior gymnasts increased over the 4 yr time period. The training hours per week were significantly higher in seniors, but did not differ over the 4 yr period. The study shows that the criteria, followed for the recruitment of elite gymnasts, in the two different periods considered (2002 and 2006) were almost the same. Moreover, higher differences between seniors and juniors of FFM values in 2006 indicated the more intensive training of the second period for seniors.

INTRODUCTION

Rhythmic gymnastics is a sport discipline in rapid evolution. Gymnastics has moved, from its competitive beginning in 1962, into a grow in athleticism, agility, flexibility and a selecting characterisation of body sizes. The technical evolution changed also the acknowledgement that young girls with small bodies achieved often high levels of performance and stayed in the sport much time. (Claessens et al., 1999). Contrary to this, the gymnasts of the National Italian Team, winner of