Sex Differences in Childhood Athletic Performance

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INTRODUCTION

Growth and motor development literature suggests a two-way (age by sex) interaction for maturational traits and motor performance variables (Baumens & Malina, 1986). Much of the research in this area, however, focuses on sex differences around the adolescent growth spurt with little documentation of performance differences throughout childhood.

PURPOSE

The purpose of this study was to test for the presence of an age by sex interaction for a complex motor performance task and to determine whether or not sex differences exist for the performance of this task during childhood.

METHODS

The data for this project were provided by USA Swimming (USAS) and consisted of the best 50-yard Freestyle performance for all USAS registered male and female swimmers from 6-19 years of age that competed in the event from 2005-2010 (N = 1,193,362). The distribution location was determined for each combination of age, sex, and competition year using methods previously described (Hoaglin, 2006). ANOVA was then utilized to test the significance of the age by sex interaction.

RESULTS

ANOVA revealed a significant age by sex interaction effect (F(13, 65) = 136.2, p < .001). Simple effects analysis indicated that the location parameter was significantly lower (i.e., times were faster) for boys than for girls for 8-10 and 13-19 year olds (p < .001) while there was no difference in the location parameter between boys and girls 6-7 and 11-12 years old. The mean difference in the location parameter between boys and girls was significantly greater (p < .05) for 13-19 year olds (2.64) than for 6-12 year olds (0.44).

CONCLUSIONS

The age by sex interaction for 50-yard Freestyle performance parallels the reported maturational changes. The marked acceleration in height, weight, and strength in boys beginning around 13 years magnifies the relatively small preadolescent sex differences. These traits play a crucial role in the increased performance difference between boys and girls from 12 to 13 years. While maturational traits play a role in adolescent performance differences, their role in childhood performance differences is unclear. Additional research is needed to determine whether or not the superior performance of boys relative to girls relates to physiological parameters and/or sex differences in participation and selection bias.

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REFERENCES