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Research article

Relative Age Affects Marathon Performance in Male and Female Athletes

Mark J. Connick , Emma M. Beckman, Sean M. Tweedy

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ABSTRACT

Marathon runners are ranked in 5-year age groups. However the extent to which 5-year groupings facilitates equitable competition has not been evaluated. The aim of this study was to evaluate the effect of relative age in male and female marathon running. Marathon finishing times for the top ten male (aged 20-69 years) and female athletes (aged 20-64 years) were obtained from the 2013 New York and Chicago marathons. Intra-class and inter-class validity were evaluated by comparing performances within (intra-class) and between (inter-class) the 5-year age groups. Results showed intra-class effects in all male age groups over 50 years, in all female age groups over 40 years, and in male and female 20-24 age groups ($p < 0.05$). Inter-class differences existed between the 20-24 and 25-29 age groups in both males and females, between all male age groups over 50 years, and between all female age groups over 40 years ($p < 0.05$). This study provided the first evaluation of the effects of relative age in male and female marathon running. The results provide preliminary but compelling evidence that the relatively older male athletes in age groups

over 50 years and the relatively older females in age groups over 40 years are competitively disadvantaged compared to the younger athletes in these age groups.

Key words: Aging, endurance, age classification, competition, exercise

Key Points

- Results showed a curvilinear relationship between age and marathon running performance with the negative effect of age becoming more pronounced in older runners.
- Relative age effects were found in all age groups over age 50 years in males and over age 40 years in females indicating that the relatively older runners were competitively disadvantaged compared to the relatively younger runners in these age groups.
- Relative age affected the 20-24 age classification which is consistent with the hypothesis that marathon performance improves until peak performance occurs in the 25-29 age classification.

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