AGE AND GENDER DIFFERENCES IN PERFORMANCE AT CROSS TRIATHLON WORLD CHAMPIONSHIPS

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Abstract

Introduction. Cross triathlon is a sport consisting of three segments: swimming, off-road cycling, and running. Our study analyses the differences in performance between genders and changes in performance in selected age categories at the ITU Cross World Championships held between 2011 and 2016. Material and methods. During this period, a total of 1,933 triathletes were analysed (1,472 men and 461 women). Two-way analyses of variance (ANOVA) were used to examine the impact of sex differences and age-related changes on performance (time, percentage of time, and performance ratio) in swimming, cycling, running, and total race. Results. The age groups with the highest level of participation were persons aged 40–44 and 45–49 years among men and women, respectively. With regards to performance in the different age groups, its high level was maintained between 25 and 49 years, and it decreased significantly from the age of 50–54. In men, the best results in cycling and total race time were obtained in the 30–34 age group and in swimming and running in the 40–44 group. Women obtained the best results in running in the 25–29 age group, in cycling in the 30–34 age group, and in swimming and total race time in the 35–39 group. Conclusions. The results of the study have confirmed that there is a demand for sports in 40+ age groups. As for performance in the different age groups, it was on a high level between 25 and 49 years and decreased significantly from the age of 50–54 onwards. According to these results, the sports training of these triathletes should be oriented so that they obtain their best results between 30 and 35 years of age.

Key words: competition, endurance, master category, aging

Introduction

Cross triathlon or X-tri is an off-road triathlon discipline that typically takes the form of a 1- to 1.5-km swim, a 20- to 30-km mountain bike race, and a 6- to 10-km trail run. The athletic challenge of the triathlon is thus combined with the uncertainty of the environment in which it is performed. It is a demanding yet also appealing format due to the natural environments in which these competitions usually take place.

This discipline first emerged on the Island of Maui (Hawaii) in 1996, to become the Xterra World Championships. Afterwards, the International Triathlon Union (ITU) organised its first Cross Triathlon World Championship in April 2011 in Extremadura, Spain, at an international centre for sports innovation, in a natural environment also known as “The Ring”. Following this first world championship, the natural environments in which these types of races are held have been of high environmental and ecological interest. These have included Oak Mountain State Park (United States, 2012); the Hague (Netherlands, 2013); Zittau (Germany, 2014); Cala Ginepro, Sardinia (Italy, 2015); Lake Crackenback, Snowy Mountains (Australia, 2016); and Penticton (Canada, 2017).

Until now, scientific research focusing on the cross triathlon has been very limited compared to studies on conventional triathlons at different distances (sprint, Olympic, and long-distance), which have revealed differences in performance related to gender and age [1-6].

The majority of research on the cross triathlon format has been conducted at Xterra competitions. The variables that have been analysed include gender and performance [7], age and performance, performances in conventional road triathlons versus off-road triathlons over short distances [8], the economic impact of the participants in these competitions [9], or the athletic careers of triathletes [10].

The research which is the most similar to the current study, although it was conducted only with regard to males and at Xterra competitions, is the paper by Lepers et al. [8], which compared the cross triathlon and the conventional triathlon formats at short distances. The research suggested that the age-related decline in performance in the three segments was greater in the cross triathlon than in conventional triathlons. In addition, it was mainly in the road vs. mountain bike cycling segment that the age variable had a greater impact, possibly due to the high technical skills mountain biking requires.

Other studies have confirmed the importance of these technical requirements in off-road cycling [11] and also in trail running [12].

The decrease in age-related performance has been studied in each of the legs making up the cross triathlon: swimming in open water [13], trail running [12], and cycling [14].