Este estudio pretende determinar la influencia de cada segmento en el rendimiento y evaluar la capacidad predictiva de modelos multivariados discriminantes en pruebas continentales de triatlón de media distancia (Ironman 70.3). Se analizaron los registros de los 50 primeros clasificados masculinos en cada una de las 5 pruebas Continentales Ironman 70.3 del circuito de 2015, categorizados en 5 grupos en función de su posición final (1-10º; 11–20º; 21–30º, 31–40º y 41–50º). En 3 de las 5 competiciones, el segmento de carrera a pie presentó el mayor poder discriminante (rango del coeficiente estandarizado: 1,878–1,002), seguido de cerca por el ciclismo (1,718–0,896) y la natación (1,099–0,507). El rendimiento en triatlón de media distancia puede modelarse satisfactoriamente mediante el análisis multivariado de función discriminante. A diferencia de los resultados previos observados en triatlón de corta distancia, los tiempos en el segmento de carrera a pie y ciclismo presentan, capacidades predictivas similares del rendimiento global, especialmente en función de la carrera analizada.

PALABRAS CLAVE: natación, ciclismo, carrera a pie.

Fecha de recepción: 11/02/2017
Fecha de aceptación: 18/03/2017

This study aims to determine the influence of race segments on overall performance and to assess the predictive capacity of multivariate discriminant models in middle distance events (Ironman 70.3). The official records of the 50 male athletes classified on each of the five Ironman 70.3 Continental races circuit were categorized in 5 groups according to their final placement (1-10th; 11–20th; 21–30th, 31–40th and 41–50th). In 3 of the 5 races the running segment showed the highest discriminant power (standardized coefficient: 1,878-1,002), closely followed by cycling (1,718-0,896), and swimming (1,099-0,507). Middle distance triathlon performance can be satisfactorily modelled using multivariate first discriminant function analysis. Contrary to our previous results in short-distance triathlon race, times in the running and cycling segments showed similar predictive capacity in relation to overall racing performance, particularly on any given race. The predictive capacity of these two legs is smaller compared to Ironman Continental races, while that of the swimming leg is moderately greater.

KEYWORDS: swimming, cycling, running.
1. INTRODUCTION

This study aims to determine the influence of race segments on overall performance and to assess the predictive capacity of multivariate discriminant models in middle distance events (Ironman 70.3).

2. MATERIAL AND METHODS

The official records of the 50 male athletes classified on each of the five Ironman 70.3 Continental races circuit were categorized in 5 groups according to their final placement (1-10th; 11–20th; 21–30th, 31–40th and 41–50th). After checking for normality (Shapiro-Wilks) and homocedasticity (Levene) of the distributions, the following performance scores were standardized (Z scores): time on each segment, time on both transitions, and final time. The capacity of the set of variables to predict final time on each race and for the whole season was tested using multivariate first discriminant function analysis (FDF). The internal validity of the models was assessed by the leave-one-out cross validation method (LOO-CV).

3. RESULTS

The three main segments were included in all FDF models. In 3 of the 5 races the running segment showed the highest discriminant power (standardized coefficient: 1.878-1.002), closely followed by cycling (1.718-0.896), and swimming (1.099-0.507). The percentage of athletes correctly classified by the multivariate models developed was greater when analysing races separately (88-94%, 82-92% LOO-CV) than when classification was done jointly for all races (83%, 79% LOO-CV), particularly depending on the race.

4. CONCLUSION

Middle distance triathlon performance can be satisfactorily modelled using multivariate first discriminant function analysis. Contrary to our previous results in short-distance triathlon race, times in the running and cycling segments showed similar predictive

capacity in relation to overall racing performance, particularly on any given race. The predictive capacity of these two legs is smaller compared to Ironman Continental races, while that of the swimming leg is moderately greater.

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