**RESUMEN**
Este estudio pretende determinar la influencia de cada segmento en el rendimiento final y evaluar la capacidad predictiva de modelos multivariados discriminantes en pruebas continentales de triatlón de larga distancia (Ironman). Se analizaron los registros de los 50 primeros clasificados masculinos en las 5 pruebas continentales del circuito Ironman 2015, categorizados en 5 grupos en función de su posición final (1-10º; 11–20º; 21–30º, 31–40º y 41–50º). En 4 de las 5 competiciones, el segmento de carrera a pie presentó el mayor poder discriminante (rango del coeficiente estandarizado: 2,225–0,950), seguido de cerca por el ciclismo (2,153–0,857) y la natación (0,992–0,596). El porcentaje de triatletas clasificados correctamente por los modelos multivariantes desarrollados analizando las carreras por separado (82-96%; 66-80% LOO-CV) fue mayor que el obtenido al realizar el análisis conjunto de las 5 pruebas (76%, 74% LOO-CV). Los tiempos en los 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.

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**ABSTRACT**
This study aims to determine the influence of race segments on overall performance and to assess the predictive capacity of multivariate discriminant models in long distance triathlon events (Ironman). The official records of the first 50 male athletes classified on each of the five 2015 Ironman 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 4 out of 5 races the running segment showed the greatest discriminant power (standardized coefficient range: 2,225–0,950), closely followed by cycling (2,153–0,857), and swimming (0,992–0,596). The percentage of athletes correctly classified by the multivariate models developed was greater when analysing races separately (82-96%, 66-80% LOO-CV) than when classification was done jointly for all races (76%, 74% LOO-CV). Times in the running and cycling segments showed similar predictive capacity in relation to overall racing performance, particularly on any given race.

**KEYWORDS:** swimming, cycling, running.

**Fecha de aceptación:** 18/03/2017
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 long distance triathlon events (Ironman).

2. MATERIAL AND METHODS

The official records of the first 50 male athletes classified on each of the five 2015 Ironman 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 3 main segments were included in all FDF models. In 4 out of 5 five races the running segment showed the greatest discriminant power (standardized coefficient range: 2.225–0.950), closely followed by cycling (2.153–0.857), and swimming (0.992–0.596). The percentage of athletes correctly classified by the multivariate models developed was greater when analysing races separately (82-96%, 66-80% LOO-CV) than when classification was done jointly for all races (76%, 74% LOO-CV).

4. CONCLUSION

Long distance triathlon performance can be satisfactorily modelled using multivariate first discriminant function analysis. Contrary to our previous results in short-distance triathlon races, 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 greater compared to Ironman Continental 70.3 races, while that of the swimming leg is proportionally smaller.

REFERENCES

