

THE BRADYKININ B₂ RECEPTOR (BDKB2R) GENE AND ENDURANCE PERFORMANCE DURING THE SOUTH AFRICAN IRONMAN TRIATHLONS

C. Saunders², T.D. Noakes² and M. Collins¹

MRC/UCT Research Unit for Exercise Science and Sports Medicine of the ¹Medical Research Council and the ²Department of Human Biology, Faculty of Health Sciences, University of Cape Town

Purpose: Several studies have suggested that the insertion (I) allele of the angiotensin-converting enzyme (ACE) gene is associated with elite endurance performance. This allele has also been shown to be associated with the endurance performance of the fastest South African-born finishers of the South African Ironman Triathlons. ACE is a component of both the Renin Angiotensin (RAS) and Kallikrein Kinin (KKS) Systems, while the bradykinin B₂ receptor (BDKB2R) is only a key component of the KKS. Although it has been suggested that ACE functions through the local skeletal muscle RAS in determining athletic performance, genes that encode for other components of RAS have not been shown to be associated with endurance performance. The aim of this study was to determine whether the BDKRB2 gene, a component of KKS, is also associated with the performance of the fastest finishers of the South African Ironman Triathlons. **Methods:** 164 of the fastest male triathletes (TRIATH) who completed the South African Ironman Triathlons and 202 male control (CON) subjects were genotyped for the functional —9/+9 polymorphism within exon 1 of the BDKRB2 gene. **Results:** There was a significant higher frequency of the —9/—9 genotype of the BDKRB2 gene within the TRIATH (31.7%) compared to the CON (19.3%) subjects (P=0.009). **Conclusion:** The BDKRB2 gene was associated with the endurance performance of the fastest finishers of the South African Ironman Triathlons, suggesting that the KKS, rather than the RAS, is involved in determining endurance performance of triathletes.