THE GROWTH HORMONE 1 (GH1) GENE, PERFORMANCE AND PHYSIOLOGICAL RESPONSES DURING THE SOUTH AFRICAN IRONMAN TRIATHLONS

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Purpose: Studies have suggested that the ACE gene is associated with endurance performance, including the Ironman triathlon. Since the mechanism by which ACE affects athletic ability is unknown, investigators have suggested that a closely linked gene is a better candidate gene. Athletes are known to take growth hormone as an ergogenic aid and the family of growth hormone genes are closing linked to the ACE gene. The aim of this study was to determine whether the GH1 gene is associated with the performance of the fastest finishers of the South African Ironman Triathlons. In addition, growth hormone production has also been shown to affect sweat rate and heat loss during exercise. **Methods:** 158 of the fastest male triathletes who completed the South African Ironman Triathlons and 155 male control subjects were genotyped for the functional T-to-A variant within intron 4 of the GH1 gene. Post-race rectal temperature was also determined in 91 triathletes. **Results:** There was no significant difference in the frequency of this polymorphism within the GH1 gene when the triathletes were compared to the control subjects (P=0.916). The post-race rectal temperatures in the triathletes with a AA genotype (37.9 + 0.8^{o}C) were significantly higher than those with a TT genotype (37.2 + 0.8^{o}C) (P=0.017). **Conclusion:** The GH1 gene was not associated with the endurance performance of the fastest finishers of the South African Ironman Triathlons. However, the post-race rectal temperatures were significantly higher in the athletes who produce less growth hormone than those who produce more.