

Supplementary Digital Content 1:

Table 1: Demographics of all race starters (by sex, age group and year) included in the study (n; %).

Sex	Age groups	2012	2013	2014	All years
Males	≤ 30 yrs	5794 (17.0)	5793 (16.9)	5422 (15.9)	17009 (16.6)
	31 – 40 yrs	6575 (19.3)	6457 (18.9)	6427 (18.9)	19459 (19.0)
	41 – 50 yrs	7498 (22.1)	7592 (22.2)	7618 (22.4)	22708 (22.2)
	> 50 yrs	6804 (20.0)	6998 (20.5)	7376 (21.7)	21178 (20.7)
	All	26671 (78.5)	26840 (78.4)	26843 (78.8)	80354 (78.6)
Females	≤ 30 yrs	2163 (6.4)	2183 (6.4)	2001 (5.9)	6347 (6.2)
	31 – 40 yrs	1963 (5.8)	1976 (5.8)	1891 (5.5)	5830 (5.7)
	41 – 50 yrs	2107 (6.2)	2110 (6.2)	2087 (6.1)	6304 (6.2)
	> 50 yrs	1081 (3.2)	1110 (3.2)	1225 (3.6)	3416 (3.4)
	All	7314 (21.5)	7379 (21.6)	7204 (21.2)	21897 (21.4)

## Supplementary Material A:

### Calculation of average individual Wet-Bulb Globe Temperature (aiWBGT)

Environmental data were collected hourly from 5 automated weather stations of the South African Weather Services along the race route between 6AM and 5PM on race day. Using the hourly information from these 5 weather stations, WBGTs that a participant was exposed to at 5 geographical locations along the route was calculated and then averaged.

For each cyclist, an aiWBGT was calculated based on the following assumptions:

- 1) The cyclist kept a constant cycling speed, allowing for the use of their overall average race speed to determine the time they presented at each weather station (Table S1)
- 2) When the cyclist presented to a weather station, the WBGT for that hour period during which they presented, was taken (Table S1)

Table S1: Geographical location of weather stations, distance and time

Geographical location of weather station	Distance of the weather station from the start (km)	Calculation of the estimated time of a cyclist at a weather station using distance (km from the start) and each cyclists average speed (km/hr)
Cape Town Royal Yacht Club	0km (start)	Start time (crossing mat, or batch time if no mat time)
Kirstenbosch	10km	Start time + (10/speed)
Cape Point	48km	Start time + (48/speed)
Slangkop	67km	Start time + (67/speed)
Molteno Reservoir	107km (finish)	Start time + (107/speed)

An example of a calculation of aiWBGT for a cyclist (Rider A) on race day in 2012 (started at 07h30 and had an average cycling speed of 24.9km/h) (Table S2).

Table S2: Geographical location of weather stations, distance, and WBGT at each station for Rider A in 2012 (started at 07h30 and had an average cycling speed of 24.9km/h)

Geographical location of weather Station	Distance of the weather station from the start (km)	Calculation of the estimated time of the cyclist at a weather station using distance (km from the start) and each cyclist's average speed (km/hr)	WBGT of the cyclist at that time point at each weather station (in the year 2012)
Cape Town Royal Yacht Club	0km (start)	7:30	18.8
Kirstenbosch	10km	7:54	17.3
Cape Point	48km	9:24	17.6
Slangkop	67km	10:12	15.6
Molteno Reservoir	107km (finish)	11:48	18.9
WBGT Average for Rider A in 2012			17.6