

## Supplementary Material

**Table 3:** Mean(SD) thermo-physiological responses to exercise in temperate conditions before and after heat acclimation, with (HA<sub>De</sub>) and without (HA<sub>Eu</sub>) permissive dehydration (n=8). Data refer to average during 20 minute exercise period, unless otherwise stated.

\*=significant difference ( $P \leq 0.05$ ).

	Pre-HA		Post-HA		Time	P value Condition	Interaction
	HA <sub>Eu</sub>	HA <sub>De</sub>	HA <sub>Eu</sub>	HA <sub>De</sub>			
<i>Thermal</i>							
Resting $T_{re}$ (°C)	37.29(0.25)	37.43(0.30)	37.11(0.27)	37.21(0.33)	0.048*	0.128	0.777
Exercise $T_{re}$ (°C)	37.36(0.28)	37.50(0.27)	37.18(0.23)	37.23(0.30)	0.026*	0.188	0.388
End exercise $T_{re}$ (°C)	37.48(0.23)	37.68(0.23)	37.35(0.22)	37.38(0.25)	0.026*	0.110	0.147
Resting $\bar{T}_{sk}$ (°C)	31.54(0.53)	32.06(0.77)	32.10(0.65)	31.88(0.56)	0.325	0.453	0.089
Exercise $\bar{T}_{sk}$ (°C)	29.96(0.58)	30.17(1.15)	29.98(0.53)	29.83(0.67)	0.599	0.901	0.584
End exercise $\bar{T}_{sk}$ (°C)	29.93(0.78)	29.91(1.28)	29.65(0.54)	29.56(0.65)	0.297	0.883	0.910
Resting $T_b$ (°C)	36.71(0.21)	36.89(0.34)	36.61(0.28)	36.67(0.34)	0.101	0.158	0.415
Exercise $T_b$ (°C)	36.62(0.26)	36.77(0.34)	36.46(0.24)	36.49(0.33)	0.054	0.277	0.404
End exercise $T_b$ (°C)	36.72(0.20)	36.90(0.32)	36.58(0.22)	36.60(0.27)	0.047*	0.287	0.196
<i>Thermoregulatory</i>							
Upper-back SR (L·m <sup>2</sup> ·h <sup>-1</sup> )	0.15(0.08)	0.17(0.08)	0.16(0.07)	0.12(0.05)	0.402	0.850	0.096
Skin blood flow (arbitrary units)	61(32)	59(20)	66(34)	75(22)	0.044*	0.817	0.374
Resting $f_c$ (beats·min <sup>-1</sup> )	78(12)	79(11)	72(13)	69(13)	0.007*	0.639	0.369
Exercise $f_c$ (beats·min <sup>-1</sup> )	109(7)	114(9)	104(9)	104(6)	0.015*	0.487	0.072
<i>Metabolic</i>							
VO <sub>2</sub> (L·min <sup>-1</sup> )	1.85(0.24)	1.95(0.25)	1.89(0.22)	1.83(0.22)	0.091	0.678	0.065
RER	0.91(0.03)	0.88(0.04)	0.91(0.04)	0.89(0.03)	0.447	0.033	0.618

$T_{re}$ =rectal temperature;  $\bar{T}_{sk}$ =mean skin temperature;  $T_b$ =mean body temperature; SR=sweat rate; VO<sub>2</sub>=rate of oxygen uptake; RER=respiratory exchange ratio.