

Table S1. Pre-trial values of hydration-related variables before Passive heat stress (P_{-} ; 40°C, 60% RH), or Active heat stress (A_{-} ; 4-min bouts at ~90% HRmax in a temperate environment; 29.5°C, 50% RH), in which fluid intake was negligible (DEH) or matched to prevent any change in body mass (EUH).

	Trial			
	P_DEH	A_DEH	P_EUH	A_EUH
Pre BM (kg)	74.6 ± 13.3	74.2 ± 14.6	74.1 ± 13.5	74.7 ± 13.6
Hct (%)	44 ± 4	45 ± 4	45 ± 5	45 ± 4
[Hb] (g/L)	15.6 ± 1.4	16.0 ± 1.2	15.8 ± 1.5	15.6 ± 1.2
P_{osm} (mOsmol/kg)	277 ± 6	278 ± 8	280 ± 4	276 ± 5
U_{SG}	1.013 ± 0.009	1.013 ± 0.007	1.019 ± 0.004	1.014 ± 0.004
Thirst (1-9)	2.1 ± 0.7	2.0 ± 0.8	2.5 ± 1.3	2.3 ± 1.3
TS (1-13)	6.9 ± 1.7	7.8 ± 1.1	7.6 ± 1.4	7.1 ± 0.6
TD (1-10)	1.7 ± 1.7	1.2 ± 1.1	1.8 ± 1.5	1.1 ± 0.3

Pre BM: Pre-trial body mass; Hct: Haematocrit; [Hb]: haemoglobin concentration; P_{osm} : plasma osmolality; U_{SG} : urine specific gravity; TS: thermal sensation; TD: thermal discomfort. P_{DEH} : Passive heat stress DEHydration; A_{DEH} : Active heat stress DEHydration; P_{EUH} : Passive heat stress EUHydration; A_{EUH} : Active heat stress EUHydration. Data are Mean ± SD for N = 12.

Table S2. Environmental conditions before, during and after passive and active dehydration with and without water intake matched to replace any loss of body mass.

	Trial			
	P_DEH	A_DEH	P_EUH	A_EUH
Baseline temp. (°C)	23.4 ± 2.1	24.2 ± 1.5	23.5 ± 1.1	23.0 ± 1.1
RH (%)	34 ± 9	31 ± 8	33 ± 7	32 ± 6
Trial temp. (°C)	40.0 ± 0.0	29.5 ± 0.1	40.0 ± 0.0	29.5 ± 0.2
RH (%)	60 ± 1	48 ± 7	60 ± 0	50 ± 0
Rehydration temp. (°C)	26.7 ± 1.7	25.2 ± 1.1	26.9 ± 1.2	25.4 ± 1.2
RH (%)	40 ± 4	34 ± 3	37 ± 4	33 ± 6

RH: relative humidity; P_DEH: Passive heat stress DEHydration; A_DEH: Active heat stress DEHydration; P_EUH: Passive heat stress EUHydration; A_EUH: Active heat stress EUHydration
Data are Mean ± SD for N = 12.

Table S3. Intake of macronutrients during 2-h rehydration period following Passive and Active heat stress entailing DEHydration or EUHydration via water intake to replace Δ BM.

	Trial			
	P_DEH	A_DEH	P_EUH	A_EUH
Total Energy Intake (kJ)	2470 \pm 652	2462 \pm 802	1818 \pm 481	2044 \pm 635
Total Energy Intake (kcal)	591 \pm 156	589 \pm 192	435 \pm 115	489 \pm 152
Total CHO (g)	94 \pm 37	92 \pm 44	57 \pm 28	69 \pm 36
<i>Ad libitum</i> CHO (g)	56 \pm 37	53 \pm 44	19 \pm 28	31 \pm 36
Total Fat (g)	15.8 \pm 0	15.8 \pm 0	15.8 \pm 0	15.8 \pm 0
Total Protein (g)	15.2 \pm 0	15.2 \pm 0	15.2 \pm 0	15.2 \pm 0

P_DEH: Passive heat stress; DEHydration; A_DEH: Active heat stress DEHydration; P_EUH: Passive heat stress EUHydration; A_EUH: Active heat stress EUHydration. Data are Mean \pm SD for N = 12.