

APPENDIX A – DATA FROM STUDY ONE

Table A1 Age and physical characteristics of each subject in elite group (42.2km)

Subject	Race Distance (km)	Age	Height (cm)	BW (kg)	BMI (kg.m ⁻²)	BSA (m ²)
1	42.2	28	170	56.9	19.7	1.66
2	42.2	25	172	63.2	21.4	1.75
3	42.2	23	183	66.2	19.9	1.86
4	42.2	26	165	56.9	20.9	1.62
5	42.2	29	160	51.6	20.2	1.52
6	42.2	27	180	59.7	18.4	1.76
7	42.2	32	155	58.8	24.5	1.57
Mean		27.1	169.2	59.0	20.7	1.68
SD		2.9	10.1	4.7	1.9	0.12
CV		0.107	0.060	0.080	0.092	0.071

Table A2 Age and physical characteristics of each subject in elite group (21.1 km)

Subject	Race Distance (km)	Age	Height (cm)	BW (kg)	BMI (kg.m ⁻²)	BSA (m ²)
8	21.1	25	168	58.9	21.0	1.67
9	21.1	23	170	58.8	20.4	1.68
10	21.1	23	170	64.2	22.2	1.74
11	21.1	24	170	58.0	20.1	1.67
Mean		23.8	169.4	59.9	20.9	1.69
SD		1.0	1.3	2.8	0.9	0.03
CV		0.042	0.008	0.047	0.043	0.018

Table A3 Age and physical characteristics of each subject in recreational group (15 km)

Subject	Race Distance (km)	Age	Height (cm)	BW (kg)	BMI (kg.m⁻²)	BSA (m²)
12	15	36	181	78.5	24.0	1.99
13	15	38	173	67.5	22.6	1.80
14	15	49	160	55.6	21.7	1.57
15	15	28	173	57.1	19.1	1.68
16	15	34	176	68.4	22.1	1.84
17	15	36	170	60.5	20.9	1.70
18	15	39	173	63.0	21.1	1.75
19	15	44	174	71.8	23.7	1.86
20	15	43	163	56.9	21.4	1.61
21	15	37	176	62.9	20.3	1.77
22	15	37	175	63.5	20.7	1.77
23	15	48	170	79.3	27.4	1.91
24	15	23	163	53.8	20.3	1.57
25	15	29	175	65.2	21.3	1.79
26	15	40	168	63.5	22.5	1.72
27	15	38	170	65.4	22.6	1.76
28	15	30	174	63.4	20.9	1.76
29	15	39	176	63.5	20.5	1.78
30	15	48	171	66.2	22.6	1.77
31	15	29	170	65.7	22.7	1.76
32	15	43	170	73.0	25.3	1.84
33	15	36	182	83.3	25.2	2.05
34	15	31	165	67.4	24.8	1.74
35	15	34	166	63.9	23.2	1.71
36	15	36	163	74.4	28.0	1.80
37	15	48	173	75.5	25.2	1.89
38	15	32	178	64.6	20.4	1.81
39	15	24	162	53.8	20.5	1.56
40	15	39	169	63.2	22.1	1.73
41	15	31	169	72.0	25.2	1.82
42	15	31	183	84.7	25.3	2.07
Mean		36.5	171.3	66.7	22.7	1.78
SD		6.9	5.8	8.0	2.2	0.12
CV		0.189	0.034	0.120	0.097	0.067

Table A4 Hydration status and running performance of elite runners during 42.2 km race

Subject	Pre BW (kg)	Post BW (kg)	Volume of Drinks (mL)	Finishing Time (min)	Rank	% BW loss	Sweat Rate (L.hr ⁻¹)	Speed (km.hr ⁻¹)
1	56.9	54.4	75	137	1	4.4	1.13	18.48
2	63.2	61.5	75	142	5	2.69	0.75	17.83
3	66.2	65.3	500	143	8	1.36	0.59	17.7
4	56.9	54.8	50	144	9	3.69	0.90	17.58
5	51.6	50.2	20	146	12	2.71	0.58	17.34
6	59.7	58.2	25	159	22	2.51	0.58	15.92
7	58.8	56.4	20	167	28	4.08	0.87	15.16
Mean	59.0	57.3	109.3	148.3	12.1	3.1	0.77	17.1
SD	4.7	5.0	174.0	10.7	9.6	1.1	0.21	1.2
CV	0.080	0.087	1.592	0.072	0.793	0.355	0.273	0.070

Table A5 Hydration status and running performance of elite runners during 21.1 km race

Subject	Pre BW (kg)	Post BW (kg)	Volume of Drinks (mL)	Finishing Time (min)	Rank	% BW loss	Sweat Rate (L.hr ⁻¹)	Speed (km.hr ⁻¹)
8	58.9	57	90	67.12	1	3.23	1.78	18.84
9	58.8	56.7	300	68.1	2	3.57	2.11	18.57
10	64.2	63	50	68.18	3	1.87	1.10	18.53
11	58	56.4	45	72.16	4	2.76	1.37	18.45
Mean	60.0	58.3	121.3	68.9	2.5	2.9	1.59	18.6
SD	2.85	3.16	120.86	2.23	1.29	0.74	0.45	0.17
CV	0.048	0.054	0.996	0.032	0.516	0.255	0.283	0.009

Table A6 Hydration status and running performance of recreational during 15 km race

Subject	Pre BW (kg)	Post BW (kg)	Volume of Drinks (mL)	Finishing Time (min)	Rank	% BW loss	Sweat Rate (L.hr ⁻¹)	Speed (km.hr ⁻¹)
12	78.5	77.5	0	72.43	34	1.27	0.83	12.38
13	67.5	66	0	74.08	46	2.22	1.21	12.14
14	55.6	53.3	100	74.09	81	4.14	1.94	12.14
15	57.1	55.8	0	76.14	63	2.28	1.02	11.81
16	68.4	66.2	1000	78.53	93	3.22	2.44	11.41
17	60.5	58.5	400	79.49	101	3.31	1.81	11.28
18	63	61.4	150	80.37	110	2.54	1.31	11.16
19	71.8	69.5	100	80.46	187	3.2	1.79	11.14
20	56.9	55.2	100	81.35	208	2.99	1.33	11.03
21	62.9	62.2	80	81.52	124	1.11	0.57	10.99
22	63.5	62.3	600	84.34	154	1.89	1.28	10.64
23	79.3	76.8	200	84.54	269	3.15	1.92	10.6
24	53.8	52.8	300	86.36	178	1.86	0.90	10.39
25	65.2	64.6	300	86.52	184	0.92	0.62	10.36
26	63.5	62.4	200	86.53	316	1.73	0.90	10.36
27	65.4	64.1	50	87.49	191	1.99	0.93	10.25
28	63.4	62.5	400	88.03	195	1.42	0.89	10.22
29	63.5	62.8	450	88.24	207	1.1	0.78	10.18
30	66.2	65.6	100	88.56	359	0.9	0.47	10.12
31	65.7	64.6	200	89.39	219	1.67	0.87	10.04
32	73	70.9	0	90.01	395	2.88	1.40	10.00
33	83.3	81.4	300	90.49	238	2.28	1.46	9.91
34	67.4	66	450	91.11	241	2.08	1.22	9.87
35	63.9	63	400	92.25	262	1.41	0.85	9.74
36	74.4	73	100	92.42	268	1.88	0.97	9.71
37	75.5	74.1	300	93.5	512	1.85	1.09	9.67
38	64.6	63.6	200	101.3	365	1.55	0.71	8.87
39	53.8	52.8	400	102.57	378	1.86	0.82	8.74
40	63.2	62.2	300	104.02	390	1.58	0.75	8.65
41	72.0	71	200	105.57	410	1.39	0.68	8.49
42	84.7	83.2	25	108.36	434	1.77	0.84	8.29
Mean	66.7	65.3	238.9	87.7	232.6	2.0	1.12	10.3
SD	8.0	7.9	213.6	9.4	125.7	0.8	0.47	1.1
CV	0.120	0.121	0.894	0.107	0.540	0.400	0.420	0.107

APPENDIX B – DATA FROM STUDY TWO

Table B1 Four relative running intensities (% $\dot{V}O_{2max}$ – mL.kg⁻¹.min⁻¹) which performed by the added weight (AW) group (n=8) during the running economy tests

Subjects	Treadmill Velocity (km.hr ⁻¹)			
	65% $\dot{V}O_{2max}$	70% $\dot{V}O_{2max}$	75% $\dot{V}O_{2max}$	80% $\dot{V}O_{2max}$
1	10	11	12	13
2	10	12	14	16
3	10	12	14	16
4	10	11	12	13
5	10	11	12	14
6	11	12	14	15
7	11	12	13	14
8	9	10	11	12
Mean	10.13	11.38	12.75	14.13
SD	0.64	0.74	1.16	1.46
CV	0.063	0.065	0.091	0.103

Table B2 Four relative running intensities (% $\dot{V}O_{2max}$ – mL.kg⁻¹.min⁻¹) which performed by the dehydration (D) group (n=8) during the running economy tests

Subjects	Treadmill Velocity (km.hr ⁻¹)			
	65% $\dot{V}O_{2max}$	70% $\dot{V}O_{2max}$	75% $\dot{V}O_{2max}$	80% $\dot{V}O_{2max}$
9	10	12	14	16
10	10	11	12	14
11	11	12	14	15
12	10	11	12	13
13	9	10	11	12
14	13	14	15	16
15	12	13	14	15
16	12	13	14	15
Mean	10.88	12.00	13.25	14.50
SD	1.38	1.35	1.46	1.51
CV	0.127	0.113	0.110	0.104

Table B3 Physical and physiological characteristics of added weight (AW) group

Subjects	Age (Yrs)	BW (kg)	Height (cm)	Predicted HR _{max} (beats.min ⁻¹)	Predicted VO _{2max} (mL.kg ⁻¹ .min ⁻¹)	10 km Performance Time (min)	21 km Performance Time (min)	Training Volume (km.wk ⁻¹)
1	45	59.2	165.7	175	55.8		100.00	50
2	41	66.1	163.6	179	65.7	36.40	82.00	85
3	54	71.9	177.1	176	69.6	33.25	72.09	100
4	42	77.0	177.5	178	54.6	46.16	107.00	48
5	45	77.2	184.1	175	52.8	42.30	96.40	55
6	42	72.6	179.6	178	60.9	37.50	81.50	110
7	43	73.9	173.0	182	57.0	39.11	89.00	40
8	42	71.0	174.0	178	52.4	47.00	101.00	50
Mean	44.3	71.1	174.3	178	58.6	40.3	91.1	67.3
SD	4.2	6.0	6.9	2	6.3	5.1	12.0	26.9
CV	0.095	0.084	0.040	0.011	0.108	0.127	0.132	0.400

Table B4 Physical and physiological characteristics of dehydration (D) group

Subjects	Age (Yrs)	BW (kg)	Height (cm)	Predicted HR _{max} (beats.min ⁻¹)	Predicted VO _{2max} (mL.kg ⁻¹ .min ⁻¹)	10 km Performance Time (min)	21 km Performance Time (min)	Training Volume (km.wk ⁻¹)
9	43	70.9	163.6	177	67.1	36.52	83.50	95
10	46	78.6	184.1	174	52.8	42.08	93.40	55
11	43	74.4	179.6	177	59.2	37.50	81.50	100
12	47	59.0	165.7	173	55.9	42.00	95.00	40
13	46	89.0	174.0	174	45.8	46.50	102.00	80
14	44	76.3	177.0	176	60.0	37.50	84.40	85
15	42	77.1	180.0	178	62.1	42.44	104.01	80
16	51	73.1	178.0	182	62.9	37.29	81.32	50
Mean	45.3	74.8	175.3	176	58.2	40.2	90.6	73.1
SD	2.9	8.4	7.2	3	6.6	3.6	9.2	21.5
CV	0.064	0.112	0.041	0.017	0.113	0.090	0.102	0.294

Table B5 USG measurements prior to each RE test in AW trials

Subjects	A0	AW3	AW4
	Pre-exercise	Pre-exercise	Pre-exercise
1	1.0115	1.0043	1.0105
2	1.0030	1.0029	1.0039
3	1.0030	1.0020	1.0024
4	1.0006	1.0087	1.0029
5	1.0038	1.0044	1.0018
6	1.0002	1.0049	1.0027
7	1.0051	1.0029	1.0120
8	1.0099	1.0067	1.0016
Mean	1.0046	1.0046	1.0047
SD	0.0041	0.0022	0.0041
CV	0.004	0.002	0.004

Table B6 USG measurements prior to each RE test in D trials

Subject	D0	D3		D4	
	Pre-exercise	Baseline	Pre-exercise	Baseline	Pre-exercise
9	1.0078	1.0035	1.0054	1.0077	1.0099
10	1.0043	1.0059	1.0102	1.0031	1.0058
11	1.0048	1.0128	1.0033	1.0128	1.0024
12	1.0111	1.0137	1.0121	1.0168	1.0068
13	1.0125	1.0077	1.0085	1.0038	1.0100
14	1.0045	1.0051	1.0044	1.0033	1.0028
15	1.0096	1.0080	1.0172	1.0042	1.0150
16	1.0109	1.0102	1.0200	1.0168	1.0218
Mean	1.0082	1.0084	1.0101	1.0086	1.0093
SD	0.0033	0.0036	0.0060	0.0060	0.0065
CV	0.003	0.004	0.006	0.006	0.006

Table B7 Body weight changes prior to each test in AW trials

Subject	D0		D3		D4		% Δ BW
	Pre-exercise	Baseline	Pre-exercise	Baseline	Pre-exercise	Baseline	
1	74.9	74.9	72.2	72.2	74.1	71.0	4.18
2	70.6	70.8	68.8	68.8	71.1	68.5	3.66
3	90.9	89.2	85.9	85.9	90.5	85.9	5.08
4	78.6	78.3	76.3	76.3	79.9	77.2	3.41
5	60.7	60.4	58.7	58.7	59.9	57.8	3.51
6	75.9	76.2	73.6	73.6	76.4	72.9	4.58
7	70.2	78.2	76.0	76.0	77.1	74.6	3.24
8	72.7	73.1	70.8	70.8	72.5	69.9	3.59
Mean	74.31	75.14	72.79	72.79	75.19	72.22	3.91
SD	8.58	8.09	7.69	7.69	8.62	7.99	0.65
CV	0.115	0.108	0.106	0.106	0.115	0.111	0.166

Table B8 Body weight changes prior to each test in D trials

Subject	A0		AW3		AW4		% Δ BW
	Pre-exercise	Baseline	Pre-exercise	Baseline	Pre-exercise	Baseline	
9	58.608	59.268	61.046	61.046	58.960	61.328	4.00
10	67.199	66.425	68.409	68.409	67.702	70.402	4.00
11	72.308	72.622	74.794	74.794	71.775	74.646	4.00
12	78.193	77.823	80.153	80.153	78.986	80.057	4.00
13	77.048	77.209	79.526	79.526	77.453	80.538	4.00
14	72.632	72.617	74.799	74.799	72.385	75.279	4.00
15	74.370	72.900	75.094	75.094	73.487	76.427	4.00
16	71.044	69.414	71.517	71.517	70.482	73.295	4.00
Mean	71.425	71.035	73.167	73.167	71.404	73.997	4.00
SD	6.218	6.036	6.217	6.217	6.198	6.111	
CV	0.087	0.085	0.085	0.085	0.087	0.083	

Table B9 $\dot{V}O_2$ (mL.kg⁻¹.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW0 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	34.36	35.45	42.38	44.89
2	33.98	40.24	48.80	55.78
3	31.15	37.84	41.72	51.43
4	33.08	38.06	40.00	44.20
5	31.65	33.78	35.79	44.56
6	34.26	38.35	43.51	45.81
7	36.30	38.12	40.23	43.28
8	33.27	34.38	37.49	39.26
Mean	33.51	37.03	41.24	46.15
SD	1.63	2.24	3.97	5.13
CV	0.049	0.060	0.096	0.111

Table B10 $\dot{V}O_2$ (mL.kg⁻¹.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW3 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	35.39	36.94	40.66	46.39
2	33.04	38.29	48.92	53.75
3	35.21	38.58	43.02	51.10
4	34.98	40.91	45.20	48.53
5	30.93	35.06	37.92	45.58
6	35.99	40.07	47.48	52.05
7	37.72	39.85	41.27	43.04
8	32.07	36.18	40.47	42.16
Mean	34.42	38.24	43.12	47.83
SD	2.23	2.04	3.79	4.25
CV	0.065	0.053	0.088	0.089

Table B11 $\dot{V}O_2$ (mL.kg⁻¹.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW4 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	34.88	39.05	42.37	47.32
2	33.21	40.18	47.67	57.12
3	34.97	38.87	45.13	50.39
4	34.98	38.17	42.56	45.01
5	34.42	36.51	41.57	47.10
6	36.72	40.63	44.98	47.19
7	36.13	38.08	41.14	45.61
8	30.74	35.07	37.10	40.13
Mean	34.51	38.32	42.81	47.48
SD	1.85	1.83	3.18	4.86
CV	0.054	0.048	0.074	0.102

Table B12 $\dot{V}O_2$ (mL.kg⁻¹.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during D0 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
9	34.88	37.32	42.81	46.53
10	30.95	38.04	45.79	51.69
11	29.19	31.80	34.42	37.09
12	29.99	34.66	38.20	47.21
13	33.71	38.39	39.89	44.97
14	39.11	41.89	43.71	49.00
15	40.70	44.20	48.37	51.20
16	36.95	39.20	43.01	46.97
Mean	34.43	38.19	42.02	46.83
SD	4.27	3.87	4.40	4.57
CV	0.124	0.101	0.105	0.098

Table B13 $\dot{V}O_2$ (mL.kg⁻¹.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during D3 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
9	36.87	38.98	45.34	46.31
10	32.84	37.11	45.14	54.38
11	30.85	34.42	35.96	38.94
12	34.18	36.89	38.31	44.75
13	36.84	38.17	42.94	46.14
14	40.24	42.75	47.10	51.00
15	40.71	45.35	49.42	53.20
16	40.17	45.24	47.66	50.98
Mean	36.59	39.86	43.98	48.21
SD	3.70	4.09	4.68	5.13
CV	0.101	0.103	0.106	0.106

Table B14 $\dot{V}O_2$ (mL.kg⁻¹.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during D4 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
9	37.62	40.64	47.92	50.85
10	33.02	38.88	45.85	52.67
11	31.06	34.37	37.48	39.48
12	33.80	36.73	38.45	44.65
13	35.71	40.60	43.91	46.51
14	41.25	45.10	49.51	51.68
15	38.60	45.48	48.84	51.74
16	40.85	45.03	49.00	51.60
Mean	36.49	40.85	45.12	48.65
SD	3.72	4.14	4.79	4.68
CV	0.102	0.101	0.106	0.096

Table B15 $\dot{V}O_2$ (mL.kg^{-0.75}.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW0 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	95.08	98.09	117.26	124.21
2	95.63	113.25	137.34	156.99
3	90.83	110.35	121.64	149.97
4	98.37	113.17	118.94	131.42
5	94.98	101.39	107.40	133.72
6	100.02	111.95	127.01	133.73
7	106.59	111.94	118.14	127.10
8	96.58	99.80	108.84	113.97
Mean	97.26	107.49	119.57	133.89
SD	4.63	6.52	9.61	13.81
CV	0.048	0.061	0.080	0.103

Table B16 $\dot{V}O_2$ (mL.kg^{-0.75}.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW3 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	96.04	100.24	110.34	125.90
2	92.27	106.92	136.61	150.10
3	100.54	110.15	122.83	145.92
4	101.62	118.85	131.31	140.98
5	89.68	101.65	109.94	132.14
6	102.74	114.41	135.57	148.61
7	107.80	113.90	117.94	123.00
8	90.51	102.13	114.23	118.99
Mean	97.65	108.53	122.35	135.71
SD	6.54	6.89	10.97	12.28
CV	0.067	0.063	0.090	0.090

Table B17 $\dot{V}O_2$ (mL.kg^{-0.75}.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW4 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	93.83	105.05	113.99	127.31
2	92.52	111.93	132.79	159.10
3	98.84	109.87	127.55	142.43
4	100.62	109.80	122.41	129.46
5	99.17	105.20	119.76	135.69
6	104.01	115.06	127.40	133.67
7	102.71	108.26	116.97	129.68
8	86.94	99.19	104.91	113.50
Mean	97.33	108.05	120.72	133.86
SD	5.77	4.87	8.86	13.14
CV	0.059	0.045	0.073	0.098

Table B18 $\dot{V}O_2$ (mL.kg^{-0.75}.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during D0 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
9	102.43	109.61	125.73	136.64
10	89.82	110.39	132.89	150.00
11	90.14	98.18	106.28	114.51
12	89.28	103.21	113.75	140.58
13	94.09	107.17	111.34	125.52
14	115.44	123.64	129.02	144.62
15	120.63	131.02	143.36	151.75
16	107.91	114.45	125.58	137.16
Mean	101.22	112.21	123.49	137.60
SD	12.37	10.71	12.32	12.49
CV	0.122	0.095	0.100	0.091

Table B19 $\dot{V}O_2$ (mL.kg^{-0.75}.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during D3 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
9	107.45	113.60	132.12	134.95
10	94.58	106.88	130.02	156.62
11	94.07	104.93	109.63	118.71
12	101.03	109.02	113.24	132.27
13	101.63	105.29	118.44	127.29
14	117.97	125.35	138.11	149.52
15	120.21	133.91	145.91	157.08
16	116.53	131.22	138.25	147.89
Mean	106.68	116.28	128.22	140.54
SD	10.49	12.04	13.07	14.24
CV	0.098	0.104	0.102	0.101

Table B20 $\dot{V}O_2$ (mL.kg^{0.75}.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during D4 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
9	109.22	117.96	139.10	147.61
10	95.14	112.01	132.11	151.75
11	94.57	104.63	114.09	120.19
12	100.19	108.86	113.97	132.34
13	97.20	110.49	119.51	126.59
14	120.53	131.77	144.67	151.02
15	113.59	133.84	143.73	152.25
16	118.12	130.20	141.69	149.21
Mean	106.07	118.72	131.11	141.37
SD	10.59	11.59	13.30	12.92
CV	0.100	0.098	0.101	0.091

Table B21 Caloric unit cost (kcal.kg⁻¹.km⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW0 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	1.02	0.97	1.06	1.04
2	0.95	0.95	0.99	1.00
3	0.92	0.94	0.89	0.96
4	0.98	1.03	1.00	1.02
5	0.95	0.92	0.90	0.98
6	0.90	0.93	0.91	0.90
7	0.98	0.94	0.92	0.92
8	1.08	1.02	1.01	0.97
Mean	0.97	0.96	0.96	0.97
SD	0.06	0.04	0.06	0.05
CV	0.062	0.042	0.063	0.052

Table B22 Caloric unit cost (kcal.kg⁻¹.km⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW3 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	1.02	0.98	0.98	1.04
2	0.92	0.90	1.00	0.97
3	1.01	0.93	0.89	0.93
4	1.01	1.08	1.10	1.09
5	0.88	0.91	0.92	0.96
6	0.94	0.97	0.98	1.02
7	0.98	0.95	0.90	0.88
8	1.00	1.03	1.05	1.00
Mean	0.97	0.97	0.98	0.99
SD	0.05	0.06	0.07	0.07
CV	0.052	0.062	0.071	0.071

Table B23 Caloric unit cost ($\text{kcal.kg}^{-1}.\text{km}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2\text{max}}$ during AW4 trial

Subject	% $\dot{V}O_{2\text{max}}$			
	65	70	75	80
1	1.01	1.03	1.02	1.05
2	0.93	0.96	0.98	1.04
3	0.99	0.92	0.93	0.91
4	1.00	1.00	1.03	1.01
5	0.98	0.96	1.00	0.98
6	0.95	0.97	0.92	0.90
7	0.92	0.89	0.90	0.93
8	0.97	1.00	0.96	0.96
Mean	0.97	0.97	0.97	0.97
SD	0.03	0.04	0.05	0.06
CV	0.031	0.041	0.052	0.062

Table B24 Caloric unit cost ($\text{kcal.kg}^{-1}.\text{km}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2\text{max}}$ during D0 trial

Subject	% $\dot{V}O_{2\text{max}}$			
	65	70	75	80
9	0.93	0.91	0.90	0.92
10	0.90	0.94	0.97	0.98
11	0.98	0.96	0.94	0.94
12	0.89	0.93	0.94	1.00
13	1.02	1.05	1.00	1.05
14	0.87	0.88	0.87	0.92
15	1.01	1.02	1.04	1.04
16	0.93	0.90	0.92	0.94
Mean	0.94	0.95	0.95	0.97
SD	0.05	0.06	0.06	0.05
CV	0.053	0.063	0.063	0.052

Table B25 Caloric unit cost ($\text{kcal.kg}^{-1}.\text{km}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2\text{max}}$ during D3 trial

Subject	% $\dot{V}O_{2\text{max}}$			
	65	70	75	80
9	0.99	0.96	0.96	0.91
10	0.97	0.92	0.96	1.03
11	1.01	1.03	0.97	0.97
12	1.00	1.00	0.95	0.96
13	1.09	1.03	1.06	1.06
14	0.90	0.89	0.92	0.95
15	1.00	1.05	1.06	1.08
16	1.00	1.04	1.02	1.02
Mean	0.99	0.99	0.99	1.00
SD	0.05	0.06	0.05	0.06
CV	0.051	0.061	0.051	0.060

Table B26 Caloric unit cost ($\text{kcal.kg}^{-1}.\text{km}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2\text{max}}$ during D4 trial

Subject	% $\dot{V}O_{2\text{max}}$			
	65	70	75	80
9	0.99	0.96	0.96	0.91
10	0.97	0.92	0.96	1.03
11	1.01	1.03	0.97	0.97
12	1.00	1.00	0.95	0.96
13	1.09	1.03	1.06	1.06
14	0.90	0.89	0.92	0.95
15	1.00	1.05	1.06	1.08
16	1.00	1.04	1.02	1.02
Mean	0.99	0.99	0.99	1.00
SD	0.05	0.06	0.05	0.06
CV	0.051	0.061	0.051	0.060

Table B27 Gross oxygen cost of running ($\text{mL.kg}^{-1}.\text{km}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}\text{O}_{2\text{max}}$ during AW0 trial

Subject	% $\dot{V}\text{O}_{2\text{max}}$			
	65	70	75	80
1	206.18	193.36	211.91	207.19
2	203.87	201.18	209.13	209.17
3	186.89	189.20	178.78	192.86
4	198.48	207.59	199.98	203.98
5	189.89	184.27	178.93	190.96
6	186.88	191.75	186.46	183.23
7	197.99	190.59	185.67	185.48
8	221.77	206.25	204.48	196.28
Mean	198.99	195.52	194.42	196.14
SD	11.78	8.47	13.52	9.79
CV	0.059	0.043	0.070	0.050

Table B28 Gross oxygen cost of running ($\text{mL.kg}^{-1}.\text{km}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}\text{O}_{2\text{max}}$ during AW3 trial

Subject	% $\dot{V}\text{O}_{2\text{max}}$			
	65	70	75	80
1	206.16	195.60	197.38	207.89
2	192.5	185.9	203.6	195.7
3	205.1	187.3	179.0	186.1
4	180.2	185.7	184.1	204.2
5	180.2	185.7	184.1	189.6
6	190.6	194.5	197.6	202.1
7	199.8	193.5	184.9	179.1
8	207.5	210.7	214.3	204.6
Mean	195.25	192.35	193.11	196.17
SD	11.15	8.54	12.09	10.32
CV	0.057	0.044	0.063	0.053

Table B29 Gross oxygen cost of running ($\text{mL.kg}^{-1}.\text{km}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}\text{O}_{2\text{max}}$ during AW4 trial

Subject	% $\dot{V}\text{O}_{2\text{max}}$			
	65	70	75	80
1	201.2	204.8	203.7	210.0
2	191.6	193.2	196.5	206.0
3	201.8	186.9	186.0	181.7
4	201.8	200.2	204.6	199.8
5	198.6	191.5	199.9	194.1
6	192.6	195.3	185.4	181.5
7	189.5	183.1	182.6	188.0
8	197.11	202.40	194.61	193.01
Mean	196.78	194.68	194.15	194.25
SD	4.93	7.56	8.59	10.52
CV	0.025	0.039	0.044	0.054

Table B30 Gross oxygen cost of running ($\text{mL.kg}^{-1}.\text{km}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}\text{O}_{2\text{max}}$ during D0 trial

Subject	% $\dot{V}\text{O}_{2\text{max}}$			
	65	70	75	80
9	190.25	186.61	183.48	186.11
10	185.70	190.19	196.24	193.83
11	194.62	190.78	187.75	185.43
12	179.91	189.07	191.01	202.34
13	202.25	209.42	199.44	207.55
14	180.51	179.53	174.85	183.74
15	203.48	204.00	207.28	204.78
16	184.77	180.90	184.32	187.88
Mean	190.19	191.31	190.55	193.96
SD	9.18	10.45	10.25	9.62
CV	0.048	0.055	0.054	0.050

Table B31 Gross oxygen cost of running ($\text{mL.kg}^{-1}.\text{km}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}\text{O}_{2\text{max}}$ during D3 trial

Subject	% $\dot{V}\text{O}_{2\text{max}}$			
	65	70	75	80
9	201.11	194.91	194.30	185.23
10	197.0	185.6	193.5	203.9
11	205.7	206.5	196.1	194.7
12	205.1	201.2	191.6	191.8
13	221.0	208.2	214.7	213.0
14	185.7	183.2	188.4	191.2
15	203.6	209.3	211.8	212.8
16	200.9	208.8	204.3	203.9
Mean	202.52	199.71	199.33	199.57
SD	9.85	10.62	9.74	10.36
CV	0.049	0.053	0.049	0.052

Table B32 Gross oxygen cost of running ($\text{mL.kg}^{-1}.\text{km}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}\text{O}_{2\text{max}}$ during D4 trial

Subject	% $\dot{V}\text{O}_{2\text{max}}$			
	65	70	75	80
9	205.2	203.2	205.4	203.4
10	198.1	194.4	196.5	197.5
11	207.1	206.2	204.4	197.4
12	202.8	200.3	192.3	191.4
13	214.3	221.4	219.6	214.7
14	190.4	193.3	198.0	193.8
15	193.0	209.9	209.3	206.9
16	204.25	207.82	210.01	206.41
Mean	201.90	204.57	204.44	201.44
SD	7.78	9.08	8.75	7.80
CV	0.039	0.044	0.043	0.039

Table B33 Heart rate (beats.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW0 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	108	123	136	146
2	109	119	136	148
3	111	122	133	144
4	125	136	150	159
5	120	130	138	156
6	115	124	136	144
7	125	134	140	147
8	119	129	136	143
Mean	117	127	138	148
SD	7	6	5	6
CV	0.060	0.047	0.036	0.041

Table B34 Heart rate (beats.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW3 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	106	120	134	148
2	113	125	138	152
3	121	129	140	151
4	125	140	150	159
5	120	128	139	158
6	112	120	136	146
7	112	122	137	146
8	125	135	142	152
Mean	117	127	140	152
SD	7	7	5	5
CV	0.060	0.055	0.036	0.033

Table B35 Heart rate (beats.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW4 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	111	123	135	149
2	112	125	138	152
3	119	130	139	152
4	126	139	153	163
5	120	130	142	156
6	112	120	136	145
7	124	131	141	152
8	129	135	140	148
Mean	119	129	141	152
SD	7	6	6	5
CV	0.059	0.047	0.043	0.033

Table B36 Heart rate (beats.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during D0 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
9	117	126	140	152
10	111	129	147	159
11	131	139	146	154
12	123	134	143	159
13	113	119	134	146
14	125	131	139	147
15	141	150	157	163
16	122	129	139	149
Mean	123	132	143	154
SD	10	9	7	6
CV	0.081	0.068	0.049	0.039

Table B37 Heart rate (beats.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2\max}$ during D3 trial

Subject	% $\dot{V}O_{2\max}$			
	65	70	75	80
9	124	135	150	161
10	111	126	141	161
11	133	141	146	153
12	124	133	143	159
13	119	132	146	160
14	121	127	142	149
15	141	152	157	168
16	123	139	148	158
Mean	125	136	147	159
SD	9	8	5	6
CV	0.072	0.059	0.034	0.038

Table B38 Heart rate (beats.min⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2\max}$ during D4 trial

Subject	% $\dot{V}O_{2\max}$			
	65	70	75	80
9	123	137	149	160
10	110	125	145	159
11	135	143	149	157
12	127	133	141	159
13	129	143	156	166
14	128	139	148	156
15	143	153	158	168
16	132	144	153	166
Mean	128	140	150	161
SD	10	8	6	5
CV	0.078	0.057	0.040	0.031

Table B39 Oxygen pulse (mL.beats⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW0 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	18.65	16.89	18.26	18.02
2	20.59	22.34	23.70	24.90
3	20.29	22.43	22.68	25.83
4	20.69	21.88	20.85	21.73
5	20.58	20.28	20.24	22.29
6	21.64	22.46	23.24	23.11
7	21.60	21.15	21.37	21.90
8	19.86	18.93	19.58	19.50
Mean	20.49	20.80	21.24	22.16
SD	0.96	2.00	1.89	2.57
CV	0.047	0.096	0.089	0.116

Table B40 Oxygen pulse (mL.beats⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW3 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	19.79	18.24	17.98	18.58
2	19.42	20.35	23.55	23.49
3	21.13	21.72	22.31	24.58
4	21.78	22.74	23.45	23.75
5	19.90	21.15	21.06	22.27
6	23.33	24.25	25.35	25.89
7	24.55	23.81	21.96	21.49
8	17.81	18.60	19.78	19.25
Mean	20.96	21.36	21.93	22.41
SD	2.20	2.23	2.32	2.54
CV	0.105	0.104	0.106	0.113

Table B41 Oxygen pulse (mL.beats⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during AW4 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
1	18.52	18.72	18.50	18.72
2	20.08	21.76	23.39	25.44
3	21.09	21.46	23.30	23.80
4	21.37	21.14	21.41	21.26
5	22.22	21.75	22.67	23.38
6	23.73	24.51	23.94	23.56
7	21.41	21.36	21.44	22.05
8	16.88	18.40	18.77	19.21
Mean	20.66	21.14	21.68	22.18
SD	2.15	1.91	2.08	2.34
CV	0.104	0.090	0.096	0.106

Table B42 Oxygen pulse (mL.beats⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during D0 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
9	22.17	22.03	22.75	22.77
10	19.78	20.92	22.10	23.06
11	20.26	20.79	21.43	21.89
12	19.16	20.33	21.00	23.34
13	18.11	19.58	18.07	18.70
14	23.75	24.27	23.87	25.30
15	22.28	22.75	23.78	24.25
16	22.02	22.09	22.49	22.92
Mean	20.94	21.60	21.94	22.78
SD	1.90	1.50	1.86	1.94
CV	0.091	0.069	0.085	0.085

Table B43 Oxygen pulse (mL.beats⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during D3 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
9	21.45	20.83	21.80	20.75
10	20.36	20.26	22.03	23.24
11	20.04	21.09	21.28	21.99
12	21.03	21.16	20.44	21.48
13	18.50	17.28	17.58	17.24
14	24.57	24.88	24.51	25.29
15	21.95	22.68	23.92	24.07
16	23.12	23.04	22.80	22.85
Mean	21.38	21.40	21.80	22.11
SD	1.88	2.24	2.17	2.44
CV	0.088	0.105	0.100	0.110

Table B44 Oxygen pulse (mL.beats⁻¹) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2max}$ during D4 trial

Subject	% $\dot{V}O_{2max}$			
	65	70	75	80
9	21.72	21.06	22.83	22.57
10	20.69	21.43	21.79	22.83
11	19.76	20.65	21.61	21.60
12	20.54	21.31	21.05	21.67
13	16.22	16.64	16.49	16.42
14	23.49	23.65	24.39	24.15
15	20.24	22.29	23.18	23.10
16	21.63	21.86	22.39	21.73
Mean	20.54	21.11	21.72	21.76
SD	2.09	2.03	2.35	2.33
CV	0.102	0.096	0.108	0.107

Table B45 Pulmonary ventilation ($\text{L}\cdot\text{min}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}\text{O}_{2\text{max}}$ during AW0 trial

Subject	% $\dot{V}\text{O}_{2\text{max}}$			
	65	70	75	80
1	48.40	50.46	55.85	59.33
2	40.53	52.00	60.96	77.63
3	48.41	57.18	62.18	76.98
4	52.48	72.44	71.28	87.25
5	54.83	57.44	61.06	82.02
6	41.80	45.49	59.41	64.93
7	55.26	56.42	59.54	63.48
8	57.86	61.95	67.16	70.78
Mean	49.95	56.67	62.18	72.80
SD	6.34	8.13	4.85	9.77
CV	0.127	0.143	0.078	0.134

Table B46 Pulmonary ventilation ($\text{L}\cdot\text{min}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}\text{O}_{2\text{max}}$ during AW3 trial

Subject	% $\dot{V}\text{O}_{2\text{max}}$			
	65	70	75	80
1	51.09	52.52	57.30	71.99
2	39.48	48.58	66.87	84.59
3	49.22	55.43	64.48	78.39
4	48.93	72.07	80.41	88.52
5	52.03	58.24	68.69	84.07
6	48.10	55.71	60.76	68.58
7	54.71	58.05	60.70	63.58
8	55.81	65.20	72.70	76.40
Mean	49.92	58.23	66.49	77.02
SD	5.03	7.37	7.48	8.61
CV	0.101	0.127	0.112	0.112

Table B47 Pulmonary ventilation ($\text{L}\cdot\text{min}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}\text{O}_{2\text{max}}$ during AW4 trial

Subject	% $\dot{V}\text{O}_{2\text{max}}$			
	65	70	75	80
1	51.43	57.25	60.32	73.95
2	44.23	60.83	69.63	91.06
3	51.38	55.53	67.30	75.76
4	56.68	65.22	78.06	85.93
5	51.73	59.86	65.33	78.42
6	52.28	58.83	67.32	66.00
7	48.90	50.70	56.67	66.85
8	56.93	65.17	66.91	75.73
Mean	51.70	59.17	66.44	76.71
SD	4.08	4.85	6.34	8.58
CV	0.079	0.082	0.095	0.112

Table B48 Pulmonary ventilation ($\text{L}\cdot\text{min}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}\text{O}_{2\text{max}}$ during D0 trial

Subject	% $\dot{V}\text{O}_{2\text{max}}$			
	65	70	75	80
9	55.98	53.01	62.68	76.40
10	42.66	54.09	70.01	87.81
11	66.13	72.54	76.30	84.67
12	51.69	56.50	63.08	78.27
13	50.54	55.58	57.28	68.29
14	54.20	65.03	70.60	78.84
15	58.78	64.78	74.05	84.93
16	66.34	65.39	71.39	77.13
Mean	55.79	60.87	68.17	79.54
SD	7.98	7.01	6.49	6.19
CV	0.143	0.115	0.095	0.078

Table B49 Pulmonary ventilation ($\text{L}\cdot\text{min}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}\text{O}_{2\text{max}}$ during D3 trial

Subject	% $\dot{V}\text{O}_{2\text{max}}$			
	65	70	75	80
9	56.94	58.95	69.12	68.32
10	43.91	50.84	62.71	85.90
11	56.36	67.35	69.62	78.41
12	49.54	56.08	59.07	72.61
13	55.41	53.10	60.76	68.24
14	55.64	60.19	68.95	84.80
15	56.04	69.55	81.96	92.71
16	65.32	73.60	77.50	89.28
Mean	54.89	61.21	68.71	80.03
SD	6.17	8.16	7.98	9.54
CV	0.112	0.133	0.116	0.119

Table B50 Pulmonary ventilation ($\text{L}\cdot\text{min}^{-1}$) at running velocities that elicit 65, 70, 75 and 80% $\dot{V}\text{O}_{2\text{max}}$ during D4 trial

Subject	% $\dot{V}\text{O}_{2\text{max}}$			
	65	70	75	80
9	54.11	56.35	77.41	84.98
10	40.28	51.70	63.75	83.81
11	59.56	68.81	72.85	80.49
12	48.82	57.24	56.79	66.86
13	52.46	54.64	67.22	71.48
14	54.30	61.35	64.58	75.41
15	53.20	70.84	81.95	93.50
16	61.03	69.68	80.57	88.14
Mean	52.97	61.33	70.64	80.58
SD	6.44	7.51	8.98	8.88
CV	0.122	0.122	0.127	0.110

Table B51 RPE at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2\max}$ during AW0 trial

Subject	% $\dot{V}O_{2\max}$			
	65	70	75	80
1	11	12	14	16
2	9	11	14	16
3	10	10	12	13
4	13	13	14	15
5	11	11	14	15
6	8	12	11	12
7	6	8	13	13
8	9	11	13	13
Mean	10	11	13	14
SD	2	2	1	2
CV	0.200	0.182	0.077	0.143

Table B52 RPE at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2\max}$ during AW3 trial

Subject	% $\dot{V}O_{2\max}$			
	65	70	75	80
1	10	12	14	16
2	9	12	13	16
3	10	12	13	15
4	12	13	12	13
5	12	13	15	17
6	11	12	13	14
7	13	13	14	15
8	10	12	13	14
Mean	11	12	13	15
SD	1	1	1	1
CV	0.091	0.083	0.077	0.067

Table B53 RPE at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2\max}$ during AW4 trial

Subject	% $\dot{V}O_{2\max}$			
	65	70	75	80
1	11	12	13	15
2	9	12	14	17
3	9	11	13	14
4	11	14	13	15
5	12	13	14	16
6	10	13	14	16
7	12	13	14	13
8	10	12	13	15
Mean	10	12	13	15
SD	1	1	1	1
CV	0.100	0.083	0.077	0.067

Table B54 RPE at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2\max}$ during D0 trial

Subject	% $\dot{V}O_{2\max}$			
	65	70	75	80
9	15	16	17	18
10	9	11	13	16
11	10	11	11	13
12	9	11	13	14
13	11	13	14	17
14	8	9	11	12
15	13	16	17	17
16	9	12	14	15
Mean	11	12	14	15
SD	2	3	2	2
CV	0.182	0.250	0.143	0.133

Table B55 RPE at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2\max}$ during D3 trial

Subject	% $\dot{V}O_{2\max}$			
	65	70	75	80
9	15	15	17	20
10	13	13	15	17
11	7	7	8	9
12	13	14	14	15
13	11	13	16	17
14	11	13	15	16
15	14	15	17	17
16	12	13	14	15
Mean	12	13	15	16
SD	2	3	3	3
CV	0.167	0.231	0.200	0.188

Table B56 RPE at running velocities that elicit 65, 70, 75 and 80% $\dot{V}O_{2\max}$ during D4 trial

Subject	% $\dot{V}O_{2\max}$			
	65	70	75	80
9	13	14	14	15
10	13	13	15	17
11	9	10	11	11
12	10	10	13	16
13	13	14	15	17
14	13	15	17	18
15	14	14	15	17
16	13	14	14	15
Mean	12	13	14	16
SD	2	2	2	2
CV	0.167	0.154	0.143	0.125

APPENDIX C – DATA FROM STUDY THREE

Table C1 Physical and physiological characteristics of the subjects

Subject	Age (yrs)	Weight (kg)	Height (cm)	%BF	BSA (m ²)	$\dot{V}O_{2\max}$ (mL.kg ⁻¹ .min ⁻¹)	Training (km.week ⁻¹)
1	29	82.660	188.3	10.7	2.09	66.4	40
2	32	72.951	174.4	9.7	1.88	64.5	80
3	43	60.645	159.2	11.9	1.62	59.1	55
4	31	72.906	181.3	13.6	1.93	66.4	120
5	40	70.920	181.5	13.0	1.91	62.6	80
6	33	79.849	178.0	15.2	1.98	56.4	50
7	24	72.225	173.3	9.0	1.86	74.5	70
8	30	73.259	187.5	9.3	1.98	74.1	79
Mean	32.8	73.177	177.9	11.6	1.91	65.5	71.75
SD	6.1	6.521	9.3	2.2	0.14	6.4	24.73
CV	0.186	0.089	0.052	0.190	0.073	0.098	0.345

Table C2 Body mass (kg) measurements during E20 and D10 trials

Subject	Trials				
	E20		Baseline	D10	
	0-min	Final		0-min	Final
1	84.273	82.724	84.100	81.505	80.125
2	72.253	71.248	75.137	73.157	72.392
3	60.907	59.850	61.706	60.053	58.977
4	73.487	71.982	71.003	68.883	68.048
5	72.055	71.007	72.792	70.408	69.756
6	80.054	78.898	80.161	78.095	77.499
7	72.764	71.651	73.584	70.909	70.192
8	75.442	73.646	76.036	73.62	72.742
Mean	73.90	72.63	74.31	72.08	71.22
SD	6.81	6.67	6.62	6.41	6.39
CV	0.092	0.092	0.089	0.089	0.090

Table C3 Body mass (kg) measurements during E35 and D35 trials

Subject	Trials				
	E35		Baseline	D35	
	0-min	Final		0-min	Final
1	84.199	82.120	84.629	81.877	79.721
2	73.396	72.075	74.444	71.758	70.663
3	59.939	58.575	60.344	58.651	57.736
4	72.745	70.568	72.830	70.710	69.561
5	71.425	70.368	72.206	70.024	69.325
6	80.749	79.312	81.015	78.344	77.948
7	72.887	71.254	74.606	70.705	70.088
8	75.775	73.684	72.752	72.324	71.538
Mean	73.89	72.24	74.10	71.80	70.82
SD	7.17	7.01	7.12	6.79	6.61
CV	0.097	0.097	0.096	0.095	0.093

Table C4 Percentage change of body mass during E20 trial

Subject	Baseline - 30-min	Baseline - 60-min	Baseline - Final
1	0.55	1.28	1.84
2	-	-	1.39
3	0.70	1.03	1.74
4	0.72	1.32	2.05
5	0.36	1.09	1.45
6	0.37	1.07	1.44
7	0.50	1.03	1.53
8	0.76	1.62	2.38
Mean	0.57	1.21	1.73
SD	0.17	0.22	0.35
CV	0.298	0.182	0.202

Table C5 Percentage change of body mass during D10 trial

Subject	Baseline – 0 min	Baseline - 30-min	Baseline - 60-min	Baseline - Final	0 - Final
1	3.30	4.35	4.88	5.93	0.92
2	3.64	4.74	4.06	5.16	0.36
3	2.86	3.87	3.40	4.42	1.19
4	2.94	3.68	3.82	4.56	1.01
5	3.07	4.06	-	4.06	0.76
6	3.34	3.84	-	3.84	1.69
7	2.84	3.71	-	3.71	1.79
8	3.10	4.19	-	4.19	1.04
Mean	3.14	4.06	4.04	4.48	1.10
SD	0.28	0.36	0.62	0.74	0.47
CV	0.089	0.089	0.153	0.165	0.427

Table C6 Percentage change of body mass during E35 trial

Subject	Baseline - 30-min	Baseline - 60-min	Baseline - Final
1	0.92	1.55	2.47
2	0.58	1.22	1.80
3	0.90	1.38	2.28
4	1.14	1.85	2.99
5	0.56	0.92	1.48
6	0.76	1.02	1.78
7	1.12	1.12	2.24
8	0.96	1.80	2.76
Mean	0.87	1.36	2.23
SD	0.22	0.35	0.52
CV	0.253	0.257	0.233

Table C7 Percentage change of body mass during D35 trial

Subject	Baseline – 0 min	Baseline - 30-min	Baseline - 60-min	Baseline - Final	0 - Final
1	3.13	3.58	4.37	4.05	2.63
2	2.65	2.74	3.61	3.01	1.52
3	2.72	3.02	4.22	3.91	1.56
4	3.01	3.37	3.86	4.02	1.62
5	3.32	3.51	4.06	4.08	0.99
6	2.61	2.73	3.25	4.30	0.50
7	3.10	3.63	3.58	4.89	0.87
8	3.78	4.07	4.68	4.82	1.09
Mean	3.04	3.33	3.95	4.14	1.35
SD	0.39	0.47	0.47	0.59	0.65
CV	0.128	0.141	0.119	0.143	0.481

Table C8 Urine specific gravity measurements during E20 and D10 trials

Subject	Trials				
	E35		Baseline	D35	
	0-min	Final		0-min	Final
1	1.0127	1.0054	1.0062	1.0053	1.0057
2	1.0066	1.0096	1.0059	1.0068	1.0083
3	1.0127	1.0129	1.0132	1.0068	1.0066
4	1.0068	1.0045	1.0027	1.0061	1.0078
5	1.0021	1.0050	1.0071	1.0055	1.0061
6	1.0097	1.0097	1.0032	1.0050	1.0079
7	1.0131	1.0230	1.0076	1.0052	1.0103
8	1.0048	1.0027	1.0012	1.0050	1.0074
Mean	1.0086	1.0091	1.0059	1.0057	1.0075
SD	0.0041	0.0066	0.0037	0.0008	0.0015
CV	0.004	0.007	0.004	0.001	0.001

Table C9 Urine specific gravity measurements during E35 and D35 trials

Subject	Trials				
	E35		Baseline	D35	
	0-min	Final		0-min	Final
1	1.0030	1.0041	1.0042	1.0056	1.0051
2	1.0033	1.0074	1.0034	1.0053	1.0075
3	1.0040	1.0061	1.0000	1.0050	1.0060
4	1.0060	1.0114	1.0053	1.0059	1.0070
5	1.0022	1.0052	1.0035	1.0056	1.0054
6	1.0036	1.0069	1.0126	1.0051	1.0057
7	1.0196	1.0193	1.0176	1.0084	1.0144
8	1.0019	1.0060	1.0046	1.0055	1.0056
Mean	1.0055	1.0083	1.0064	1.0058	1.0071
SD	0.0059	0.0049	0.0058	0.0011	0.0031
CV	0.006	0.005	0.006	0.001	0.003

Table C10 Sweat rate (L.min⁻¹) measurements during E20 trial

Time (min)			
Subject	0- 30	0- 60	0-Final
1	0.46	0.96	1.56
2	0.00	0.07	1.11
3	0.38	0.57	1.14
4	0.44	0.86	1.41
5	0.30	0.87	1.29
6	0.29	0.85	1.31
7	0.38	0.70	1.21
8	0.46	1.16	1.72
Mean	0.34	0.76	1.34
SD	0.15	0.33	0.21
CV	0.441	0.434	0.157

Table C11 Sweat rate (L.min⁻¹) measurements during D10 trial

Time (min)			
Subject	0- 30	0- 60	0-Final
1	0.27	0.89	1.31
2	0.17	0.80	1.14
3	0.11	0.83	0.81
4	0.20	0.57	0.50
5	0.21	0.61	1.05
6	0.17	0.56	0.97
7	0.32	0.35	0.73
8	0.27	0.63	1.33
Mean	0.22	0.66	0.98
SD	0.07	0.18	0.29
CV	0.318	0.273	0.296

Table C12 Sweat rate (L.min⁻¹) measurements during E35 trial

Time (min) Subject	0- 30	0- 60	0-Final
1	0.76	1.23	2.36
2	0.59	1.06	1.73
3	0.55	0.92	1.79
4	0.81	1.32	2.18
5	0.56	0.76	1.93
6	0.63	0.83	2.06
7	0.89	0.86	2.09
8	0.71	1.34	2.50
Mean	0.69	1.04	2.08
SD	0.13	0.23	0.27
CV	0.188	0.221	0.130

Table C13 Sweat rate (L.min⁻¹) measurements during D35 trial

Time (min) Subject	0- 30	0- 60	0-Final
1	0.81	1.21	2.47
2	0.80	0.52	1.86
3	0.68	0.41	1.75
4	0.53	0.67	2.16
5	0.84	0.03	2.26
6	0.55	0.00	1.49
7	0.70	0.11	1.72
8	0.89	0.00	2.92
Mean	0.73	0.37	2.08
SD	0.13	0.43	0.47
CV	0.178	1.162	0.226

Table C14 Fluid intake (L) during E20 trial

Time (min) Subject	0- 30	0- 60	0-Final
1	0.0920	0.0000	0.092
2	0.0910	0.1620	0.253
3	0.0540	0.0460	0.100
4	0.0060	0.0090	0.015
5	0.1390	0.1930	0.332
6	0.0790	0.0960	0.175
7	0.1260	0.0700	0.196
8	0.0000	0.0580	0.058
Mean	0.0734	0.0793	0.153
SD	0.0508	0.0686	0.106
CV	0.692	0.865	0.693

Table C15 Fluid intake (L) during D10 trial

Time (min) Subject	0- 30	0- 60	0-Final
1	0.000	0.000	0.000
2	0.207	0.194	0.401
3	0.035	0.034	0.069
4	0.047	0.081	0.128
5	0.189	0.218	0.407
6	0.175	0.164	0.339
7	0.080	0.160	0.240
8	0.177	0.094	0.271
Mean	0.114	0.118	0.232
SD	0.082	0.078	0.153
CV	0.719	0.661	0.659

Table C16 Fluid intake (L) during E35 trial

Time (min) Subject	0- 30	0- 60	0-Final
1	0.100	0.059	0.159
2	0.263	0.275	0.538
3	0.100	0.195	0.295
4	0.074	0.070	0.144
5	0.254	0.213	0.467
6	0.110	0.111	0.221
7	0.192	0.180	0.372
8	0.085	0.093	0.178
Mean	0.147	0.150	0.297
SD	0.077	0.077	0.149
CV	0.114	0.118	0.232

Table C17 Fluid intake (L) during D35 trial

Time (min) Subject	0- 30	0- 60	0-Final
1	0.071	0.046	0.117
2	0.112	0.213	0.325
3	0.154	0.089	0.243
4	0.100	0.045	0.145
5	0.256	0.030	0.286
6	0.227	0.000	0.227
7	0.238	0.111	0.349
8	0.259	0.000	0.259
Mean	0.177	0.067	0.244
SD	0.077	0.071	0.081
CV	0.435	1.060	0.332

Table C18 Plasma viscosity (mPa.s) during E20 trial

Time (min) Subject	0	10	30	60	Final
1	1.23	1.31	1.26	1.40	1.63
2	1.26	1.37	1.40	1.43	1.66
3	1.31	1.31	1.40	1.49	1.49
4	1.26	1.26	1.26	1.29	1.32
5	1.26	1.45	1.54	1.54	1.68
6	1.40	1.54	1.54	1.54	1.54
7	1.29	1.31	1.43	1.57	1.68
8	1.29	1.34	1.40	1.48	1.67
Mean	1.29	1.36	1.40	1.47	1.58
SD	0.05	0.09	0.11	0.09	0.13
CV	0.039	0.066	0.079	0.061	0.082

Table C19 Plasma viscosity (mPa.s) during D10 trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	1.30	1.46	1.52	1.57	1.57	1.80
2	1.40	1.42	1.49	1.49	1.75	1.86
3	1.29	1.54	1.66	1.66	1.54	1.66
4	1.52	1.80	1.77	1.80	1.93	2.06
5	1.40	1.54	1.54	1.63	1.75	1.99
6	1.43	1.66	1.67	1.68	1.68	1.68
7	1.26	1.57	1.64	1.80	1.93	1.93
8	1.16	1.41	1.59	1.54	1.89	2.13
Mean	1.34	1.55	1.61	1.65	1.75	1.89
SD	0.11	0.13	0.09	0.11	0.15	0.17
CV	0.082	0.084	0.056	0.067	0.086	0.090

Table C20 Plasma viscosity (mPa.s) during E35 trial

Time (min) Subject	0	10	30	60	Final
1	1.34	1.37	1.43	1.54	1.72
2	1.40	1.43	1.43	1.52	1.57
3	1.31	1.31	1.43	1.54	1.59
4	1.26	1.43	1.54	1.54	1.61
5	1.22	1.22	1.40	-	1.54
6	1.36	1.52	1.52	1.61	1.61
7	1.29	1.66	1.62	1.66	1.75
8	1.12	1.40	1.49	1.61	1.67
Mean	1.29	1.42	1.48	1.57	1.63
SD	0.09	0.13	0.08	0.05	0.07
CV	0.070	0.092	0.054	0.032	0.043

Table C21 Plasma viscosity (mPa.s) during D35 trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	1.31	1.49	1.61	1.67	1.80	1.93
2	1.29	1.29	1.48	1.61	-	1.80
3	1.29	1.54	1.66	1.93	-	1.99
4	1.52	1.68	1.80	1.72	-	2.06
5	1.31	1.68	2.04	1.95	-	1.95
6	1.43	1.54	1.66	1.99	-	1.99
7	1.29	1.52	1.80	2.06	-	2.06
8	1.26	1.40	1.67	1.67	-	1.67
Mean	1.33	1.52	1.71	1.83	1.80	1.93
SD	0.09	0.13	0.17	0.18		0.13
CV	0.068	0.086	0.099	0.098	0.000	0.067

Table C22 Serum osmolality (osmol/kg) during E20 trial

Time (min) Subject	0	10	30	60	Final
1	0.284	0.292	0.291	0.295	0.301
2	0.291	0.297	0.299	0.300	0.304
3	0.298	0.301	0.302	0.302	0.307
4	0.265	0.267	0.285	0.279	0.283
5	0.283	0.288	0.299	0.302	0.306
6	0.288	0.293	0.281	0.292	0.291
7	0.294	0.297	0.296	0.299	0.299
8	0.288	0.292	0.299	0.299	0.306
Mean	0.286	0.291	0.294	0.296	0.299
SD	0.009	0.010	0.007	0.007	0.008
CV	0.031	0.034	0.024	0.024	0.027

Table C23 Serum osmolality (osmol/kg) during D10 trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	0.284	0.284	0.300	0.292	0.292	0.290
2	0.288	0.291	0.297	0.296	0.297	0.301
3	0.290	0.298	0.299	0.297	0.300	0.299
4	0.286	0.291	0.280	0.291	0.302	0.317
5	0.297	0.295	0.294	0.310	0.311	0.299
6	0.291	0.301	0.303	0.303	0.303	0.303
7	0.290	0.293	0.290	0.295	0.290	0.294
8	0.276	0.296	0.303	0.300	0.312	0.330
Mean	0.288	0.293	0.295	0.298	0.301	0.304
SD	0.006	0.005	0.008	0.006	0.008	0.013
CV	0.021	0.017	0.027	0.020	0.027	0.043

Table C24 Serum osmolality (osmol/kg) during E35 trial

Time (min) Subject	0	10	30	60	Final
1	0.288	0.289	0.289	0.299	0.301
2	0.289	0.291	0.292	0.297	0.303
3	0.289	0.292	0.293	0.295	0.308
4	0.275	0.285	0.292	0.292	0.303
5	0.301	0.299	0.305	-	0.305
6	0.284	0.298	0.298	0.300	0.293
7	0.285	0.291	0.295	0.295	0.296
8	0.285	0.291	0.295	0.295	0.296
Mean	0.287	0.292	0.295	0.296	0.300
SD	0.007	0.005	0.005	0.003	0.005
CV	0.024	0.017	0.017	0.010	0.017

Table C25 Serum osmolality (mosmol/kg) during D35 trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	0.283	0.287	0.290	0.287	0.292	0.292
2	0.286	0.289	0.297	0.297	-	0.297
3	0.299	0.293	0.300	0.304	-	0.303
4	0.278	0.287	0.287	0.312	-	0.319
5	0.295	0.309	0.303	-	-	0.319
6	0.293	0.299	0.299	-	-	0.307
7	0.288	0.288	0.305	-	-	0.293
8	0.275	0.319	0.326	-	-	0.328
Mean	0.287	0.296	0.301	0.300	0.292	0.307
SD	0.008	0.012	0.012	0.011	-	0.013
CV	0.028	0.041	0.040	0.037		0.042

Table C26 Blood glucose (mmol/L) during E20 trial

Time (min) Subject	0	10	30	60	Final
1	6.20	6.15	6.10	5.70	9.20
2	5.60	3.95	4.85	3.85	7.90
3	6.40	2.95	3.85	4.30	5.60
4	5.50	5.35	5.50	5.10	6.85
5	5.50	3.60	4.70	4.90	7.60
6	5.20	4.05	4.90	4.80	7.00
7	5.00	4.75	5.45	4.80	5.50
8	4.35	4.35	4.45	4.60	5.50
Mean	5.47	4.39	4.98	4.76	6.89
SD	0.65	1.01	0.70	0.55	1.33
CV	0.119	0.230	0.141	0.116	0.193

Table C27 Blood glucose (mmol/L) during D10 trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	6.90	6.40	6.10	6.35	6.40	9.50
2	6.60	4.45	4.80	5.30	5.20	8.25
3	4.60	5.25	5.80	5.80	4.30	6.55
4	4.60	5.30	5.50	5.55	5.10	8.10
5	4.20	4.40	5.30	5.85	5.50	7.90
6	6.40	6.00	5.10	5.20	5.10	7.10
7	7.15	6.80	4.10	6.50	6.85	4.40
8	4.65	4.40	4.25	5.40	5.15	5.00
Mean	5.64	5.38	5.12	5.74	5.45	7.10
SD	1.23	0.94	0.71	0.48	0.81	1.72
CV	0.218	0.175	0.139	0.084	0.149	0.242

Table C28 Blood glucose (mmol/L) during E35 trial

Time (min) Subject	0	10	30	60	Final
1	5.95	6.20	6.40	7.30	8.80
2	6.40	4.20	5.45	5.90	8.85
3	4.75	4.00	4.90	6.10	6.45
4	5.50	5.00	5.25	4.80	6.70
5	4.90	3.95	5.20		6.10
6	6.10	4.30	5.10	6.00	5.40
7	4.50	3.80	4.40	5.25	5.90
8	5.00	4.90	4.85	4.50	5.65
Mean	5.39	4.54	5.19	5.69	6.73
SD	0.70	0.80	0.58	0.94	1.36
CV	0.130	0.176	0.112	0.165	0.202

Table C29 Blood glucose (mmol/L) during D35trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	6.15	6.35	6.75	8.35	9.50	10.80
2	5.60	5.50	5.85	7.40	-	9.80
3	5.85	4.80	5.90	6.45	-	6.65
4	5.20	5.20	5.45	6.20	-	7.10
5	3.90	5.20	7.30	7.85	-	7.85
6	5.10	5.30	7.40	8.70	-	8.70
7	6.70	4.75	4.90	6.10	-	6.10
8	5.85	4.75	5.60	6.95	-	6.95
Mean	5.54	5.23	6.14	7.25	9.50	7.99
SD	0.84	0.53	0.91	0.99	-	1.64
CV	0.152	0.101	0.148	0.137	-	0.205

Table C30 Blood lactate (mmol/L) during E20 trial

Time (min) Subject	0	10	30	60	Final
1	1.65	3.00	2.25	1.60	7.90
2	1.85	1.35	1.65	1.55	6.40
3	1.3	1.45	1.75	1.15	2.8
4	1.10	1.25	1.10	1.00	5.75
5	1.10	1.25	1.15	0.95	7.75
6	0.93	2.12	1.56	1.72	6.33
7	1.50	2.40	2.20	1.80	2.80
8	1.40	1.30	1.20	1.20	5.55
Mean	1.35	1.77	1.61	1.37	5.66
SD	0.31	0.66	0.45	0.33	1.96
CV	0.230	0.373	0.280	0.241	0.346

Table C31 Blood lactate (mmol/L) during D10 trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	1.45	1.20	1.95	1.70	1.75	9.55
2	1.25	2.05	2.70	2.60	2.05	6.35
3	1.60	1.50	2.95	1.50	1.60	4.30
4	1.40	1.45	1.70	1.55	1.20	9.30
5	1.45	1.20	5.10	4.10	2.80	4.95
6	1.29	0.83	1.51	1.22	1.15	3.55
7	1.65	1.50	2.20	2.40	1.95	2.80
8	1.40	2.20	2.35	3.25	1.40	5.95
Mean	1.44	1.49	2.56	2.29	1.74	5.84
SD	0.14	0.45	1.13	1.00	0.54	2.50
CV	0.097	0.302	0.441	0.437	0.310	0.097

Table C32 Blood lactate (mmol/L) during E35 trial

Time (min) Subject	0	10	30	60	Final
1	1.85	2.95	2.85	3.40	5.05
2	1.85	1.90	1.45	1.70	6.75
3	1.65	2.00	2.55	3.25	3.30
4	0.90	1.15	1.00	0.90	5.90
5	1.60	1.50	1.55	-	2.00
6	0.79	1.80	1.95	3.05	1.82
7	1.90	2.80	3.20	3.55	2.45
8	1.40	1.55	1.45	1.65	4.30
Mean	1.49	1.96	2.00	2.50	3.95
SD	0.43	0.63	0.78	1.06	1.85
CV	0.289	0.321	0.390	0.424	0.468

Table C33 Blood lactate (mmol/L) during D35 trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	1.75	1.45	3.30	4.20	5.60	6.70
2	1.90	1.80	2.55	3.60	-	8.95
3	1.55	1.40	2.05	2.45	-	2.60
4	1.30	1.85	2.00	3.45	-	3.75
5	1.55	2.75	2.10	3.20	-	3.20
6	1.17	2.12	3.50	4.50	-	4.50
7	1.65	1.95	5.30	4.70	-	4.70
8	1.60	2.60	2.80	4.25	-	4.25
Mean	1.56	1.99	2.95	3.79	5.60	4.83
SD	0.23	0.49	1.11	0.76	-	2.06
CV	0.147	0.246	0.376	0.201		0.427

Table C34 Time to exhaustion (min) during four experimental trials (E20, D10, E35 and D35)

Subjects	Trials			
	E20	E35	D35	D10
1	77.5	64.5	63.0	75.5
2	79.0	75.5	54.0	76.5
3	74.0	63	45.5	73.5
4	78.5	73.5	42.0	77.0
5	77.0	58.0	31.5	77.5
6	72.0	57.0	31.0	68.5
7	69.0	60.0	32.5	66.0
8	75.0	66.0	25.0	75.0
Mean	75.3	64.7	40.6	73.7
SD	3.5	6.8	13.0	4.2
CV	0.046	0.105	0.320	0.057

Table C35 Cardiac output responses ($L \cdot \text{min}^{-1}$) during E20 trial

Time (min) Subject	10	30	60	Final
1	25.51	25.05	27.75	28.31
2	23.35	24.09	22.07	26.25
3	17.09	14.92	14.88	21.19
4	28.98	27.34	29.59	27.84
5	22.14	22.52	23.05	27.66
6	17.40	19.32	17.63	16.88
7	24.11	26.07	25.38	26.95
8	27.24	26.31	28.40	30.05
Mean	23.23	23.20	23.59	25.64
SD	4.28	4.20	5.26	4.38
CV	0.184	0.181	0.223	0.171

Table C36 Cardiac output responses (L.min⁻¹) during D10 trial

Time (min) Subject	10	30	60	Final
1	26.08	21.12	22.69	23.33
2	24.14	22.83	22.78	28.21
3	14.97	13.71	14.36	18.53
4	19.78	18.92	19.14	25.23
5	23.62	22.88	23.93	24.87
6	-	-	-	-
7	26.40	27.39	22.00	25.26
8	27.82	22.31	25.83	29.19
Mean	23.26	21.31	21.53	24.95
SD	4.48	4.21	3.75	3.48
CV	0.193	0.198	0.174	0.139

Table C37 Cardiac output responses (L.min⁻¹) during E35 trial

Time (min) Subject	10	30	60	Final
1	29.03	29.27	29.71	25.63
2	22.87	25.51	26.96	30.27
3	15.28	14.73	14.53	14.51
4	25.35	22.10	23.86	22.61
5	23.35	19.88	20.63	19.26
6	20.55	20.18	20.16	18.04
7	26.87	24.68	21.13	21.53
8	27.53	24.43	23.94	28.73
Mean	23.85	22.60	22.62	22.57
SD	4.43	4.41	4.63	5.40
CV	0.186	0.195	0.205	0.239

Table C38 Cardiac output responses (L.min⁻¹) during D35trial

Time (min) Subject	10	30	60	Final
1	23.50	21.08	20.99	18.32
2	24.26	23.35	-	25.29
3	13.66	14.32	-	13.68
4	23.78	20.42	-	19.10
5	23.13	20.87	-	20.87
6	-	-	-	-
7	26.60	24.84	-	24.84
8	28.84	26.98	-	26.98
Mean	23.40	21.69	20.99	21.30
SD	4.75	4.04	-	4.70
CV	0.203	0.186		0.221

Table C39 Stroke volume responses (mL.beat⁻¹) during E20 trial

Time (min) Subject	10	30	60	Final
1	163.54	159.53	168.21	147.44
2	178.23	181.15	161.09	144.22
3	142.41	124.37	114.43	137.60
4	195.82	184.74	197.27	151.28
5	166.47	160.88	164.68	158.98
6	135.91	137.05	119.09	92.77
7	157.61	167.09	162.67	161.40
8	195.96	181.45	186.85	160.72
Mean	166.99	162.03	159.29	144.30
SD	22.26	21.82	29.16	22.48
CV	0.133	0.135	0.183	0.156

Table C40 Stroke volume responses (mL.beat⁻¹) during D10 trial

Time (min) Subject	10	30	60	Final
1	173.84	134.51	141.78	126.12
2	164.21	155.34	146.01	148.45
3	124.76	111.49	114.88	115.12
4	188.55	154.61	138.37	151.99
5	173.66	156.68	161.72	144.62
6	-	-	-	-
7	183.31	176.74	142.84	156.87
8	206.05	157.08	179.40	157.79
Mean	173.48	149.49	146.43	142.99
SD	25.31	20.74	20.07	16.26
CV	0.146	0.139	0.137	0.114

Table C41 Stroke volume responses (mL.beat⁻¹) during E35 trial

Time (min) Subject	10	30	60	Final
1	169.75	168.21	162.35	134.89
2	156.68	171.24	172.80	164.51
3	114.92	93.21	86.50	80.17
4	163.54	138.15	146.38	120.28
5	161.06	129.93	128.13	116.73
6	141.72	127.75	116.53	102.50
7	172.25	154.23	123.59	125.15
8	188.55	154.61	138.37	151.99
Mean	158.56	142.17	134.33	124.53
SD	22.15	25.62	27.22	26.71
CV	0.140	0.180	0.203	0.214

Table C42 Stroke volume responses (mL.beat⁻¹) during D35trial

Time (min) Subject	10	30	60	Final
1	135.86	119.09	116.62	98.51
2	152.55	133.45	-	140.52
3	96.20	91.79	-	84.45
4	150.49	121.56	-	114.34
5	166.43	131.23	-	131.23
6	-	-	-	-
7	170.50	138.00	-	138.00
8	181.35	152.45	-	152.45
Mean	150.48	126.80	116.62	122.79
SD	28.20	18.97	-	24.59
CV	0.187	0.150		0.200

Table C43 Mean arterial pressure (mmHg) during E20 trial

Time (min) Subject	0	30	Final
1	94.00	107.33	113.33
2	92.00	93.33	100.00
3	80.67	90.00	123.33
4	96.00	120.00	120.00
5	78.67	111.33	109.33
6	78.00	95.33	123.33
7	94.67	116.67	102.67
8	102.67	99.33	100.00
Mean	89.58	104.17	111.50
SD	9.23	11.26	10.02
CV	0.103	0.108	0.090

Table C44 Mean arterial pressure (mmHg) during D10 trial

Time (min) Subject	Baseline	0	30	Final
1	94.67	93.33	110.00	98.67
2	86.00	82.67	96.67	86.67
3	90.00	81.33	104.00	100.00
4	100.00	94.00	113.33	125.00
5	84.00	99.33	101.33	102.67
6	96.67	96.67	120.00	110.00
7	89.33	90.67	110.00	112.67
8	86.67	95.33	103.33	118.67
Mean	90.92	91.67	107.33	106.79
SD	5.64	6.48	7.44	12.26
CV	0.062	0.071	0.069	0.115

Table C45 Mean arterial pressure (mmHg) during E35 trial

Time (min) Subject	0	30	Final
1	87.33	96.67	106.00
2	92.67	88.00	91.33
3	90.00	96.67	90.00
4	93.33	103.33	112.00
5	78.67	80.00	104.67
6	108.67	97.33	106.67
7	86.00	88.67	83.33
8	91.33	115.00	91.67
Mean	91.00	95.71	98.21
SD	8.55	10.63	10.30
CV	0.094	0.111	0.105

Table C46 Mean arterial pressure (mmHg) during D35 trial

Time (min) Subject	Baseline	0	30	Final
1	94.67	89.33	97.33	86.67
2	92.00	92.67	88.00	91.33
3	80.67	76.67	96.67	86.67
4	98.67	96.00	86.67	91.33
5	94.00	93.33	116.67	116.67
6	90.00	82.00	113.33	113.33
7	96.00	101.33	96.67	96.67
8	92.00	87.33	84.33	84.33
Mean	92.25	89.83	97.46	95.88
SD	5.39	7.85	11.95	12.43
CV	0.058	0.087	0.123	0.130

Table C47 Oxygen uptake ($\text{mL}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$) during E20 trial

Time (min) Subject	0	10	30	60	Final
1	7.48	41.09	42.14	44.22	60.51
2	2.12	40.67	41.21	42.92	62.02
3	3.19	39.04	41.07	40.76	56.50
4	2.20	44.26	44.87	46.14	67.50
5	2.84	39.71	40.80	41.15	57.13
6	4.40	33.74	36.95	37.16	49.92
7	2.87	44.45	44.90	47.23	54.02
8	5.77	47.08	48.51	48.49	67.21
Mean	3.86	41.26	42.55	43.51	59.35
SD	1.90	4.09	3.48	3.78	6.18
CV	0.492	0.099	0.082	0.087	0.104

Table C48 Oxygen uptake ($\text{mL.kg}^{-1}.\text{min}^{-1}$) during D10 trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	6.08	6.24	41.63	41.60	43.11	59.35
2	2.91	3.31	42.80	42.09	41.67	59.62
3	3.42	6.45	40.20	40.32	40.04	55.76
4	1.48	11.02	42.78	42.14	41.53	62.12
5	3.83	3.33	44.90	47.37	46.70	61.14
6	6.45	4.17	37.60	38.35	39.53	49.60
7	3.16	3.21	45.56	46.11	46.78	52.19
8	4.33	6.09	46.19	47.36	48.93	69.13
Mean	3.96	5.48	42.71	43.17	43.54	58.61
SD	1.65	2.64	2.89	3.38	3.50	6.11
CV	0.417	0.482	0.068	0.078	0.080	0.104

Table C49 Oxygen uptake ($\text{mL.kg}^{-1}.\text{min}^{-1}$) during E35 trial

Time (min) Subject	0	10	30	60	Final
1	6.82	43.69	43.62	46.42	50.31
2	2.70	40.02	40.76	40.93	59.28
3	5.25	39.76	41.04	42.47	45.71
4	2.62	41.29	40.82	42.97	58.43
5	3.37	41.85	41.42	43.47	42.75
6	5.18	36.10	37.72	39.36	36.09
7	2.75	46.69	46.77	47.07	47.52
8	5.82	46.45	46.42	48.37	57.65
Mean	4.31	41.98	42.32	43.88	49.72
SD	1.65	3.56	3.08	3.14	8.33
CV	0.383	0.085	0.073	0.072	0.168

Table C50 Oxygen uptake ($\text{mL.kg}^{-1}.\text{min}^{-1}$) during D35 trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	7.25	5.34	42.04	42.36	43.99	46.27
2	3.37	2.98	39.97	42.27	-	43.41
3	6.57	5.13	42.76	41.58	-	41.03
4	2.05	3.14	43.76	43.69	-	45.91
5	2.00	4.49	41.71	43.96	-	43.96
6	-	5.20	37.65	39.31	-	39.31
7	3.36	3.71	47.76	51.18	-	51.18
8	4.62	5.66	50.62	53.28	-	53.28
Mean	4.17	4.46	43.28	44.70	43.99	45.54
SD	2.08	1.05	4.16	4.89	-	4.76
CV	0.499	0.235	0.096	0.109	-	0.105

Table C51 Heart rate (beats.min⁻¹) responses during E20 trial

Subject	Time (min)																			
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	66	69	72	75	78	Final
1	81	156	156	159	157	157	157	158	162	159	165	163	167	170	177	181	184	188	192	192
2	56	133	131	136	135	133	133	136	138	134	136	137	139	150	154	159	168	172	182	182
3	54	117	120	120	120	120	120	122	122	124	124	124	130	137	143	149	154	165	-	165
4	50	146	148	149	147	147	148	145	145	148	150	149	149	155	161	165	170	175	184	184
5	51	131	135	138	140	140	144	138	140	142	143	139	142	151	156	160	167	171	173	173
6	47	128	128	130	137	144	141	144	147	147	148	150	153	161	170	176	182	-	-	182
7	49	145	153	153	152	154	156	154	158	157	156	157	156	161	165	167	-	-	-	167
8	59	136	139	141	142	144	145	145	147	148	151	154	153	163	169	174	181	187	-	187
Mean	56	137	139	141	141	142	143	143	145	145	147	147	149	156	162	166	172	176	183	179
SD	11	12	13	13	11	12	12	11	12	12	13	13	11	10	11	10	11	9	8	10
CV	0.196	0.088	0.094	0.092	0.078	0.085	0.084	0.077	0.083	0.083	0.088	0.088	0.074	0.064	0.068	0.060	0.064	0.051	0.044	0.056

Table C52 Heart rate (beats.min⁻¹) responses during D10 trial

Subject	Time (min)																		
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	66	69	72	75	Final
1	72	145	150	156	156	154	157	156	162	162	160	164	164	170	175	180	180	185	185
2	52	145	147	147	147	146	145	146	146	147	150	149	150	154	156	173	179	184	190
3	111	120	122	123	126	123	126	124	125	125	133	130	134	147	153	157	161	-	161
4	91	145	149	149	154	152	153	152	151	151	155	155	152	162	169	174	179	190	190
5	63	123	136	141	144	145	146	145	148	147	148	147	147	149	151	158	167	169	172
6	65	133	136	136	140	144	142	141	146	144	145	147	146	154	163	170	-	-	170
7	60	139	144	148	153	149	155	149	151	153	154	151	154	157	161	-	-	-	161
8	70	135	136	136	136	140	143	141	145	145	146	146	146	147	156	169	176	185	185
Mean	72	145	150	156	156	154	157	156	162	162	160	164	164	170	175	180	180	185	185
SD	52	145	147	147	147	146	145	146	146	147	150	149	150	154	156	173	179	184	190
CV	0.722	1.000	0.980	0.942	0.942	0.948	0.924	0.936	0.901	0.907	0.938	0.909	0.915	0.906	0.891	0.961	0.994	0.995	1.027

Table C53 Heart rate (beats.min⁻¹) responses during E35 trial

Subject	Time (min)																		
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	66	69	72	75	Final
1	81	163	171	171	172	173	174	174	178	183	183	185	187	190	-	-	-	-	190
2	62	140	146	148	150	150	149	147	153	154	156	155	156	164	169	176	178	-	184
3	61	124	133	138	145	153	158	157	158	163	168	173	174	181	-	-	-	-	181
4	59	151	155	157	156	160	160	160	160	163	163	161	162	166	174	176	184	188	188
5	76	133	145	145	150	154	153	150	156	158	161	164	165	-	-	-	-	-	165
6	74	140	145	152	153	155	158	162	164	168	173	174	176	-	-	-	-	-	176
7	56	146	156	158	158	158	160	161	167	167	171	171	172	-	-	-	-	-	172
8	67	135	146	147	149	154	158	159	161	163	173	175	177	184	189	-	-	-	189
Mean	67	142	150	152	154	157	159	159	162	165	169	170	171	177	177	176	181	188	181
SD	9	12	11	10	8	7	7	8	8	9	8	9	10	11	10	0	4	-	9
CV	0.134	0.085	0.073	0.066	0.052	0.045	0.044	0.050	0.049	0.055	0.047	0.053	0.058	0.062	0.056	0.000	0.022	#####	0.050

Table C54 Heart rate (beats.min⁻¹) responses during D35 trial

Subject	Time (min)														
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	Final
1	64	163	173	178	170	174	177	174	176	182	180	182	186	186	186
2	84	152	159	160	165	165	175	166	167	175	177	180	-	-	180
3	71	137	142	152	149	153	156	151	157	162	-	-	-	-	162
4	91	147	158	161	164	166	168	162	167	167	-	-	-	-	167
5	83	131	139	147	154	156	159	159	-	-	-	-	-	-	159
6	84	139	144	153	154	159	166	-	-	-	-	-	-	-	166
7	78	150	156	163	168	172	177	-	-	-	-	-	-	-	180
8	77	154	159	172	176	177	-	-	-	-	-	-	-	-	177
Mean	79	147	154	161	163	165	168	162	167	172	179	181	186	186	172
SD	8	10	11	10	9	9	9	9	8	9	2	1	-	-	10
CV	0.101	0.068	0.071	0.062	0.055	0.055	0.054	0.056	0.048	0.052	0.011	0.006			0.058

Table C55 Rectal temperature (°C) during E20 trial

Subject	Time (min)																			
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	66	69	72	75	78	Final
1	37.4	37.9	38.2	38.3	38.5	38.5	38.0	38.1	38.1	38.5	38.5	38.5	38.6	38.6	38.7	38.7	38.7	38.9	39.0	39.0
2	36.8	36.8	37.4	37.6	37.6	37.7	37.7	37.8	37.9	38.0	38.0	38.1	38.1	38.1	38.1	38.2	38.2	38.3	38.5	38.5
3	37.2	37.2	37.4	37.6	37.7	37.9	37.9	37.9	37.9	37.9	37.9	37.9	37.9	37.9	37.9	37.9	38.0	38.1	-	38.1
4	36.9	37.0	37.3	37.7	38.0	38.3	38.4	38.5	38.5	38.5	38.5	38.5	38.5	38.6	38.6	38.7	38.8	38.9	39.0	38.9
5	37.2	37.3	37.4	37.9	38.2	38.4	38.5	38.6	38.7	38.8	38.9	38.8	38.9	38.9	38.9	39.0	39.1	39.2	39.3	39.3
6	36.5	36.6	36.6	36.9	37.3	37.4	37.5	37.6	37.7	37.8	37.9	38.0	38.1	38.1	38.2	38.2	38.3	-	-	38.3
7	36.9	37.3	37.7	38.0	38.1	38.2	38.2	38.0	38.1	38.1	38.1	38.4	38.4	38.5	38.6	38.8	-	-	-	38.8
8	36.6	36.9	37.2	37.5	37.7	37.9	38.0	38.1	38.1	38.1	38.1	38.1	38.1	38.2	38.3	38.3	38.5	38.7	-	38.7
Mean	36.9	37.1	37.4	37.7	37.9	38.1	38.0	38.1	38.1	38.2	38.3	38.3	38.3	38.4	38.4	38.5	38.5	38.7	38.9	38.7
SD	0.3	0.4	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
CV	0.008	0.011	0.013	0.011	0.011	0.010	0.008	0.008	0.008	0.008	0.010	0.008	0.008	0.008	0.008	0.010	0.010	0.010	0.010	0.010

Table C56 Rectal temperature (°C) responses during D10 trial

Subject	Time (min)																		
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	66	69	72	75	Final
1	36.7	37.1	37.5	37.9	38.1	38.2	38.2	38.2	38.4	38.5	38.5	38.6	38.6	38.7	38.7	38.8	38.9	39.0	38.9
2	36.7	36.6	36.8	37.0	37.5	37.7	38.0	38.0	38.0	38.0	38.0	38.1	38.1	38.2	38.2	38.3	38.3	38.4	38.4
3	36.9	37.2	37.6	37.9	38.1	38.3	38.1	38.4	38.9	38.5	38.6	38.6	38.4	38.5	38.6	38.6	38.7	-	38.7
4	36.5	36.7	37.1	37.8	37.8	38.2	38.3	38.5	38.7	38.8	38.8	38.9	38.9	38.9	39.0	39.0	39.1	39.2	39.2
5	36.9	37.1	37.4	37.8	38.2	38.5	38.7	38.9	38.9	39.0	38.9	38.9	38.9	38.9	38.9	39.0	39.1	39.2	39.3
6	37.2	37.2	37.4	37.8	37.9	38.0	38.0	38.1	38.2	38.2	38.2	38.2	38.2	38.3	38.4	38.4	-	-	38.4
7	36.7	36.9	37.4	37.7	38.1	38.2	38.2	38.3	38.4	38.5	38.5	38.5	38.5	38.5	38.6	-	-	-	38.6
8	36.6	36.9	37.2	37.9	38.0	38.2	38.4	38.2	38.4	38.6	38.7	38.8	38.9	38.5	38.6	38.7	38.9	39.1	39.1
Mean	36.8	37.0	37.3	37.7	38.0	38.2	38.2	38.3	38.5	38.5	38.5	38.6	38.6	38.6	38.6	38.7	38.8	39.0	38.8
SD	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4
CV	0.005	0.005	0.008	0.008	0.005	0.005	0.005	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.010	0.010

Table C57 Rectal temperature (°C) responses during E35 trial

Subject	Time (min)																		
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	66	69	72	75	Final
1	37.4	37.8	38.0	38.5	38.7	38.9	39.0	39.0	39.1	39.2	39.2	39.4	39.5	39.5	-	-	-	-	39.5
2	37.1	37.4	37.7	37.9	38.2	38.3	38.5	38.4	38.4	38.4	38.5	38.6	38.7	38.6	38.7	38.8	38.9	-	39.0
3	37.1	37.2	37.4	37.6	37.8	38.1	38.3	38.6	38.7	38.8	38.9	39.0	39.1	39.3	-	-	-	-	39.2
4	37.2	37.3	37.6	38.1	38.4	38.6	38.7	38.8	38.9	39.0	39.0	39.1	39.1	39.2	39.2	39.3	39.4	39.6	39.6
5	37.0	37.2	37.6	37.9	38.3	38.7	38.9	39.2	39.4	39.5	39.7	39.8	40.0	-	-	-	-	-	40.0
6	37.1	37.2	37.3	37.5	38.0	38.2	38.5	39.7	38.8	39.0	39.1	39.3	39.4	-	-	-	-	-	39.4
7	37.0	37.2	37.6	38.2	38.7	38.7	39.0	38.9	39.1	39.4	39.6	39.8	40.0	-	-	-	-	-	40.0
8	37.0	37.3	37.6	38.1	38.3	38.6	38.7	38.9	39.0	39.1	39.3	39.5	39.6	39.7	39.8	-	-	-	39.8
Mean	37.1	37.3	37.6	38.0	38.3	38.5	38.7	39.0	38.9	39.1	39.2	39.3	39.4	39.3	39.3	39.1	39.2	39.6	39.6
SD	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.6	0.4	0.4	-	0.4
CV	0.005	0.005	0.005	0.008	0.008	0.008	0.008	0.010	0.008	0.008	0.010	0.010	0.010	0.010	0.015	0.010	0.010	#####	0.010

Table C58 Rectal temperature (°C) responses during D35 trial

Subject	Time (min)														Final
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	
1	37.0	37.5	37.4	38.1	38.3	38.5	38.7	38.8	38.9	38.9	39.1	39.2	39.4	39.4	39.4
2	37.1	37.4	37.4	37.8	38.1	38.4	38.6	38.7	38.6	38.8	39.0	39.1	-	-	39.1
3	36.5	37.1	37.8	38.1	38.7	38.6	38.9	38.6	38.7	39.0	-	-	-	-	38.9
4	37.1	37.2	37.4	37.8	38.0	38.5	38.6	39.0	39.2	39.3	-	-	-	-	39.3
5	37.1	37.3	37.6	38.1	38.4	38.8	39.1	39.4	-	-	-	-	-	-	39.4
6	36.2	36.7	37.2	37.4	37.5	37.8	38.4	-	-	-	-	-	-	-	38.4
7	37.1	37.6	38.1	38.5	38.8	39.2	39.7	-	-	-	-	-	-	-	40.0
8	37.3	37.7	38.0	38.4	38.8	39.0	-	-	-	-	-	-	-	-	39.0
Mean	36.9	37.3	37.6	38.0	38.3	38.6	38.9	38.9	38.9	39.0	39.1	39.2	39.4	39.4	39.2
SD	0.4	0.3	0.3	0.4	0.5	0.4	0.4	0.3	0.3	0.2	0.1	0.1	-	-	0.5
CV	0.011	0.008	0.008	0.011	0.013	0.010	0.010	0.008	0.008	0.005	0.003	0.003			0.013

Table C59 Skin temperature (°C) during E20 trial

Subject	Time (min)																			
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	66	69	72	75	78	Final
1	31.7	31.9	33.3	32.0	30.7	30.5	30.4	29.9	29.6	29.3	29.2	29.1	29.0	29.0	29.0	28.8	28.8	28.5	27.9	27.9
2	31.6	31.1	31.9	32.7	33.1	32.0	30.8	30.6	29.4	28.7	29.3	29.8	30.0	30.1	29.6	29.5	29.7	30.0	30.0	30.0
3	31.6	31.9	32.6	32.9	31.5	31.5	31.4	30.9	30.9	31.2	31.1	30.9	30.9	31.2	31.3	31.2	31.3	31.1	-	31.1
4	31.2	30.9	31.6	30.4	30.6	30.4	30.0	30.3	32.0	30.9	31.0	31.0	31.0	30.9	30.9	30.9	30.0	29.4	28.6	28.6
5	31.6	31.2	31.3	31.7	29.9	29.5	29.3	28.8	28.7	28.7	28.9	28.8	28.7	28.8	28.6	28.6	28.5	28.3	28.2	28.2
6	27.6	27.3	27.5	28.0	29.0	29.8	30.3	29.4	30.1	30.6	30.9	31.0	30.9	30.8	30.6	30.3	30.0	-	-	30.0
7	31.2	30.8	32.9	32.3	32.3	32.2	32.3	31.5	31.9	32.1	30.6	31.8	32.0	31.7	31.6	31.7	-	-	-	31.7
8	31.7	32.2	33.1	32.7	32.5	32.6	32.6	32.4	31.7	32.3	32.3	32.3	32.1	31.9	32.0	32.1	32.1	32.0	-	32.0
Mean	31.0	30.9	31.8	31.6	31.2	31.1	30.9	30.5	30.5	30.5	30.4	30.6	30.6	30.5	30.4	30.4	30.0	29.9	28.7	29.9
SD	1.4	1.5	1.9	1.7	1.4	1.2	1.1	1.2	1.3	1.4	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.4	0.9	1.6
CV	0.045	0.049	0.060	0.054	0.045	0.039	0.036	0.039	0.043	0.046	0.039	0.039	0.039	0.039	0.039	0.043	0.043	0.047	0.031	0.054

Table C60 Skin temperature (°C) responses during D10 trial

Subject	Time (min)																			
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	66	69	72	75	Final	
1	29.1	27.9	28.2	28.6	28.7	28.6	28.4	28.1	27.7	28.0	28.0	28.0	28.1	28.1	28.1	28.1	28.0	27.8	27.8	27.8
2	27.3	27.6	28.3	29.4	30.4	31.2	31.5	32.1	32.0	31.7	31.0	31.5	32.4	32.3	32.5	32.0	32.1	31.8	31.8	31.8
3	28.5	27.6	27.8	28.3	28.9	29.3	29.3	28.9	29.0	28.6	28.5	28.5	28.5	28.2	28.2	28.3	28.4	28.5	28.5	28.5
4	28.9	27.8	28.4	30.1	31.2	31.6	31.8	30.7	30.7	30.8	30.7	30.5	30.2	29.8	29.6	29.3	28.5	27.0	27.0	27.0
5	27.8	27.7	27.9	28.0	26.6	25.5	25.6	25.8	25.0	25.4	25.5	25.8	28.4	28.7	28.6	28.8	28.9	29.0	27.8	27.8
6	26.1	25.4	26.4	27.3	29.0	27.9	27.3	26.7	25.3	23.8	23.8	23.5	23.2	23.4	23.4	23.7	-	-	23.7	23.7
7	28.9	28.1	28.5	30.7	30.3	29.8	30.4	29.3	29.3	29.9	29.9	30.0	29.6	29.2	29.4	-	-	-	29.4	29.4
8	29.1	29.5	30.1	30.9	31.5	31.3	31.9	30.6	29.0	30.3	31.3	31.3	30.8	30.6	28.2	28.2	29.0	29.5	29.5	29.5
Mean	28.2	27.7	28.2	29.2	29.6	29.4	29.5	29.0	28.5	28.6	28.6	28.6	28.9	28.8	28.5	28.3	29.1	28.9	28.2	28.2
SD	1.1	1.1	1.0	1.3	1.6	2.1	2.3	2.1	2.4	2.7	2.7	2.8	2.7	2.6	2.5	2.4	1.5	1.7	2.3	2.3
CV	0.039	0.040	0.035	0.045	0.054	0.071	0.078	0.072	0.084	0.094	0.094	0.098	0.093	0.090	0.088	0.085	0.052	0.059	0.082	0.082

Table C61 Skin temperature (°C) responses during E35 trial

Subject	Time (min)																		
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	66	69	72	75	Final
1	35.7	35.8	35.8	35.4	35.4	35.5	35.7	35.6	35.6	35.9	35.9	36.0	36.0	35.9	-	-	-	-	39.5
2	35.5	35.8	36.1	36.3	36.0	36.1	36.1	35.9	35.9	36.0	36.0	36.0	36.0	36.0	36.0	36.1	36.0	-	39.0
3	34.4	35.0	35.2	34.8	35.1	35.2	35.5	35.1	35.4	35.5	35.8	35.9	35.8	35.8	-	-	-	-	39.2
4	35.2	35.4	35.7	35.0	34.9	34.8	34.9	34.7	34.8	34.9	34.9	35.0	35.0	35.0	35.0	35.0	34.9	34.8	39.6
5	34.7	35.3	35.7	35.4	35.6	35.7	35.9	35.7	35.9	36.0	36.2	36.4	36.3	-	-	-	-	-	40.0
6	34.5	35.1	35.8	35.7	35.8	36.1	36.4	36.2	36.3	36.6	36.8	37.3	37.2	-	-	-	-	-	39.4
7	35.1	35.9	36.5	36.2	36.2	35.7	36.0	35.7	35.9	36.2	36.4	36.6	36.7	-	-	-	-	-	40.0
8	35.0	35.8	36.0	35.4	35.7	35.8	36.0	35.6	35.9	36.1	36.2	36.2	36.3	36.3	36.5	-	-	-	39.8
Mean	35.0	35.5	35.8	35.5	35.6	35.6	35.8	35.5	35.7	35.9	36.0	36.2	36.2	35.8	35.8	35.6	35.5	34.8	39.6
SD	0.5	0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.4	0.5	0.5	0.6	0.7	0.5	0.8	0.8	0.8	-	0.4
CV	0.014	0.011	0.011	0.014	0.011	0.011	0.014	0.014	0.011	0.014	0.014	0.017	0.019	0.014	0.022	0.022	0.023	-	0.010

Table C62 Skin temperature (°C) responses during D35 trial

Subject	Time (min)														Final
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	
1	35.4	35.3	35.5	34.3	34.4	34.4	34.3	34.0	34.0	34.2	34.1	34.2	34.0	34.0	34.0
2	34.9	35.6	36.3	36.4	36.5	36.6	36.8	36.4	36.3	36.5	36.7	36.9	-	-	36.9
3	35.0	35.3	35.5	35.5	35.0	35.0	35.3	34.9	34.9	35.0	-	-	-	-	35.0
4	35.0	35.2	35.9	35.4	35.4	35.5	35.5	34.9	35.3	35.3	-	-	-	-	35.3
5	33.9	34.2	34.9	34.8	35.1	35.1	35.5	35.3	-	-	-	-	-	-	35.3
6	34.1	34.1	34.3	34.4	34.3	34.5	35.0	-	-	-	-	-	-	-	35.0
7	34.2	35.1	36.5	36.4	36.4	36.4	36.7	-	-	-	-	-	-	-	36.8
8	34.2	35.4	35.6	35.5	35.7	36.0	-	-	-	-	-	-	-	-	36.0
Mean	34.6	35.0	35.6	35.3	35.3	35.4	35.6	35.1	35.1	35.2	35.4	35.5	34.0	34.0	35.5
SD	0.6	0.6	0.7	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.8	1.9	-	-	1.0
CV	0.017	0.017	0.020	0.023	0.023	0.023	0.025	0.026	0.026	0.026	0.051	0.054	-	-	0.028

Table C63 Thermal comfort scale during E20 trial

Subject	Time (min)													
	0	10	20	30	40	50	60	63	66	69	72	75	78	Final
1	3	4	4	4	4	4	4	4	4	4	4	4	4	4
2	3	4	4	4	3	3	4	4	5	4	4	4	5	4
3	3	5	3	3	4	3	3	3	3	4	5	5.5	-	5.5
4	3	5	4	5	4	5	5	5	5	5	3	3	3	3
5	3	5	4	4	5	5	5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
6	4	4	4	5	5	5.5	5	5.5	6	6.5	7	-	-	7
7	3	5	3	4	4	4	3.5	4	4	4	-	-	-	4
8	3	5	4	5	4	4	4	4	5	4	4	4	-	4
Mean	3.1	4.6	3.8	4.3	4.1	4.2	4.2	4.4	4.7	4.6	4.6	4.3	4.4	4.6
SD	0.4	0.5	0.5	0.7	0.6	0.9	0.8	0.9	1.0	1.0	1.3	1.0	1.1	1.3
CV	0.129	0.109	0.132	0.163	0.146	0.214	0.190	0.205	0.213	0.217	0.283	0.233	0.250	0.283

Table C64 Thermal comfort scale during D10 trial

Subject	Time (min)												
	0	10	20	30	40	50	60	63	66	69	72	75	Final
1	3	4	4	4	4	4	4	4	4	4	4	4	4
2	2	2	2	3	3	3	3	3	4	4	5	5	5
3	2	4	4	4	4	4	4	4	4	4	5.5	-	6.5
4	2	4	4	5	5	4	4	5	4	5	5	6	6
5	2.5	4.5	3	2.5	4	4	4	4.5	5	5	5	5	5
6	3	4	5	5	5	4	4	4	4	4	-	-	4
7	2	4	3	3	3	4	4	4	4	-	-	-	4
8	1	1	1.5	2	2	1	1	1	1	2	2	2	2
Mean	2.2	3.4	3.3	3.6	3.8	3.5	3.5	3.7	3.8	4.0	4.4	4.4	4.6
SD	0.7	1.2	1.2	1.1	1.0	1.1	1.1	1.2	1.2	1.0	1.3	1.5	1.4
CV	0.318	0.353	0.364	0.306	0.263	0.314	0.314	0.324	0.316	0.250	0.295	0.341	0.304

Table C65 Thermal comfort scale responses during E35 trial

Subject	Time (min)												
	0	10	20	30	40	50	60	63	66	69	72	75	Final
1	5	5	5	5	5	5	5	5	-	-	-	-	5
2	5	6	6	6	6	6	6	6	6	7	7	-	5
3	5	5	5.5	6.5	6	6	6	6	-	-	-	-	5
4	5	5	5.5	5	5	5	5	5	5	5	5	6	5
5	6	6	6	6	6	6.5	6.5	-	-	-	-	-	6
6	5	5.5	5.5	6	6.5	7	-	-	-	-	-	-	5
7	5	6	6	6	6	6	6	-	-	-	-	-	5
8	6	7	6.5	7	7	7	7	7	7	-	-	-	6
Mean	5.3	5.7	5.8	5.9	5.9	6.1	5.9	5.8	6.0	6.0	6.0	6.0	5.3
SD	0.5	0.7	0.5	0.7	0.7	0.8	0.7	0.8	1.0	1.4	1.4	-	0.5
CV	0.094	0.123	0.086	0.119	0.119	0.131	0.119	0.138	0.167	0.233	0.233		0.094

Table C66 Thermal comfort scale responses during D35 trial

Subject	Time (min)								
	0	10	20	30	40	50	60	63	Final
1	4	5	5	5	5	5	5	5	5
2	4	5	6	6	6	6	7	-	7
3	4	4	5	6	6	6	-	-	6
4	4	5	5	5	6	6	-	-	6
5	3	5	6	6.5	7	-	-	-	7
6	4	6	7	7	7	-	-	-	7
7	4	5	6	5	6	-	-	-	6
8	4	5	7	8	-	-	-	-	8
Mean	3.9	5.0	5.9	6.1	6.1	5.8	6.0	5.0	6.5
SD	0.4	0.5	0.8	1.1	0.7	0.5	1.4	-	0.9
CV	0.103	0.100	0.136	0.180	0.115	0.086	0.233		0.138

Table C67 Thirst sensation scale during E20 trial

Subject	Time (min)													
	0	10	20	30	40	50	60	63	66	69	72	75	78	Final
1	1.5	2	2.5	3	3	3	3	3	3	4	4	4	4	4
2	1	1	2	1	0	1	1	1	1	1	1	1	2	2
3	0	0	0	2	2	0	0	0	0	0	2	2	-	2
4	1	2	2	3	3	4	4	4	4	4	5	6	7	7
5	3	5	4	4.5	5	4.5	5	6	6	6	7	6	7	7
6	2	3	3	4	3	4.5	4	5	6	7	6	-	-	6
7	1	3	3	3	3	3	3.5	4	4	4	-	-	-	4
8	0	0	0	0	0	0	0	0	1	1	1	1	-	1
Mean	1.2	2.0	2.1	2.6	2.4	2.5	2.6	2.9	3.1	3.4	3.7	3.3	5.0	4.1
SD	1.0	1.7	1.4	1.5	1.7	1.9	2.0	2.3	2.3	2.5	2.4	2.3	2.4	2.4
CV	0.833	0.850	0.667	0.577	0.708	0.760	0.769	0.793	0.742	0.735	0.649	0.697	0.480	0.585

Table C68 Thirst sensation scale during D10 trial

Subject	Time (min)												
	0	10	20	30	40	50	60	63	66	69	72	75	Final
1	2	3	3	3	3	3	3	3	4	4	4	4	4
2	3	3	3	3	3	3	3	3	4	4	3	3	3
3	0	1	1	1	1	2	3	3	3	5	6	-	6
4	3	5	4	4	4	4	4	4	5	5	5	6	6
5	5	5.5	6	6	6	6	6.5	7	7	7	7	7	7
6	2.5	4	5	5	5	5.5	6	6	6	6	-	-	6
7	3	3	4	4	3	3	3	4	4	-	-	-	4
8	3	4	5	5	5	5	5	5	6	6	7	7	7
Mean	2.7	3.6	3.9	3.9	3.8	3.9	4.2	4.4	4.9	5.3	5.3	5.4	5.4
SD	1.4	1.4	1.6	1.6	1.6	1.4	1.5	1.5	1.4	1.1	1.6	1.8	1.5
CV	0.519	0.389	0.410	0.410	0.421	0.359	0.357	0.341	0.286	0.208	0.302	0.333	0.278

Table C69 Thirst sensation scale responses during E35 trial

Subject	Time (min)												
	0	10	20	30	40	50	60	63	66	69	72	75	Final
1	2	2	3	3	3	4	4	5	5	-	-	-	5
2	2	3	2	3	3	4	4	3	4	5	5	6	6
3	0	1	2	4	4	5	7	8	-	-	-	-	8
4	0	4	4	4	4	5	3	5	6	7	8	9	9
5	4	6	6	6.5	7	8	7.5	-	-	-	-	-	7.5
6	5	6	6	6.5	7	9	9	-	-	-	-	-	9
7	1	3	3	4	5	5	5	-	-	-	-	-	5
8	0	1	3	3	3	4	5	6	7	-	-	-	7
Mean	1.8	3.3	3.6	4.3	4.5	5.5	5.6	5.4	5.5	6.0	6.5	7.5	7.1
SD	1.9	2.0	1.6	1.5	1.7	1.9	2.1	1.8	1.3	1.4	2.1	2.1	1.6
CV	1.056	0.606	0.444	0.349	0.378	0.345	0.375	0.333	0.236	0.233	0.323	0.280	0.225

Table C70 Thirst sensation scale responses during D35 trial

Subject	Time (min)								
	0	10	20	30	40	50	60	63	Final
1	2	4	4	5	5	6	7	7	7
2	0	3	4	4	5	5	-	-	6
3	0	4	5	7	7	-	-	-	7
4	3	5	5	7	7	-	-	-	8
5	4	8	8	8.5	-	-	-	-	8.5
6	8	8.5	9	9	-	-	-	-	9
7	2	4	5	5	-	-	-	-	5
8	7	7	8	-	-	-	-	-	7
Mean	3.3	5.4	6.0	6.5	6.0	5.5	7.0	7.0	7.2
SD	3.0	2.1	2.0	1.9	1.2	0.7	-	-	1.3
CV	0.909	0.389	0.333	0.292	0.200	0.127			0.181

Table C71 Rate of Perceived Exertion (RPE) during E20 trial

Subject	Time (min)													
	0	10	20	30	40	50	60	63	66	69	72	75	78	Final
1	6	13	11	13	12	14	12	13	13	14	15	16	17	17
2	6	9	10	11	10	11	12	12	12	13	14	15	16	17
3	6	12	10.5	12	11	12	11	11	12	13	16	18.5	-	18.5
4	6	8	11	12	11	11	10	12	13	15	14	16	18	18
5	6	13	12	13	13	14	14	15	15.5	16	18	18	19.5	19.5
6	6	8	9	11	12	12.5	14.5	15.5	17	18	19	-	-	19
7	6	13	12	14	14	14	14	14	15	16	-	-	-	16
8	6	10	12	12	12	12	12	13	14	16	16	17	-	17
Mean	6.0	10.8	10.9	12.3	11.9	12.6	12.4	13.2	13.9	15.1	16.0	16.8	17.6	17.8
SD	0.0	2.3	1.1	1.0	1.2	1.3	1.6	1.6	1.8	1.7	1.9	1.3	1.5	1.2
CV	0.000	0.213	0.101	0.081	0.101	0.103	0.129	0.121	0.129	0.113	0.119	0.077	0.085	0.067

Table C72 Rate of Perceived Exertion (RPE) during D10 trial

Subject	Time (min)												
	0	10	20	30	40	50	60	63	66	69	72	75	Final
1	6	12	10	12	10	12	12	13	13	14	15	18	18
2	6	10	10	11	11	12	12	13	13	15	17	19	20
3	6	11	11	11	11	12	11	11	13	15	16	-	19
4	6	8	9	10	10	11	11	12	12	13	16	20	20
5	6	13	13	14	14	15.5	16	16.5	16.5	17.5	18	19	19.5
6	6	11	12.5	14	15	15.5	17	17.5	18	19	-	-	19
7	6	12	12	12	13	14	15	16	17	-	-	-	17
8	9	11	12	13	12	13	13	14	15	16	17	18	18
Mean	6.4	11.0	11.2	12.1	12.0	13.1	13.4	14.1	14.7	15.6	16.5	18.8	18.8
SD	1.1	1.5	1.4	1.5	1.9	1.7	2.3	2.3	2.3	2.1	1.0	0.8	1.1
CV	0.172	0.136	0.125	0.124	0.158	0.130	0.172	0.163	0.156	0.135	0.061	0.043	0.059

Table C73 Rate of Perceived Exertion (RPE) during E35 trial

Subject	Time (min)												
	0	10	20	30	40	50	60	63	66	69	72	75	Final
1	6	14	12	14	14	15	15	17	-	-	-	-	19
2	6	11	12	13	13	14	13	14	15	16	16	-	19
3	6	12	12	14	13	15	18	19	-	-	-	-	19
4	6	11	11	12	12	13	13	13	15	15	17	19	19
5	6	12	13	14	15	18	18.5	-	-	-	-	-	18.5
6	6	10	11.5	13	15	19	-	-	-	-	-	-	19
7	6	12	13	14	14	16	17	-	-	-	-	-	17
8	6	11	11.5	13	13	14	13	17	18	-	-	-	18
Mean	6.0	11.6	12.0	13.4	13.6	15.5	15.4	16.0	16.0	15.5	16.5	19.0	18.6
SD	0.0	1.2	0.7	0.7	1.1	2.1	2.5	2.4	1.7	0.7	0.7	-	0.7
CV	0.000	0.103	0.058	0.052	0.081	0.135	0.162	0.150	0.106	0.045	0.042	-	0.038

Table C74 Rate of Perceived Exertion (RPE) during D35 trial

Subject	Time (min)								
	0	10	20	30	40	50	60	63	Final
1	6	6	12	11	13	13	14	16	19
2	6	6	12	13	14	16	17	-	-
3	6	6	13	16	17	18	-	-	-
4	6	6	13	14	16	17	-	-	-
5	6	6	14	16	19.5	-	-	-	-
6	6	6	17	19.5	20	-	-	-	-
7	6	6	14	16	17	-	-	-	-
8	6	6	12	15	-	-	-	-	-
Mean	6.0	6.0	13.4	15.1	16.6	16.0	15.5	16.0	19.0
SD	0.0	0.0	1.7	2.5	2.6	2.2	2.1	-	1.2
CV	0.000	0.000	0.127	0.166	0.157	0.138	0.135	-	0.063

Table C75 Skin blood flow (% from baseline) during E20 trial

Time (min) Subject	0	10	30	60	Final
1	0.0	603.7	916.7	916.3	946.6
2	0.0	514.7	459.5	458.3	768.6
3	0.0	655.4	747.6	874.4	836.6
4	0.0	961.5	958.5	958.7	932.9
5	0.0	954.7	961.2	975.2	964.0
6	0.0	546.4	705.6	962.7	961.0
7	0.0	982.5	977.1	923.1	951.0
8	0.0	794.7	828.5	879.0	890.8
Mean	0.0	751.7	819.3	868.5	906.4
SD	0.0	196.3	177.9	169.9	70.4
CV		0.261	0.217	0.196	0.078

Table C76 Skin blood flow (% from baseline) during D10 trial

Time (min) Subject	0	10	30	60	Final
1	0.0	608.3	793.7	791.0	816.0
2	0.0	712.5	983.5	976.0	971.3
3	0.0	590.2	551.0	903.6	612.6
4	0.0	661.9	934.2	826.0	891.8
5	0.0	549.3	601.7	818.9	508.0
6	0.0	458.9	790.3	334.7	361.2
7	0.0	361.8	425.3	555.9	545.8
8	0.0	747.5	944.0	978.9	879.0
Mean	0.0	586.3	753.0	773.1	698.2
SD	0.0	128.8	205.8	222.0	220.0
CV		0.220	0.273	0.287	0.315

Table C77 Skin blood flow (% from baseline) during E35 trial

Time (min) Subject	0	10	30	60	Final
1	0.0	907.4	889.6	952.7	869.7
2	0.0	685.9	897.4	903.9	712.4
3	0.0	946.8	939.7	960.5	922.5
4	0.0	697.0	834.0	809.0	511.8
5	0.0	902.6	940.2	845.6	901.4
6	0.0	908.7	964.8	964.1	969.0
7	0.0	955.4	919.3	915.2	954.6
8	0.0	938.8	914.1	872.2	870.6
Mean	0.0	867.8	912.4	902.9	839.0
SD	0.0	110.6	40.0	57.0	154.1
CV		0.127	0.044	0.063	0.184

Table C78 Skin blood flow (% from baseline) during D35trial

Time (min) Subject	0	10	30	60	Final
1	0.0	996.9	969.7	825.4	853.2
2	0.0	719.2	973.3	-	732.9
3	0.0	894.2	923.0	-	890.6
4	0.0	993.9	966.5	-	971.3
5	0.0	757.7	937.4	-	937.4
6	0.0	626.6	644.4	-	644.4
7	0.0	977.1	924.4	-	981.1
8	0.0	953.1	979.0	-	979.0
Mean	0.0	864.8	914.7	825.4	873.7
SD	0.0	143.8	111.5	-	125.0
CV		0.166	0.122		0.143

Table C79 Relative change in plasma volume (%) during E20 trial

Time (min) Subject	10	30	60	Final
1	-5.9	-5.5	-7.2	-7.0
2	-7.2	-13.6	-21.2	-21.2
3	-3.7	-10.0	-14.1	-6.9
4	-10.5	-5.9	-8.9	-12.0
5	-11.3	-12.5	-11.1	-18.7
6	5.0	-2.5	-6.1	-4.6
7	-8.3	-19.2	-23.8	-19.3
8	-12.3	-8.1	-11.2	-13.2
Mean	-6.8	-9.7	-13.0	-12.9
SD	5.6	5.4	6.4	6.4
CV	0.824	0.557	0.492	0.496

Table C80 Relative change in plasma volume (%) during D10 trial

Time (min) Subject	0	10	30	60	Final
1	-4.3	-12.0	0.3	2.6	-6.9
2	-15.0	-12.7	-6.5		-2.5
3	0.0	-6.9	-12.5	-17.9	-16.5
4	-17.7	-7.5	-9.7	1.8	-0.6
5	-19.3	-11.9	0.1	0.7	4.9
6	-8.1	-10.7	-9.9	-9.9	-9.6
7	-12.6	-22.8	-17.2	-11.6	-12.0
8	-13.6	-6.1	-8.5	-9.7	-6.0
Mean	-11.3	-11.3	-8.0	-6.3	-6.1
SD	6.7	5.3	6.0	8.0	6.7
CV	0.593	0.469	0.750	1.270	1.098

Table C81 Relative change in plasma volume (%) during E35 trial

Time (min) Subject	10	30	60	Final
1	-4.0	-2.3	-2.1	-8.7
2	-2.0	-2.5	-3.9	-6.5
3	-4.6	-10.6	-12.1	-12.6
4	-13.3	-15.1	-14.2	-14.2
5	0.2	0.7	-	-3.3
6	-6.9	-9.4	-9.9	-9.0
7	-5.9	-10.2	-10.6	-12.1
8	-13.2	-11.7	-16.4	-19.7
Mean	-6.2	-7.6	-9.9	-10.7
SD	4.9	5.5	5.2	5.1
CV	0.790	0.724	0.525	0.477

Table C82 Relative change in plasma volume (%) during D35trial

Time (min) Subject	0	10	30	60	Final
1	-1.6	-12.5	-12.6	-15.4	-15.4
2	-24.8	-4.7	-7.3	-	5.0
3	-11.0	-9.7	-14.8	-	-6.0
4	-15.6	-16.8	-16.7	-	-13.3
5	-22.8	-11.9	-	-	-2.3
6	-6.0	-4.5	-	-	-4.3
7	-3.3	-3.0	-	-	-11.3
8	-25.3	-10.7	-	-	-4.9
Mean	-13.8	-9.2	-12.8	-15.4	-6.5
SD	9.8	4.8	4.1	-	6.6
CV	0.710	0.522	0.320		1.015

APPENDIX D – DATA FROM STUDY FOUR

Table D1 Physical and physiological characteristics of the subjects

Subject	Age (yrs)	Weight (kg)	Height (cm)	%BF	$\dot{V}O_{2max}$ (mL.kg ⁻¹ .min ⁻¹)	Training (km.week ⁻¹)
1	31	65.0	175.2	8.89	66.0	100
2	21	65.5	174.0	5.05	72.9	110
3	35	59.5	169.2	6.6	60.9	55
4	30	73.5	178.0	8.78	61.7	60
5	32	70.7	181.3	8.83	64.9	83
6	37	84.9	180.5	12.49	55.0	90
7	41	74.1	182.9	8.43	65.3	96
Mean	32.4	70.5	177.3	8.4	63.8	84.9
SD	6.3	8.2	4.8	2.3	5.5	20.5
CV	0.194	0.116	0.027	0.274	0.086	0.241

Table D2 Seven subjects' individual performance time during three experimental trials (CON, euhydrated in 35°C, GLUT, dehydrated in 35°C; PCB, dehydrated in 35°C)

Subjects	Trials		
	CON	GLUT	PCB
1	62.0	40.0	45.0
2	71.0	71.0	66.0
3	72.0	68.0	56.0
4	60.0	42.0	40.0
5	64.5	62.0	65.0
6	78.0	77.3	75.5
7	71.2	72.2	71.7
Mean	67.9	60.1	57.9
SD	6.9	15.6	13.5
CV	0.102	0.260	0.233

Table D3 Plasma [glutamine] ($\mu\text{mol.L}^{-1}$) during CON trial

Time (min) Subject	0	Final
1	497.8	603.5
2	618.1	679.3
3	576.5	660.6
4	549.5	553.6
5	492.9	510.8
6	490.1	535.5
7	573.2	630.2
Mean	542.6	596.2
SD	50.1	64.6
CV	0.092	0.108

Table D4 Plasma [glutamine] ($\mu\text{mol.L}^{-1}$) during GLUT trial

Time (min) Subject	Baseline	0	Final
1	420.9	477.9	585.2
2	599.6	615.4	673.1
3	554.3	574.9	-
4	580.2	610.1	702.2
5	366.1	378.7	607.9
6	388.7	488.1	623.2
7	549.1	619.1	606.6
Mean	494.1	537.7	633.0
SD	98.4	91.8	45.0
CV	0.199	0.171	0.071

Table D5 Plasma [glutamine] ($\mu\text{mol.L}^{-1}$) during PCB trial

Time (min) Subject	Baseline	0	Final
1	-	467.5	486.2
2	498.3	516.0	501.7
3	599.8	616.7	592.5
4	557.7	561.4	626.5
5	471.9	492.7	485.3
6	468.0	530.5	636.4
7	467.3	533.6	504.6
Mean	510.5	531.2	547.6
SD	55.7	48.3	68.0
CV	0.109	0.091	0.124

Table D6 Relative change in plasma volume (%) during CON trial

Time (min) Subject	10	30	60	Final
1	-9.36	-7.82	-12.34	-12.34
2	-9.74	-7.81	-8.20	-17.95
3	-7.05	-4.98	-6.07	-8.58
4	1.39	3.38	-	-3.40
5	-9.49	-10.21	-11.25	-11.30
6	-2.77	-14.06	-12.26	-16.73
7	-9.70	-9.28	-9.28	-14.48
Mean	-6.67	-7.25	-9.90	-12.11
SD	4.36	5.45	2.50	5.00
CV	0.654	0.752	0.253	0.413

Table D7 Relative change in plasma volume (%) during GLUT trial

Time (min) Subject	0	10	30	60	Final
1	-4.91	-2.34	-3.72	-	-2.41
2	2.82	-12.32	-10.59	-13.61	-14.10
3	5.10	-2.67	-9.38	-9.79	-16.05
4	-4.40	12.24	-8.39	-	-9.10
5	2.72	-10.33	-5.77	3.92	-1.11
6	9.08	-10.85	-10.98	-10.23	-14.15
7	-3.33	-9.99	-9.29	-8.43	-10.07
Mean	1.01	-5.18	-8.30	-7.63	-9.57
SD	5.34	8.67	2.64	6.73	5.87
CV	5.287	1.674	0.318	0.882	0.613

Table D8 Relative change in plasma volume (%) during PCB trial

Time (min) Subject	0	10	30	60	Final
1	-2.16	-3.99	-8.9	-	-6.88
2	0.79	-3.13	-9.74	-	-10.13
3	-2.75	-3.73	-2.33	-	-9.29
4	6.26	3.69	1.3	-	-9.32
5	-6.65	-14.49	-14.81	-13.58	-18.85
6	6.04	-5.13	-9.63	-7.36	-5.28
7	-6.57	-12.54	-14.09	-11.77	-17.41
Mean	-0.72	-5.62	-8.31	-10.90	-11.02
SD	5.36	6.14	5.89	3.20	5.15
CV	7.444	1.093	0.709	0.294	0.467

Table D9 Plasma HSP 72 (ng.mL⁻¹) during CON trial

Time (min) Subject	0	Final
1	1.8	-
2	1.5	6.6
3	2.7	12.8
4	0.8	3.6
5	1.1	4.3
6	1.6	6.8
7	1.2	8.0
Mean	1.5	6.8
SD	0.7	3.6
CV	0.467	0.529

Table D10 Plasma HSP 72 (ng.mL⁻¹) during GLUT trial

Time (min) Subject	Baseline	0	Final
1	1.3	2.2	4.1
2	1.1	1.3	7.3
3	2.1	2.7	10.7
4	0.7	1.1	4.5
5	1.2	2.7	11.3
6	2.1	2.6	6.9
7	0.7	1.1	9.1
Mean	1.4	2.1	8.1
SD	0.6	0.8	2.9
CV	0.429	0.381	0.358

Table D11 Plasma HSP 72 (ng.mL⁻¹) during PCB trial

Time (min) Subject	Baseline	0	Final
1	-	1.1	3.3
2	1.4	2.3	5.1
3	1.8	3.5	10.5
4	0.8	1.1	6.6
5	1.1	2.1	5.6
6	1.7	2.1	6.9
7	1.3	2.4	7.5
Mean	1.4	2.2	6.9
SD	0.4	0.8	2.1
CV	0.286	0.364	0.304

Table D12 Body mass (kg) measurements during CON trial

Time (min) Subject	0	Final
1	65.66	64.45
2	65.78	63.58
3	59.35	57.73
4	73.55	72.95
5	70.73	68.92
6	84.85	82.56
7	73.29	71.85
Mean	70.46	68.86
SD	8.09	8.01
CV	0.115	0.116

Table D13 Body mass (kg) measurements during GLUT trial

Time (min) Subject	Baseline	0	Final
1	66.07	64.60	63.98
2	65.43	63.96	62.53
3	60.15	57.58	57.35
4	73.21	71.62	71.19
5	69.89	68.25	67.67
6	83.68	82.65	80.66
7	75.35	72.09	71.15
Mean	70.54	68.68	67.79
SD	7.72	7.93	7.52
CV	0.109	0.115	0.111

Table D14 Body mass (kg) measurements during PCB trial

Time (min) Subject	Baseline	0	Final
1	66.00	64.57	63.94
2	65.57	64.01	62.11
3	60.31	58.67	57.93
4	73.57	71.47	71.40
5	71.15	69.37	68.61
6	85.14	83.14	81.99
7	73.98	72.06	71.03
Mean	70.82	69.04	68.14
SD	8.00	7.82	7.85
CV	0.113	0.113	0.115

Table D15 Percentage change of body mass during CON trial

Subject	Baseline - 0-min
1	-1.69
2	-3.11
3	-2.53
4	-0.74
5	-2.46
6	-2.48
7	-1.63
Mean	-2.09
SD	0.79
CV	0.378

Table D16 Percentage change of body mass during GLUT trial

Subject	Baseline – 0 min	0 - Final	Baseline - Final
1	-2.22	-0.79	-3.17
2	-2.24	-1.90	-4.43
3	-3.18	-0.23	-4.65
4	-2.17	-0.45	-2.76
5	-2.34	-0.78	-3.18
6	-2.31	-1.19	-3.61
7	-2.56	-1.21	-5.57
Mean	-2.43	-0.94	-3.91
SD	0.35	0.56	1.01
CV	0.144	0.596	0.258

Table D17 Percentage change of body mass during PCB trial

Subject	Baseline – 0 min	0 - Final	Baseline - Final
1	-2.17	-0.73	-3.12
2	-2.39	-2.57	-5.28
3	-2.72	-1.07	-3.95
4	-2.85	-0.07	-2.96
5	-2.49	-1.01	-3.57
6	-2.35	-1.27	-3.70
7	-2.60	-1.24	-3.99
Mean	-2.51	-1.14	-3.80
SD	0.23	0.75	0.76
CV	0.092	0.658	0.200

Table D18 Urine specific gravity measurements during CON trial

Time (min) Subject	0	Final
1	1.016	1.018
2	1.013	1.014
3	1.015	1.021
4	1.001	1.009
5	1.011	1.013
6	1.005	1.013
7	1.003	1.012
Mean	1.009	1.014
SD	0.006	0.004
CV	0.006	0.004

Table D19 Urine specific gravity measurements during GLUT trial

Time (min) Subject	Baseline	0	Final
1	1.019	1.027	1.029
2	1.019	1.030	1.029
3	1.008	1.014	1.023
4	1.005	1.008	1.022
5	1.006	1.017	1.023
6	1.020	1.020	1.025
7	1.003	1.015	1.022
Mean	1.011	1.019	1.024
SD	0.007	0.008	0.003
CV	0.007	0.008	0.003

Table D20 Urine specific gravity measurements during PCB trial

Time (min) Subject	Baseline	0	Final
1	1.019	1.026	1.028
2	1.009	1.019	1.026
3	1.008	1.015	1.023
4	1.007	1.009	1.021
5	1.011	1.009	1.017
6	1.019	1.025	1.024
7	1.003	1.017	1.024
Mean	1.011	1.017	1.023
SD	0.006	0.007	0.003
CV	0.006	0.007	0.003

Table D21 Sweat rate ($L \cdot min^{-1}$) measurements during CON, GLUT and PCB trials

Subject	Trials		
	CON	GLUT	PCB
1	1.63	2.07	1.79
2	2.02	1.81	2.15
3	1.77	0.89	1.57
4	1.38	1.89	1.08
5	1.79	1.67	1.76
6	2.05	2.57	1.87
7	1.91	1.79	1.89
Mean	1.79	1.81	1.73
SD	0.23	0.50	0.34
CV	0.128	0.276	0.197

Table D22 Fluid intake (L) measurements during CON, GLUT and PCB trials

Subject	Trials		
	CON	GLUT	PCB
1	0.470	0.760	0.710
2	0.190	0.710	0.470
3	0.200	0.770	0.720
4	0.780	0.890	0.650
5	0.120	1.140	1.140
6	0.380	1.320	1.200
7	0.830	1.220	1.220
Mean	0.424	0.973	0.873
SD	0.287	0.249	0.306
CV	0.677	0.256	0.351

Table D23 Oxygen uptake ($\text{mL}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$) during CON trial

Time (min) Subject	0	10	30	60	Final
1	5.05	45.71	45.68	-	48.64
2	6.70	48.93	47.14	46.79	58.43
3	3.38	40.70	41.21	41.80	50.50
4	5.94	41.85	41.82	-	41.49
5	2.29	40.42	40.92	42.70	48.00
6	2.97	32.60	33.70	34.94	48.94
7	2.87	41.69	44.11	43.56	55.41
Mean	4.17	41.70	42.08	41.96	50.20
SD	1.71	5.06	4.38	4.35	5.47
CV	0.410	0.121	0.104	0.104	0.109

Table D24 Oxygen uptake ($\text{mL}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$) during GLUT trial

Time (min) Subject	0	10	30	60	Final
1	6.75	47.91	49.95	-	50.19
2	5.19	46.05	48.74	48.87	53.43
3	5.20	39.61	42.22	42.34	47.11
4	5.87	42.13	43.07	-	45.08
5	3.46	42.82	42.12	39.60	46.16
6	4.47	36.14	37.60	36.17	50.70
7	2.83	42.03	45.36	42.79	54.42
Mean	4.82	42.39	44.15	41.95	49.58
SD	1.36	3.89	4.24	4.68	3.60
CV	0.282	0.092	0.096	0.112	0.073

Table D25 Oxygen uptake ($\text{mL.kg}^{-1}.\text{min}^{-1}$) during PCB trial

Time (min) Subject	0	10	30	60	Final
1	6.97	46.05	48.27	-	49.83
2	6.55	47.31	49.40	48.93	51.36
3	4.10	41.73	42.51	44.54	42.95
4	6.86	44.33	44.39	-	45.31
5	2.11	41.71	44.15	43.47	50.46
6	3.39	35.01	36.30	35.44	45.01
7	2.44	43.76	45.60	46.11	55.25
Mean	4.63	42.84	44.37	43.70	48.60
SD	2.12	4.02	4.30	5.05	4.33
CV	0.458	0.094	0.097	0.116	0.089

Table D26 Plasma viscosity (mPa.s) during CON trial

Time (min) Subject	0	10	30	60	Final
1	1.41	1.41	1.41	-	1.67
2	1.41	1.54	1.54	1.67	1.80
3	1.54	1.67	1.54	1.67	1.54
4	1.29	1.41	1.54	-	1.67
5	1.48	1.67	1.80	1.80	1.80
6	1.67	1.67	1.67	1.67	1.67
7	1.41	1.54	1.54	1.67	1.99
Mean	1.46	1.56	1.58	1.70	1.73
SD	0.12	0.12	0.12	0.06	0.14
CV	0.082	0.077	0.076	0.035	0.081

Table D27 Plasma viscosity (mPa.s) during GLUT trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	1.41	2.06	2.06	1.67	-	2.31
2	1.41	1.80	1.80	1.54	1.54	1.80
3	1.93	1.80	1.93	1.93	2.06	2.18
4	1.29	1.41	1.67	1.80	-	1.80
5	1.41	1.73	1.67	1.73	2.06	2.06
6	1.48	1.80	1.93	2.06	2.06	2.06
7	1.73	1.61	1.67	2.06	1.93	2.06
Mean	1.52	1.74	1.82	1.83	1.93	2.04
SD	0.22	0.20	0.16	0.20	0.22	0.19
CV	0.145	0.115	0.088	0.109	0.114	0.093

Table D28 Plasma viscosity (mPa.s) during PCB trial

Time (min) Subject	0	10	30	60	Final
1	-	1.80	1.93	1.80	-
2	1.41	1.80	1.80	1.41	-
3	1.54	1.93	1.80	2.06	-
4	1.54	1.67	1.54	1.80	-
5	1.35	1.67	2.06	1.93	1.67
6	1.67	1.67	1.67	1.93	1.67
7	1.80	2.06	2.06	2.06	2.18
Mean	1.55	1.80	1.84	1.85	1.84
SD	0.16	0.15	0.19	0.22	0.30
CV	0.103	0.083	0.103	0.119	0.163

Table D29 Serum osmolality (osmol/kg) during CON trial

Time (min) Subject	0	10	30	60	Final
1	0.292	0.288	0.299	-	0.308
2	0.293	0.296	0.293	0.299	0.312
3	0.286	0.288	0.289	0.291	0.298
4	0.284	0.292	0.288	-	0.289
5	0.280	0.286	0.285	0.291	0.291
6	0.288	0.299	0.297	0.297	0.306
7	0.288	0.290	0.287	0.291	0.299
Mean	0.287	0.291	0.291	0.294	0.300
SD	0.005	0.005	0.005	0.004	0.009
CV	0.017	0.017	0.017	0.014	0.030

Table D30 Serum osmolality (osmol/kg) during GLUT trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	0.281	0.287	0.304	0.300	-	0.292
2	0.290	0.293	0.301	0.299	0.295	0.303
3	0.288	0.288	0.292	0.293	0.295	0.296
4	0.289	0.295	0.295	0.298	-	0.299
5	0.283	0.290	0.296	0.296	0.299	0.297
6	0.299	0.301	0.310	0.310	0.308	0.318
7	0.290	0.293	0.299	0.297	0.301	0.303
Mean	0.288	0.292	0.299	0.299	0.299	0.301
SD	0.006	0.005	0.006	0.005	0.005	0.009
CV	0.021	0.017	0.020	0.017	0.017	0.030

Table D31 Serum osmolality (osmol/kg) during PCB trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	-	0.300	0.295	0.303	-	0.296
2	0.290	0.292	0.299	0.297	-	0.302
3	0.283	0.292	0.293	0.294	-	0.298
4	0.289	0.290	0.294	0.294	-	0.294
5	0.285	0.289	0.294	0.296	0.292	0.296
6	0.296	0.300	0.307	0.303	0.301	0.307
7	0.285	0.297	0.296	0.295	0.298	0.304
Mean	0.288	0.294	0.297	0.297	0.297	0.299
SD	0.005	0.005	0.005	0.004	0.005	0.005
CV	0.017	0.017	0.017	0.013	0.017	0.017

Table D32 Plasma glucose (mmol/L) during CON trial

Time (min) Subject	0	10	30	60	Final
1	4.5	3.3	3.8	-	4.9
2	4.7	4.9	6.4	6.6	9.6
3	4.3	5.3	5.3	5.5	6.8
4	5.1	4.2	4.9	-	5.0
5	4.5	4.0	3.9	4.1	5.1
6	5.2	4.3	4.6	4.5	8.2
7	4.2	5.1	5.4	5.5	6.3
Mean	4.6	4.4	4.9	5.2	6.5
SD	0.4	0.7	0.9	1.0	1.8
CV	0.087	0.159	0.184	0.192	0.277

Table D33 Plasma glucose (mmol/L) during GLUT trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	4.4	4.6	4.4	5.8	-	6.3
2	4.5	4.2	4.2	5.6	7.4	9.9
3	5.0	5.5	5.5	6.9	6.7	7.9
4	5.5	4.9	4.3	5.6	-	6.1
5	5.4	4.2	4.2	4.9	4.7	5.7
6	4.6	4.1	4.1	4.4	4.5	6.7
7	5.2	4.5	4.9	5.8	6.6	8.8
Mean	4.9	4.6	4.5	5.6	6.0	7.3
SD	0.4	0.5	0.5	0.8	1.3	1.5
CV	0.082	0.109	0.111	0.143	0.217	0.205

Table D34 Plasma glucose (mmol/L) during PCB trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	-	4.5	4.8	5.5	-	5.9
2	4.4	4.7	7.6	9.6	-	9.4
3	4.0	4.4	5.0	6.0	-	6.2
4	6.1	5.5	4.7	5.9	-	6.6
5	5.2	4.3	4.1	4.5	4.8	4.8
6	6.4	4.8	3.9	5.0	4.4	7.8
7	4.8	4.3	4.4	5.4	5.8	8.6
Mean	5.2	4.6	4.9	6.0	5.0	7.0
SD	0.9	0.4	1.2	1.7	0.7	1.6
CV	0.173	0.087	0.245	0.283	0.140	0.229

Table D35 Plasma lactate (mmol/L) during CON trial

Time (min) Subject	0	10	30	60	Final
1	1.6	1.7	1.8	-	2.6
2	1.0	3.0	2.7	3.9	12.3
3	1.6	2.3	1.7	2.3	6.9
4	0.9	1.7	1.8	-	1.0
5	3.6	4.0	4.0	4.3	4.8
6	3.8	4.3	4.4	3.9	7.5
7	1.0	1.3	0.6	1.9	7.5
Mean	1.9	2.6	2.4	3.3	6.1
SD	1.2	1.2	1.4	1.1	3.7
CV	0.632	0.462	0.583	0.333	0.607

Table D36 Plasma lactate (mmol/L) during GLUT trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	1.7	1.4	1.6	2.9	-	3.5
2	1.2	1.1	1.8	2.0	2.9	8.3
3	1.0	2.4	1.7	2.1	2.3	4.2
4	0.9	1.0	1.3	1.5	-	2.6
5	4.1	3.8	3.9	4.1	4.4	4.9
6	3.7	3.6	4.0	3.9	3.9	6.9
7	0.6	0.8	1.1	1.3	2.0	5.4
Mean	1.9	2.0	2.2	2.5	3.1	5.1
SD	1.4	1.3	1.2	1.1	1.0	2.0
CV	0.737	0.650	0.545	0.440	0.323	0.392

Table D37 Plasma lactate (mmol/L) during PCB trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	-	1.4	1.5	2.0	-	2.0
2	1.3	1.3	2.0	2.7	-	2.7
3	2.4	1.7	1.5	1.8	-	2.3
4	1.2	0.7	2.2	2.2	-	2.3
5	3.7	4.1	4.2	4.1	4.6	5.6
6	4.2	3.8	4.0	3.9	4.1	5.9
7	0.4	0.8	0.5	1.5	1.8	8.3
Mean	2.2	2.0	2.3	2.6	3.5	4.1
SD	1.5	1.4	1.4	1.0	1.5	2.5
CV	0.682	0.700	0.609	0.385	0.429	0.610

Table D38 Serum [Na⁺] (mmol/L) during CON trial

Time (min) Subject	0	10	30	60	Final
1	139	141	142	-	143
2	139	141	142	139	144
3	140	140	139	140	141
4	138	140	139	-	139
5	142	142	141	142	141
6	138	140	140	142	140
7	137	141	140	141	142
Mean	139.0	140.7	140.4	140.8	141.4
SD	1.6	0.8	1.3	1.3	1.7
CV	0.012	0.006	0.009	0.009	0.012

Table D39 Serum [Na⁺] during GLUT trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	139	142	144	144	-	144
2	140	141	144	142	143	142
3	140	140	141	138	139	140
4	138	140	142	143	-	142
5	141	143	146	144	145	143
6	137	140	142	142	141	139
7	138	144	145	146	146	147
Mean	139.0	141.4	143.4	142.7	142.8	142.4
SD	1.4	1.6	1.8	2.5	2.9	2.6
CV	0.010	0.011	0.013	0.018	0.020	0.018

Table D40 Serum [Na⁺] (mmol/L) during PCB trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	139	144	145	145	-	143
2	140	138	141	140	-	141
3	139	142	141	141	-	141
4	137	139	140	141	-	139
5	142	146	145	144	146	145
6	138	141	142	141	140	140
7	140	144	145	144	144	144
Mean	139.3	142.0	142.7	142.3	143.3	141.9
SD	1.6	2.9	2.2	2.0	3.1	2.2
CV	0.011	0.020	0.015	0.014	0.022	0.016

Table D41 Serum [K⁺] (mmol/L) during CON trial

Time (min) Subject	0	10	30	60	Final
1	4.8	5.7	5.6		5.6
2	5.1	5.4	5.2	5.3	5.0
3	5.4	5.0	4.9	4.4	4.9
4	4.1	4.9	5.0		3.9
5	4.7	5.0	5.0	5.1	4.4
6	3.6	4.5	4.5	4.7	4.2
7	4.3	4.8	5.8	5.0	3.9
Mean	4.6	5.0	5.1	4.9	4.6
SD	0.6	0.4	0.4	0.4	0.6
CV	0.130	0.080	0.078	0.082	0.130

Table D42 Serum [K⁺] (mmol/L) during GLUT trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	5.5	4.5	5.5	5.5	-	4.7
2	5.0	5.3	5.5	5.6	5.5	4.4
3	5.5	4.8	5.3	5.3	5.5	4.4
4	4.9	4.7	5.4	5.2	-	4.4
5	4.9	4.9	5.2	5.1	5.1	4.4
6	4.5	3.9	5.1	5.3	5.7	6.1
7	4.3	3.9	4.7	4.7	4.7	4.6
Mean	4.9	4.6	5.2	5.2	5.3	4.7
SD	0.5	0.5	0.3	0.3	0.4	0.6
CV	0.102	0.109	0.058	0.058	0.075	0.128

Table D43 Serum [K⁺] (mmol/L) during PCB trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	5.2	4.7	5.2	5.5	-	4.3
2	5.2	4.3	5.5	4.8	-	4.3
3	4.8	4.9	5.5	4.9	-	4.7
4	4.8	4.4	5.4	5.2	-	4.2
5	5.0	5.1	4.7	5.3	5.4	4.7
6	4.4	4.5	5.1	5.3	5.2	5.0
7	4.8	4.6	5.0	5.1	5.1	3.9
Mean	4.9	4.6	5.2	5.2	5.2	4.4
SD	0.3	0.3	0.3	0.2	0.2	0.4
CV	0.061	0.065	0.058	0.038	0.038	0.091

Table D44 Serum [Cl⁻] (mmol/L) during CON trial

Time (min) Subject	0	10	30	60	Final
1	108	111	111	-	111
2	107	110	110	108	109
3	108	108	108	105	108
4	108	111	111	-	110
5	110	112	115	113	111
6	106	110	111	111	110
7	107	109	111	112	110
Mean	107.7	110.1	111.0	109.8	109.9
SD	1.3	1.3	2.1	3.3	1.1
CV	0.012	0.012	0.019	0.030	0.010

Table D45 Serum [Cl⁻] (mmol/L) during GLUT trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	108	110	113	115	-	114
2	107	109	112	113	112	109
3	107	107	107	106	108	108
4	110	110	114	115	-	115
5	111	111	116	115	115	112
6	106	108	111	111	110	109
7	106	111	113	115	114	114
Mean	107.9	109.4	112.3	112.9	111.8	111.6
SD	2.0	1.5	2.8	3.4	2.9	2.9
CV	0.019	0.014	0.025	0.030	0.026	0.026

Table D46 Serum [Cl⁻] (mmol/L) during PCB trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	107	111	115	115	-	115
2	107	112	110	108	-	108
3	105	107	108	108	-	107
4	107	109	114	113	-	112
5	112	117	113	117	117	114
6	104	107	111	111	111	110
7	107	108	112	112	112	111
Mean	107.0	110.1	111.9	112.0	113.3	111.0
SD	2.5	3.6	2.4	3.4	3.2	2.9
CV	0.023	0.033	0.021	0.030	0.028	0.026

Table D47 Plasma protein (g/dL) during CON trial

Time (min) Subject	0	10	30	60	Final
1	7.33	7.57	7.94	-	8.03
2	8.27	8.63	8.86	8.32	9.79
3	7.51	7.48	7.48	7.45	8.67
4	7.31	8.06	8.09	-	7.83
5	7.17	6.95	7.62	7.49	7.97
6	7.52	8.00	8.20	8.13	8.07
7	6.98	7.90	7.97	7.67	8.20
Mean	7.44	7.80	8.02	7.81	8.36
SD	0.41	0.53	0.45	0.39	0.68
CV	0.055	0.068	0.056	0.050	0.081

Table D48 Plasma protein (g/dL) during GLUT trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	-	7.88	8.06	7.97	-	7.88
2	7.48	7.64	7.98	8.63	9.09	7.80
3	7.75	8.00	8.39	8.49	8.52	8.55
4	7.70	8.23	8.03	8.44	-	8.78
5	6.89	7.30	7.84	8.04	7.24	7.84
6	6.42	6.53	7.22	7.50	7.53	8.31
7	7.20	7.30	7.24	7.94	8.26	8.13
Mean	7.25	7.59	7.92	8.18	8.09	8.19
SD	0.58	0.61	0.39	0.42	0.86	0.41
CV	0.080	0.080	0.049	0.051	0.106	0.050

Table D49 Plasma protein (g/dL) during PCB trial

Time (min) Subject	Baseline	0	10	30	60	Final
1	7.60	8.06	8.00	8.00	-	8.06
2	7.61	7.72	8.70	8.76	-	8.42
3	7.66	8.00	8.06	8.24	-	8.39
4	7.44	8.59	8.50	8.69	-	8.86
5	6.76	6.92	8.16	7.78	7.91	7.94
6	6.97	7.97	7.57	7.48	7.87	8.04
7	7.20	7.20	8.00	7.65	8.04	8.26
Mean	7.34	7.88	8.17	8.16	7.89	8.28
SD	0.38	0.55	0.40	0.51	0.03	0.34
CV	0.052	0.070	0.049	0.063	0.004	0.041

Table D50 Plasma renin (pg/mL) during CON trial

Time (min) Subject	0	Final
1	11.92	66.82
2	13.49	124.7
3	33.11	297.79
4	12.16	
5	7.91	31.13
6	12.17	181.61
7	20.53	104.93
Mean	15.90	134.50
SD	8.48	94.99
CV	0.533	0.706

Table D51 Plasma renin (pg/mL) during GLUT trial

Time (min) Subject	Baseline	0	Final
1	11.28	14.62	170.59
2	9.08	40.49	294.48
3	29.32	64.67	467.44
4	6.43	13.92	103.45
5	26.82	34.99	142.11
6	72.97	52.37	425.87
7	22.6	59.37	174.85
Mean	25.50	40.06	254.11
SD	22.78	20.36	144.42
CV	0.893	0.508	0.568

Table D52 Plasma renin (pg/mL) during PCB trial

Time (min) Subject	Baseline	0	Final
1	16.01	21.01	151.15
2	28.79	60.86	229.51
3	98.77	133.63	485.32
4	-	20.35	180.95
5	17.55	14.78	73.90
6	50.35	31.74	270.45
7	-	63.61	148.71
Mean	42.29	49.43	220.00
SD	34.42	42.01	132.74
CV	0.814	0.850	0.603

Table D53 Thermal comfort scale during CON trial

Time (min) Subject	0	30	60	Final
1	6.0	6.0	6.0	6.0
2	5.0	3.0	5.0	5.0
3	5.0	6.0	5.0	6.0
4	5.0	6.0	-	6.0
5	5.0	5.0	6.0	6.0
6	5.5	5.0	5.0	4.0
7	5.0	5.0	5.5	5.0
Mean	5.2	5.1	5.4	5.4
SD	0.4	1.1	0.5	0.8
CV	0.077	0.216	0.093	0.148

Table D54 Thermal comfort scale during GLUT trial

Time (min) Subject	0	30	60	Final
1	5.0	6.0	-	6.0
2	5.0	4.0	4.0	4.0
3	4.0	5.0	7.0	7.0
4	5.0	6.0	-	7.0
5	1.0	5.0	5.0	7.0
6	5.0	5.0	5.0	5.0
7	5.0	5.0	5.0	5.0
Mean	4.3	5.1	5.2	5.9
SD	1.5	0.7	1.1	1.2
CV	0.349	0.137	0.212	0.203

Table D55 Thermal comfort scale during PCB trial

Time (min) Subject	0	30	60	Final
1	5.0	6.0	5.0	6.0
2	2.0	4.0	4.0	4.0
3	5.0	6.0	-	7.0
4	5.0	6.0	-	7.0
5	4.0	5.0	5.0	6.0
6	5.0	5.0	5.0	5.0
7	4.0	5.0	5.0	5.0
Mean	4.3	5.3	4.8	5.7
SD	1.1	0.8	0.4	1.1
CV	0.256	0.151	0.083	0.193

Table D56 Thirst sensation during CON trial

Time (min) Subject	0	30	60	Final
1	0	2	2	3
2	2	3	4	5
3	3	5	3	6
4	3	5	-	5
5	1	2	6	6
6	0	2	3	5
7	2	4	4	4
Mean	1.6	3.3	3.7	4.9
SD	1.3	1.4	1.4	1.1
CV	0.813	0.424	0.378	0.224

Table D57 Thirst sensation during GLUT trial

Time (min) Subject	0	30	60	Final
1	3	4	-	4
2	2	5	4	5
3	4	1	3	4
4	7	6	-	8
5	4	3	4	6
6	2	4	3	5
7	4	3	4	5
Mean	3.7	3.7	3.6	5.3
SD	1.7	1.6	0.5	1.4
CV	0.459	0.432	0.139	0.264

Table D58 Thirst sensation during PCB trial

Time (min) Subject	0	30	60	Final
1	4	3	3	2
2	4	2	3	4
3	1	3	-	5
4	5	6	-	9
5	1	3	4	5
6	2	2	3	5
7	2	3	4	5
Mean	2.7	3.1	3.4	5.0
SD	1.6	1.3	0.5	2.1
CV	0.593	0.419	0.147	0.420

Table D59 Rating of perceived exertion (RPE) during CON trial

Time (min) Subject	0	30	60	Final
1	6	17	19	20
2	7	13	14	18
3	6	12	12	16
4	6	11	-	15
5	6	11	11	19
6	6	8	12	15
7	6	13	16	19
Mean	6.1	12.1	14.0	17.4
SD	0.4	2.7	3.0	2.1
CV	0.066	0.223	0.214	0.121

Table D60 Rating of perceived exertion (RPE) during GLUT trial

Time (min) Subject	0	30	60	Final
1	6	20	-	20
2	6	16	17	20
3	6	11	14	16
4	6	15	-	20
5	6	15	17	19
6	6	9	9	15
7	3	14	15	20
Mean	5.6	14.3	14.4	18.6
SD	1.1	3.5	3.3	2.1
CV	0.196	0.245	0.229	0.113

Table D61 Rating of perceived exertion (RPE) during PCB trial

Time (min) Subject	0	30	60	Final
1	6	15	16	18
2	6	16	19	20
3	6	13	-	17
4	6	18	-	20
5	6	13	16	19
6	6	10	10	15
7	6	14	15	20
Mean	6.0	14.1	15.2	18.4
SD	0.0	2.5	3.3	1.9
CV	0.000	0.177	0.217	0.103

Table D62 Heart rate (beats.min⁻¹) responses during CON trial

Subject	Time (min)																			
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	66	69	72	75	78	Final
1	56	133	141	141	148	152	157	158	164	168	171	174	176	176	-	-	-	-	-	176
2	66	150	156	156	156	158	161	160	163	165	164	168	168	171	178	180	185	-	-	185
3	63	142	147	153	157	158	158	156	160	161	164	164	166	167	173	178	182	-	-	182
4	70	145	150	156	164	173	172	175	173	175	174	176	181	-	-	-	-	-	-	181
5	73	154	160	165	162	167	169	174	175	177	179	180	183	191	195	-	-	-	-	195
6	80	128	132	139	144	144	149	147	149	151	153	154	154	167	171	180	187	192	194	194
7	74	146	150	151	149	152	157	161	162	164	166	169	170	172	176	182	184	-	-	184
Mean	69	143	148	152	154	158	160	162	164	166	167	169	171	174	179	180	185	192	194	185
SD	8	9	9	9	7	10	8	10	9	9	8	9	10	9	10	2	2	-	-	7
CV	0.116	0.063	0.061	0.059	0.045	0.063	0.050	0.062	0.055	0.054	0.048	0.053	0.058	0.052	0.056	0.011	0.011			0.038

Table D63 Heart rate (beats.min⁻¹) responses during GLUT trial

Subject	Time (min)																			
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	66	69	72	75	78	Final
1	60	149	152	157	164	167	169	169	170	-	-	-	-	-	-	-	-	-	-	170
2	67	147	156	163	166	169	169	169	174	177	176	181	181	187	187	193	198	-	-	198
3	82	146	158	160	164	161	164	157	160	164	169	170	172	171	176	181	-	-	-	181
4	77	154	162	166	169	175	177	180	184	185	-	-	-	-	-	-	-	-	-	185
5	109	159	169	169	175	176	178	179	181	183	189	190	190	196	-	-	-	-	-	196
6	98	137	149	149	158	159	157	156	159	160	160	160	158	167	180	182	189	191	194	194
7	73	135	147	152	149	153	155	145	156	160	160	162	159	164	169	178	182	-	-	182
Mean	81	147	156	159	164	166	167	165	169	172	171	173	172	177	178	184	190	191	194	187
SD	17	9	8	7	8	8	9	13	11	12	12	13	14	14	8	7	8			10
CV	0.210	0.061	0.051	0.044	0.049	0.048	0.054	0.079	0.065	0.070	0.070	0.075	0.081	0.079	0.045	0.038	0.042	0.000	0.000	0.053

Table D64 Heart rate (beats.min⁻¹) responses during PCB trial

Subject	Time (min)																			
	0	5	10	15	20	25	30	35	40	45	50	55	60	63	66	69	72	75	78	Final
1	47	147	152	156	158	163	165	165	173	174	-	-	-	-	-	-	-	-	-	174
2	92	153	159	164	168	171	171	167	175	178	182	184	185	190	191	-	-	-	-	191
3	80	148	158	162	168	168	169	173	177	180	182	182	184	-	-	-	-	-	-	184
4	81	150	158	173	177	181	183	186	186	-	-	-	-	-	-	-	-	-	-	186
5	80	158	166	170	168	175	181	179	180	183	182	184	184	192	198	-	-	-	-	198
6	87	133	149	153	156	163	165	162	166	174	172	172	175	184	186	189	191	194	194	194
7	74	138	145	151	154	156	161	162	164	164	165	166	170	171	176	185	185	-	-	185
Mean	77	147	155	161	164	168	171	171	174	176	177	178	180	184	188	187	188	194	194	187
SD	15	9	7	8	8	8	8	9	8	7	8	8	7	9	9	3	4	-	-	8
CV	0.195	0.061	0.045	0.050	0.049	0.048	0.047	0.053	0.046	0.040	0.045	0.045	0.039	0.049	0.048	0.016	0.021	#####	#####	0.04

Table D65 Rectal temperature (°C) responses during CON trial

Subject	Time (min)													
	0	5	10	15	20	25	30	35	40	45	50	55	60	Final
1	36.7	36.7	37.0	37.8	38.0	38.0	38.3	38.3	38.3	38.5	38.7	38.7	38.8	38.9
2	36.7	37.1	37.5	37.9	38.1	38.3	38.5	38.6	38.6	38.7	38.8	38.9	39.0	39.6
3	36.6	36.7	37.2	37.7	37.9	38.1	38.3	38.6	38.7	38.7	38.8	38.9	38.9	39.2
4	37.0	37.4	37.8	38.3	38.5	38.7	38.8	38.9	39.0	39.2	39.4	39.6	39.7	39.7
5	37.1	37.5	37.9	38.1	38.6	38.8	39.3	39.3	39.5	39.6	39.8	40.0	40.2	40.5
6	36.8	37.1	37.3	37.6	37.8	37.9	38.1	38.2	38.2	38.2	38.3	38.4	38.4	39.1
7	36.6	36.9	37.3	37.7	38.0	38.2	38.4	38.6	38.8	39.0	39.2	39.3	39.4	39.7
Mean	36.8	37.1	37.4	37.9	38.1	38.3	38.6	38.7	38.8	38.9	39.0	39.1	39.2	39.5
SD	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.5
CV	0.005	0.008	0.008	0.008	0.008	0.008	0.010	0.010	0.010	0.013	0.013	0.013	0.015	0.013

Table D66 Rectal temperature (°C) responses during GLUT trial

Subject	Time (min)													
	0	5	10	15	20	25	30	35	40	45	50	55	60	Final
1	37.0	37.1	37.5	37.7	38.1	38.3	38.5	38.7	38.9	-	-	-	-	38.9
2	36.9	37.1	37.4	38.0	38.1	38.4	38.6	38.7	38.9	39.1	39.2	39.5	39.5	40.1
3	37.1	37.2	37.5	38.0	38.4	38.5	38.7	38.8	38.8	38.9	38.9	39.0	39.0	39.2
4	37.0	37.5	37.6	37.8	38.3	38.7	38.9	39.3	39.7	39.8	-	-	-	39.8
5	37.4	37.6	37.7	38.1	38.5	38.8	39.2	39.6	39.7	39.8	40.0	40.2	40.5	40.6
6	37.5	37.5	37.8	38.1	38.2	38.3	38.5	38.6	38.7	38.8	38.9	39.0	39.0	39.5
7	37.0	37.1	37.2	37.3	37.8	38.0	38.3	38.7	38.9	39.0	39.1	39.2	39.4	39.7
Mean	37.1	37.3	37.5	37.9	38.2	38.5	38.7	38.9	39.1	39.3	39.3	39.4	39.5	39.7
SD	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.6	0.6
CV	0.005	0.005	0.005	0.008	0.005	0.008	0.008	0.010	0.010	0.010	0.010	0.013	0.015	0.015

Table D67 Rectal temperature (°C) responses during PCB trial

Subject	Time (min)													
	0	5	10	15	20	25	30	35	40	45	50	55	60	Final
1	36.6	36.7	37.0	37.3	37.7	37.9	38.1	38.3	38.6	38.7	-	-	-	38.7
2	37.3	37.6	38.0	38.2	38.4	38.7	38.8	38.9	39.0	39.2	39.5	39.6	39.7	40.0
3	37.0	37.1	37.4	37.7	38.1	38.3	38.5	38.7	38.9	39.0	39.2	39.5	39.6	39.6
4	37.0	37.2	37.6	38.0	38.4	38.8	39.0	39.4	39.7	-	-	-	-	39.7
5	37.3	37.2	37.5	38.0	38.3	38.5	38.6	38.9	39.1	39.3	39.3	39.6	39.7	39.9
6	37.3	37.4	37.6	38.0	38.2	38.4	38.6	38.7	38.8	38.9	39.0	39.1	39.1	39.6
7	36.9	37.0	37.5	37.8	38.0	38.4	38.8	38.9	39.1	39.1	39.4	39.6	39.7	40.1
Mean	37.1	37.2	37.5	37.9	38.2	38.5	38.7	38.8	39.1	39.1	39.3	39.5	39.5	39.7
SD	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.5
CV	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.005	0.005	0.005	0.005	0.013

Table D68 Mean skin temperature (°C) responses during CON trial

Subject	Time (min)													
	0	5	10	15	20	25	30	35	40	45	50	55	60	Final
1	34.8	34.1	34.1	33.0	33.1	32.9	33.1	33.7	32.9	33.4	33.2	34.2	34.3	34.3
2	35.0	35.1	34.9	34.2	33.6	33.8	33.9	34.1	33.8	33.7	33.9	33.9	33.9	33.7
3	35.4	35.4	35.1	35.2	34.3	34.2	34.8	34.9	34.6	34.4	34.5	34.6	34.7	34.5
4	34.8	35.0	35.7	35.8	36.0	36.3	36.6	36.1	35.8	36.4	36.6	36.8	-	36.8
5	34.9	35.2	35.4	35.5	35.6	35.8	36.3	35.8	36.0	36.2	36.4	36.6	36.8	36.8
6	34.9	34.4	34.8	34.1	33.4	33.5	33.5	33.0	33.1	33.2	33.2	33.4	33.7	33.4
7	34.8	35.1	35.5	35.3	35.5	35.5	35.5	35.4	35.4	35.6	35.6	35.3	34.1	34.7
Mean	34.9	34.9	35.1	34.7	34.5	34.6	34.8	34.7	34.5	34.7	34.8	35.0	34.6	34.9
SD	0.2	0.5	0.5	1.0	1.2	1.3	1.4	1.1	1.3	1.3	1.4	1.3	1.1	1.4
CV	0.006	0.014	0.014	0.029	0.035	0.038	0.040	0.032	0.038	0.037	0.040	0.037	0.032	0.040

Table D69 Mean skin temperature (°C) responses during GLUT trial

Subject	Time (min)													
	0	5	10	15	20	25	30	35	40	45	50	55	60	Final
1	35.3	35.3	35.3	33.9	33.9	34.0	34.0	33.5	33.9	-	-	-	-	33.9
2	32.3	33.6	34.3	34.9	34.6	34.8	35.1	34.5	34.9	34.8	35.0	35.0	35.4	34.9
3	35.4	36.1	35.7	34.9	35.0	34.8	33.8	33.8	33.8	34.0	34.1	34.1	34.2	34.3
4	35.6	35.8	35.8	35.9	35.9	35.9	36.4	36.1	36.4	36.5	-	-	-	36.5
5	34.4	34.8	35.2	35.1	35.4	35.6	35.8	35.8	36.0	36.0	36.0	36.1	36.1	35.9
6	32.4	33.4	34.2	34.0	34.0	34.5	34.5	34.0	34.2	34.4	34.4	34.5	34.7	34.3
7	31.9	32.5	34.1	34.3	34.6	34.8	34.8	35.3	34.5	34.7	34.9	35.0	35.1	34.9
Mean	33.9	34.5	34.9	34.7	34.8	34.9	34.9	34.7	34.8	35.1	34.9	34.9	35.1	35.0
SD	1.6	1.3	0.7	0.7	0.7	0.7	0.9	1.0	1.0	1.0	0.7	0.7	0.7	0.9
CV	0.047	0.038	0.020	0.020	0.020	0.020	0.026	0.029	0.029	0.028	0.020	0.020	0.020	0.026

Table D70 Mean skin temperature (°C) responses during PCB trial

Subject	Time (min)													
	0	5	10	15	20	25	30	35	40	45	50	55	60	Final
1	34.6	34.8	35.0	34.0	33.9	33.9	34.1	34.1	34.0	34.1	-	-	-	34.1
2	35.5	35.1	35.1	34.8	34.7	35.1	35.3	35.3	34.0	34.5	34.7	34.9	34.8	34.8
3	34.5	34.9	35.1	34.4	34.7	34.7	34.9	34.8	34.3	34.5	34.6	34.7	-	34.7
4	34.9	35.1	35.7	35.8	35.9	36.3	36.5	36.7	36.3	-	-	-	-	36.3
5	34.4	34.9	35.7	35.4	35.5	35.6	35.9	35.6	35.9	36.1	36.3	36.4	36.5	36.3
6	33.3	33.9	34.8	34.4	34.6	34.5	34.6	34.1	34.3	34.3	34.4	34.4	34.8	34.2
7	31.9	32.8	34.7	34.8	35.2	35.4	35.1	35.3	35.2	35.3	35.4	35.4	35.4	35.3
Mean	34.1	34.5	35.2	34.8	34.9	35.1	35.2	35.1	34.9	34.8	35.1	35.2	35.4	35.1
SD	1.2	0.8	0.4	0.6	0.7	0.8	0.8	0.9	0.9	0.7	0.8	0.8	0.8	0.9
CV	0.035	0.023	0.011	0.017	0.020	0.023	0.023	0.026	0.026	0.020	0.023	0.023	0.023	0.026