

**Table S1. Mean rates of energy expenditure, mean respiratory exchange ratios, mean core body temperatures and mean physical activities as functions of ambient temperature**

			Temperature-dynamic				Temperature-equilibrated			
			<i>Them1<sup>+/-</sup></i>	<i>Them1<sup>-/-</sup></i>	Increase	P value	<i>Them1<sup>+/-</sup></i>	<i>Them1<sup>-/-</sup></i>	Increase	P value
<b>Mean rate of energy expenditure (kJ/h)</b>	30°C	Total	1.05 ± 0.08	1.21 ± 0.08	0.17 ± 0.08	0.06	1.17 ± 0.04	1.26 ± 0.04	0.13 ± 0.08	0.24
		Light	0.96 ± 0.08	1.13 ± 0.08	0.17 ± 0.06	0.06	0.84 ± 0.04	0.96 ± 0.04	0.13 ± 0.08	0.22
		Dark	1.17 ± 0.08	1.34 ± 0.08	0.17 ± 0.08	0.08	1.42 ± 0.08	1.55 ± 0.08	0.08 ± 0.08	0.28
	22°C	Total	1.67 ± 0.04	1.88 ± 0.04	0.21 ± 0.08	0.005	1.76 ± 0.04	1.80 ± 0.04	0.04 ± 0.04	0.60
		Light	1.46 ± 0.04	1.67 ± 0.04	0.21 ± 0.08	0.003	1.55 ± 0.04	1.63 ± 0.04	0.08 ± 0.08	0.18
		Dark	1.92 ± 0.04	2.09 ± 0.04	0.17 ± 0.08	0.015	1.97 ± 0.04	1.97 ± 0.04	-0.02 ± 0.08	0.76
	15°C	Total	2.43 ± 0.04	2.64 ± 0.04	0.21 ± 0.08	0.003				
		Light	2.13 ± 0.04	2.47 ± 0.04	0.33 ± 0.08	<0.0001				
		Dark	2.68 ± 0.04	2.80 ± 0.04	0.13 ± 0.08	0.092				
4°C	Total	3.26 ± 0.04	3.51 ± 0.04	0.25 ± 0.04	<0.0001	3.31 ± 0.08	3.39 ± 0.04	0.09 ± 0.11	0.38	
	Light	3.05 ± 0.04	3.31 ± 0.04	0.25 ± 0.04	<0.0001	3.14 ± 0.08	3.26 ± 0.08	0.12 ± 0.11	0.27	
	Dark	3.47 ± 0.04	3.72 ± 0.04	0.21 ± 0.04	0.0003	3.47 ± 0.08	3.56 ± 0.08	0.07 ± 0.11	0.53	
<b>Mean respiratory exchange ratio</b>	30°C	Total	0.83 ± 0.07	0.84 ± 0.07	0.00 ± 0.10	0.97	0.99 ± 0.01	1.00 ± 0.01	0.01 ± 0.01	0.27
		Light	0.81 ± 0.07	0.82 ± 0.07	0.01 ± 0.10	0.93	0.98 ± 0.01	1.00 ± 0.01	0.02 ± 0.01	0.09
		Dark	0.86 ± 0.07	0.85 ± 0.07	0.00 ± 0.10	0.99	0.99 ± 0.01	1.00 ± 0.01	0.01 ± 0.01	0.60
	22°C	Total	0.83 ± 0.06	0.83 ± 0.06	0.00 ± 0.08	0.98	0.94 ± 0.01	0.97 ± 0.01	0.03 ± 0.02	0.16
		Light	0.81 ± 0.06	0.80 ± 0.06	-0.01 ± 0.08	0.88	0.87 ± 0.01	0.92 ± 0.01	0.05 ± 0.02	0.02
		Dark	0.85 ± 0.06	0.86 ± 0.06	0.01 ± 0.08	0.92	1.01 ± 0.01	1.02 ± 0.01	0.01 ± 0.02	0.69
	15°C	Total	0.81 ± 0.05	0.83 ± 0.05	0.02 ± 0.08	0.78				
		Light	0.78 ± 0.05	0.79 ± 0.05	0.01 ± 0.08	0.86				
		Dark	0.84 ± 0.05	0.87 ± 0.05	0.03 ± 0.08	0.70				
4°C	Total	0.81 ± 0.05	0.81 ± 0.05	0.00 ± 0.07	0.95	0.93 ± 0.01	0.93 ± 0.01	0.00 ± 0.01	0.90	
	Light	0.78 ± 0.05	0.78 ± 0.05	0.00 ± 0.07	0.99	0.89 ± 0.01	0.90 ± 0.01	0.00 ± 0.01	0.43	
	Dark	0.85 ± 0.05	0.84 ± 0.05	-0.01 ± 0.07	0.92	0.97 ± 0.01	0.96 ± 0.01	0.00 ± 0.01	0.31	
<b>Mean core body temperature (°C)</b>	30°C	Total	36.2 ± 0.10	36.0 ± 0.10	-0.17 ± 0.15	0.27	36.4 ± 0.08	36.4 ± 0.08	-0.05 ± 0.12	0.70
		Light	35.8 ± 0.11	35.9 ± 0.11	0.07 ± 0.16	0.67	35.9 ± 0.09	36.0 ± 0.09	0.05 ± 0.12	0.69
		Dark	36.5 ± 0.11	36.1 ± 0.11	-0.40 ± 0.16	0.01	36.9 ± 0.09	36.7 ± 0.09	-0.14 ± 0.12	0.25
	22°C	Total	35.7 ± 0.20	35.3 ± 0.20	-0.46 ± 0.27	0.09	36.3 ± 0.09	36.2 ± 0.09	-0.12 ± 0.14	0.39
		Light	35.3 ± 0.20	34.9 ± 0.20	-0.41 ± 0.27	0.14	35.7 ± 0.10	35.7 ± 0.10	-0.04 ± 0.14	0.76
		Dark	36.2 ± 0.20	35.6 ± 0.20	-0.51 ± 0.27	0.06	36.8 ± 0.10	36.6 ± 0.10	-0.19 ± 0.14	0.16
	15°C	Total	35.6 ± 0.26	35.5 ± 0.26	-0.16 ± 0.37	0.67				
		Light	35.3 ± 0.27	35.2 ± 0.27	-0.12 ± 0.38	0.76				
		Dark	35.9 ± 0.27	35.7 ± 0.27	-0.20 ± 0.38	0.60				
4°C	Total	35.5 ± 0.40	35.5 ± 0.40	0.03 ± 0.61	0.95	35.4 ± 0.10	35.2 ± 0.10	-0.18 ± 0.20	0.35	
	Light	35.3 ± 0.43	35.3 ± 0.43	0.01 ± 0.61	0.99	35.1 ± 0.10	35.0 ± 0.10	-0.10 ± 0.20	0.62	
	Dark	35.7 ± 0.43	35.7 ± 0.43	0.06 ± 0.61	0.92	35.7 ± 0.10	35.4 ± 0.10	-0.27 ± 0.20	0.17	

**Table S1. Mean rates of energy expenditure, mean respiratory exchange ratios, mean core body temperatures and mean physical activities as functions of ambient temperature**

			Temperature-dynamic				Temperature-equilibrated			
			<i>Them1<sup>+/+</sup></i>	<i>Them1<sup>-/-</sup></i>	Increase	P value	<i>Them1<sup>+/+</sup></i>	<i>Them1<sup>-/-</sup></i>	Increase	P value
<b>Mean total activity (counts/h)</b>	30°C	Total	265.0 ± 29.7	263.8 ± 29.7	-1.2 ± 41.9	0.98	377.9 ± 35.6	287.8 ± 42.4	-90.1 ± 54.7	0.10
		Light	187.2 ± 31.7	235.4 ± 31.7	48.2 ± 44.8	0.28	159.1 ± 35.7	168.5 ± 43.7	9.4 ± 56.5	0.87
		Dark	342.8 ± 31.7	292.1 ± 31.7	-50.6 ± 44.8	0.26	593.5 ± 35.7	405.4 ± 43.7	-188.1 ± 56.4	0.0009
	22°C	Total	349.6 ± 33.0	322.3 ± 33.0	-27.2 ± 46.7	0.56	352.9 ± 30.3	289.3 ± 30.3	-63.6 ± 42.8	0.14
		Light	313.7 ± 34.9	300.6 ± 34.9	13.1 ± 49.4	0.79	159.2 ± 31.4	184.9 ± 31.4	25.7 ± 44.4	0.56
		Dark	385.9 ± 35.0	344.4 ± 35.0	-41.6 ± 49.5	0.40	543.8 ± 31.4	392.1 ± 31.4	-151.7 ± 44.4	0.0006
	15°C	Total	305.9 ± 37.9	281.0 ± 37.9	-24.9 ± 53.7	0.64				
		Light	289.9 ± 38.9	288.0 ± 38.9	-1.8 ± 55.0	0.97				
		Dark	321.9 ± 38.9	274.1 ± 38.9	-47.9 ± 55.0	0.38				
	4°C	Total	275.1 ± 39.5	263.5 ± 39.5	-11.5 ± 55.8	0.84	295.5 ± 12.2	210.5 ± 11.1	-85.0 ± 18.3	<0.0001
		Light	278.3 ± 39.9	253.8 ± 39.9	-24.6 ± 56.5	0.66	236.6 ± 14.3	172.6 ± 13.1	-64.0 ± 14.4	0.001
		Dark	271.8 ± 40.0	273.5 ± 40.0	1.7 ± 56.5	0.98	353.9 ± 14.3	248.0 ± 13.1	-105.7 ± 14.4	<0.0001
<b>Mean ambulatory activity (counts/h)</b>	30°C	Total	125.1 ± 35.8	162.4 ± 35.8	37.3 ± 50.6	0.46	194.8 ± 23.6	133.1 ± 28.9	-61.6 ± 37.3	0.10
		Light	75.1 ± 36.7	143.1 ± 36.7	68.0 ± 51.9	0.19	45.9 ± 24.3	64.2 ± 29.7	18.3 ± 38.4	0.64
		Dark	175.1 ± 36.7	181.7 ± 36.7	6.6 ± 51.9	0.90	341.5 ± 24.3	201.1 ± 29.7	-140.0 ± 38.4	0.0003
	22°C	Total	144.1 ± 36.8	155.2 ± 36.8	11.1 ± 52.1	0.83	147.4 ± 20.5	128.1 ± 20.5	-19.3 ± 29.0	0.51
		Light	83.1 ± 37.5	131.6 ± 37.5	48.5 ± 53.1	0.36	38.2 ± 21.2	69.8 ± 21.2	31.5 ± 29.9	0.29
		Dark	206.0 ± 37.5	179.2 ± 37.5	-26.9 ± 53.1	0.61	255.0 ± 21.2	185.6 ± 21.2	-69.4 ± 29.9	0.02
	15°C	Total	104.3 ± 27.1	110.8 ± 27.1	6.5 ± 38.3	0.87				
		Light	67.0 ± 27.5	105.2 ± 27.5	38.2 ± 38.9	0.33				
		Dark	141.6 ± 27.5	116.3 ± 27.5	-25.2 ± 28.9	0.52				
	4°C	Total	59.6 ± 19.7	78.4 ± 19.7	18.8 ± 27.9	0.50	65.9 ± 6.2	51.5 ± 5.9	-14.4 ± 8.4	0.089
		Light	49.7 ± 19.8	67.3 ± 19.8	17.6 ± 28.1	0.53	42.9 ± 6.5	38.4 ± 5.9	-4.4 ± 8.8	0.61
		Dark	69.7 ± 19.8	89.6 ± 19.9	19.9 ± 28.1	0.48	88.6 ± 6.5	64.4 ± 5.9	-24.2 ± 8.8	0.006