



Effects of age on thermoregulatory responses during cold exposure in a nonhuman primate, *Microcebus murinus*.

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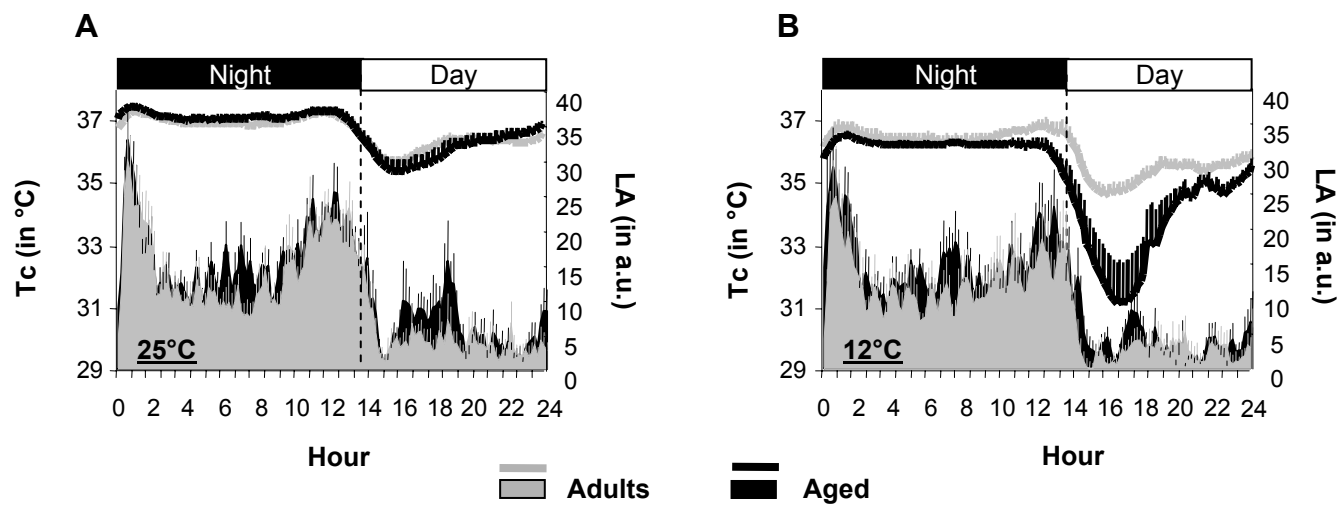


Figure 1.

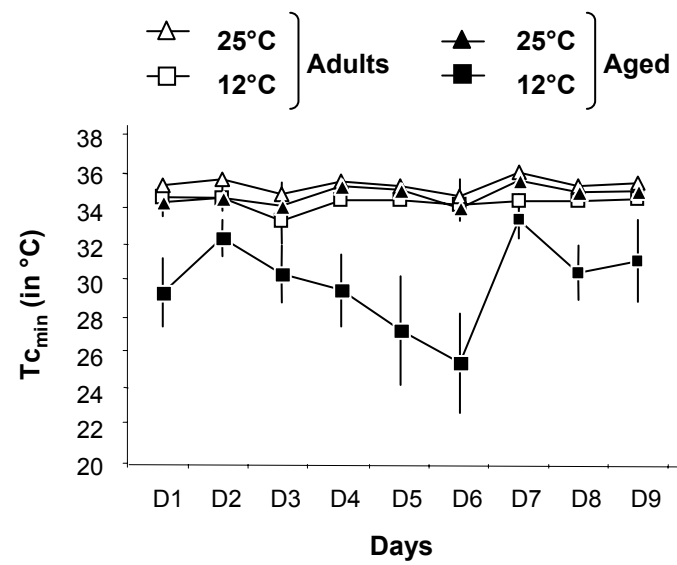


Figure 2.

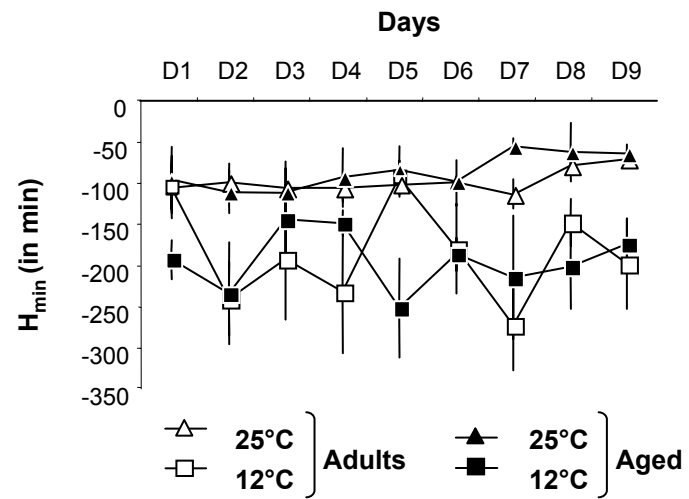


Figure 3.

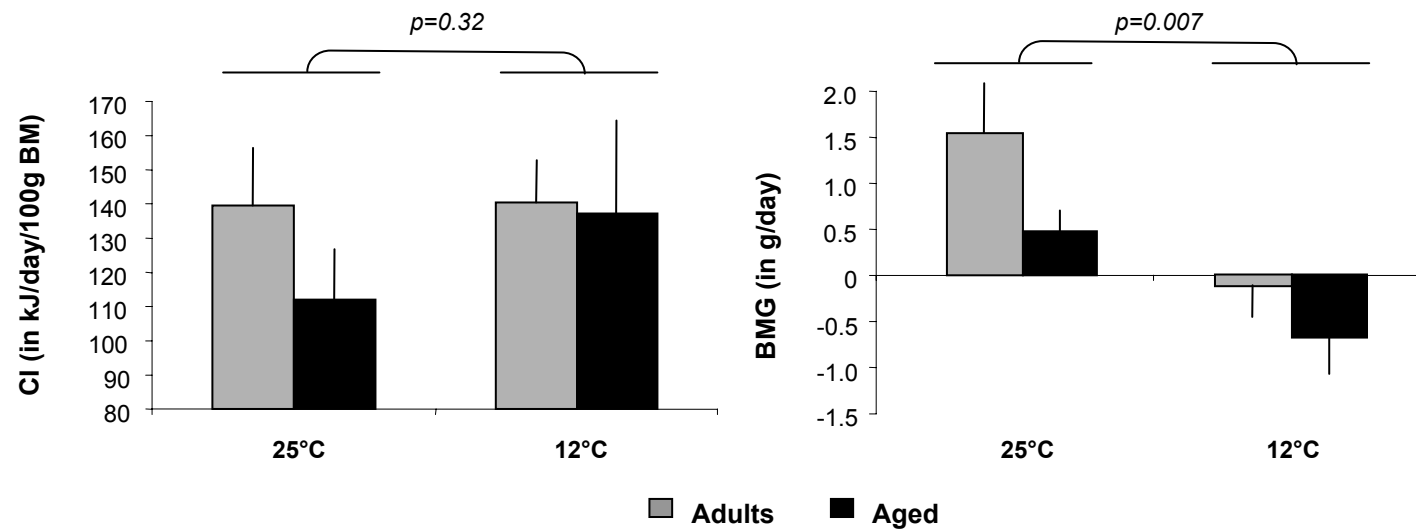


Figure 4.

Table 1. Rhythm parameters (means values $\pm$ SEM) of core temperature (Tc) and locomotor activity (LA) determined from profiles of Tc and LA registered in adult and aged mouse lemurs under short photoperiod during the 9 days of exposures to 25 °C and to 12 °C. Parameters abbreviations are described in the text.

Ta	Parameters	Adults	Aged
25°C	Tc _{night} (°C)	37.1 $\pm$ 0.0	37.0 $\pm$ 0.0
	Tc _{day} (°C)	36.2 $\pm$ 0.1	35.9 $\pm$ 0.1
	Tc _{min} (°C)	35.4 $\pm$ 0.1	34.8 $\pm$ 0.2
	H _{decr} (min)	62 $\pm$ 6	86 $\pm$ 4
	H _{min} (min)	-98 $\pm$ 5	-86 $\pm$ 7
	F _{torp} (%)	3 $\pm$ 3	11 $\pm$ 7
	LA _{night} (a.u.)	1400 $\pm$ 69	1454 $\pm$ 66
	LA _{day} (a.u.)	330 $\pm$ 23	416 $\pm$ 30
12°C	Tc _{night} (°C)	36.7 $\pm$ 0.0	36.1 $\pm$ 0.1
	Tc _{day} (°C)	35.5 $\pm$ 0.1	32.9 $\pm$ 0.5
	Tc _{min} (°C)	34.3 $\pm$ 0.1	29.4 $\pm$ 0.9
	H _{decr} (min)	48 $\pm$ 5	55 $\pm$ 6
	H _{min} (min)	-186 $\pm$ 21	-196 $\pm$ 12
	F _{torp} (%)	11 $\pm$ 4	67 $\pm$ 13
	LA _{night} (a.u.)	1274 $\pm$ 62	1486 $\pm$ 69
	LA _{day} (a.u.)	250 $\pm$ 15	355 $\pm$ 30

Table 2. Table of χ^2 and p values after performing Linear Mixed Effects Models on Tc and LA rhythms testing the effects of age, Ta and duration of Ta exposures. Parameters abbreviations are described in the text. Tests of effects resulted from comparisons of more complex models with the most parsimonious model (i.e. the model including significant effects only). Effects included in significant interactions were not tested.

Parameters Effects	Tc_{night}			Tc_{day}			Tc_{min}			H_{decr}			H_{min}			LA_{night}			LA_{day}		
	ddl	χ^2	p	ddl	χ^2	p	ddl	χ^2	p	ddl	χ^2	p	ddl	χ^2	p	ddl	χ^2	p	ddl	χ^2	p
Age		-			-			-		1	1.3	0.26	1	0	1	1	0.1	0.81		-	
Ta		-			-			-		1	3.5	0.06	1	13.4	0.00	1	0.2	0.64		-	
Duration		-			-			-		8	9.2	0.33	8	7.1	0.53	8	34.2	0.00		-	
Age*Ta		-			-			-			-		1	0.2	0.65		-			-	
Duration*Age		-			-			-			-			-		8	7.8	0.45		-	
Duration*Ta		-			-			-			-		8	7.0	0.54	8	14.5	0.07		-	
Duration*Age*Ta	8	18.6	0.02	8	19.1	0.01	8	18.7	0.02		-			-			-		8	15.9	0.04

Table 3. IGF-1 blood levels (mean + SEM, ng/ml in 100g BM) in adult and aged mouse lemurs at 25 °C, after 2 days and after 9 days of exposure to 12 °C. Linear Mixed Effects Models were performed to test the effects of age and ambient temperature (Ta) on the modulation of IGF-1 blood levels..

	25°C	12°C		LME		
		Day 2	Day 9	age effect	Ta effect	age*Ta effect
Adults	592 ± 99	444 ± 42	537 ± 48	$\chi^2_{(1)}=1.25; p=0.26$	$\chi^2_{(2)}=8.04; p=0.02$	$\chi^2_{(2)}=0.04; p=0.98$
Aged	721 ± 144	505 ± 122	671 ± 125			