THERMOREGULATION IN THE SOUTH AMERICAN GREY SHORT-TAILED OPOSSUM, *Monodelphis domestica*:

THE EFFECTS OF AMBIENT TEMPERATURE, BACTERIAL ENDOTOXIN AND HYPOXIA ON BEHAVIOURAL AND AUTONOMIC BODY TEMPERATURE CONTROL

Volume II: Appendices

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## APPENDIX 1

**CHARACTERISTICS OF MARSUPIAL SPECIES USED IN THE STUDY**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>N</th>
<th>Micro-habitat</th>
<th>Habitat Type</th>
<th>Distribution</th>
<th>References</th>
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</thead>
<tbody>
<tr>
<td>South American grey short-tailed opossum</td>
<td><em>Monodelphis domestica</em></td>
<td>18</td>
<td>Nests</td>
<td>Diverse; low thorn scrub, high thorn scrub, disturbed areas, granitic outcroppings</td>
<td>Caatinga Region of South-Eastern Brazil</td>
<td>Streilen (1982)</td>
</tr>
</tbody>
</table>
APPENDIX 2

CONTINUOUS MEASUREMENTS OF CORE BODY TEMPERATURE IN 
ADULT Monodelphis domestica and Petaurus breviceps

Data are shown as measurements of body temperature recorded every one minute for a minimum of three consecutive days while subject to normoxic conditions. Body temperatures from Monodelphis domestica were recorded either at colony temperature (MOAC) or while in a thermal gradient (MOAG) as noted. Body temperatures from Petaurus breviceps (PETAG1) were recorded while in an enclosure held at room temperature, while in a thermal gradient and while in a constant temperature gradient as noted.

Recordings of body temperatures were analysed over a number of days in each animal ranging from 3 to 50 days in individual adult animals. Body temperatures recorded over 3 to 6 consecutive days per animal are presented in this appendix. Some data are missing due to technical failures with radiotransmitters and receivers and power failures. Days with significant amounts of data missing were eliminated from the results.
Continuous Body Temperature Recordings from MOA6 (days 1 to 5)

Tb (°C)

Day 1  Day 2  Day 3  Day 4  Day 5

0  200  400  600  800  1000  1200  1400  1600  1800  2000  2200  2400  2600  2800

Case Numbers
Continuous Body Temperature Recordings for MOA10 (days 1 to 5)
Continuous Body Temperature Recordings for MOA11 (days 1 to 5)
Continuous Body Temperature Recording from MOA12 (days 1 to 6)

Tb (°C)

Day 1  Day 2  Day 3  Day 4  Day 5  Day 6

Case Numbers
Continuous Body Temperature Recordings for MOAG13

Tb (°C)

Case Numbers

day 1  day 2  day 3  day 4  day 5
Continuous Body Temperature Recordings for MOAG15

Tb (°C)

Case Numbers
Continuous Body Temperature Recordings for MOAG16

Tb (°C)

0 500 1000 1500 2000 2500 3000 3500 4000

day 1 day 2 day 3
Continuous Body Temperature Recordings for MOAG17

$T_b$ (°C)

Case Numbers

day 1

day 2
Continuous Body Temperature Recordings for MOAG18
Continuous Body Temperature Recordings for PETAG1 while in a Constant Temperature Gradient

Tb (°C)

Case Numbers

day 1

day 2
Continuous Body Temperature Recordings for PETAG1 while in a Thermal Gradient

Tb (°C)

day 1

day 2

day 3

Case Numbers 0 500 1000 1500 2000 2500 3000 3500 4000 4500
Continuous Body Temperature Recordings for PETAG1 while in an Enclosure

Tb (°C)

day 1  day 2  day 3

Case Numbers
Continuous Body Temperature Recordings for PETAG1 while in an Enclosure

Tb (°C)

day 4  day 5  day 6

Case Numbers
APPENDIX 3

CONTINUOUS MEASUREMENTS OF CORE BODY TEMPERATURE IN
JUVENILE Monodelphis domestica

Data are shown as measurements of body temperature recorded every one
minute for a minimum of three consecutive days while subject to normoxic
conditions. Animals were recorded at colony temperature (i.e. 28-30°C).

Recordings of body temperatures were analysed over a number of days in each
animal ranging from 3 days to 29 days in individual juvenile animals. Body
temperatures recorded over 3 to 4 consecutive days per animal are presented in
this appendix. Some data are missing due to technical failures with
radiotransmitters and receivers. Days with significant amounts of data missing
were eliminated from the results.
Continuous Body Temperature Recordings for MOJ2 (days 1 to 4)

Body Temperature (°C)

Tb (°C)

Case Numbers

day 1  day 2  day 3  day 4
Continuous Body Temperature Recordings for MOJ3 (days 1 to 3)

Body Temperature (°C)
Continuous Body Temperature Recordings from MOJ4 (days 1 to 4)

Body Temperature (°C)
Continuous Body Temperature Recordings for MOJ7

Body Temperature (°C)

Tb (°C)

Case Numbers

day 1
day 2
Continuous Body Temperature Recordings for MOJ8 (days 1 to 4)

Body Temperature (°C)

Tb (°C)

Case Numbers

0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800

30.5 31.5 32.5 33.5 34.5 35.5 36.5

day 1 day 2 day 3 day 4
Continuous Body Temperature Recordings for MOJ9 (days 1 to 4)

Body Temperature (°C)
APPENDIX 4

CONTINUOUS MEASUREMENTS OF CORE BODY TEMPERATURE IN ADULT Monodelphis domestica AT AMBIENT TEMPERATURES OF 10°C, 15°C, 20°C AND 30°C

Data are shown as measurements of body temperature recorded every one minute for a minimum of three consecutive days while subject to normoxic conditions. Recordings were made from four male Monodelphis domestica while in a constant temperature cabinet at 10°C, 20°C and 30°C. Core Tb recordings were also made from one animal at a cabinet temperature of 15°C.

Recordings of body temperatures were analysed over a number of days in each animal ranging from 1 day to 50 days in individual adult animals. Body temperatures recorded over 1 to 6 consecutive days per animal are presented in this appendix. Some data are missing due to technical failures with equipment and unavoidable power failures. Days with significant amounts of data missing were not included in the results.
Continuous Body Temperature Recordings from MOA6 during first exposure to 30°C

![Graph showing continuous body temperature recordings from MOA6 during first exposure to 30°C. The graph indicates temperature readings over time, with distinct sections marked for Days 1 to 5.]
Continuous Body Temperature Recordings from MOA6 during exposure to 15°C
Continuous Body Temperature Recording from MOA6 during second exposure to 30°C
Continuous Body Temperature Recordings from MOA6 during exposure to 20°C

Tb (°C)

Day 1  Day 2  Day 3  Day 4  Day 5

Case Numbers
Continuous Body Temperature Recordings for MOA6 during first exposure to 10°C
Continuous Body Temperature Recordings for MOA6 during third exposure to 30°C
Continuous Recording of Body Temperature from MOA6 during second exposure to 10°C.
Continuous Recordings of Body Temperature from MOA6 during fourth exposure to 30°C

Tb (°C)

Case Numbers

Day 1
Day 2
Day 3
Continuous Body Temperature Recording for MOA10 during first exposure to 30°C (days 1 to 5)

(recordings begin at 1300 hours on day 1)
Continuous Body Temperature Recording for MOA10 during first exposure to 20°C

![Graph showing body temperature over time with case numbers and days labeled.]
Continuous Body Temperature Recordings for MOA10 during first exposure to 10°C (4 days)

Tb (°C)

day 1    day 2    day 3    day 4

Case Numbers
Continuous Body Temperature Recording for MOA10 during second exposure to 30°C (days 1 to 3)
Continuous Body Temperature Recording for MOA10 during second exposure to 20°C (5 days)
Continuous Body Temperature Recording for MOA10 during second exposure to 10°C

[Recording begins at 1000 hours and finishes at 1015 hours the following day]
Continuous Body Temperature Recording for MOA10 during third exposure to 30°C (day 1 to 5)
Continuous Body Temperature Recording for MOA11 during exposure to 30°C
Continuous Body Temperature Recording for MOA11 during exposure to 30°C followed by exposure to 20°C.

Day 13  Day 14  Day 1  Day 2  Day 3  Day 4

Tb (°C)

changed Ta to 20°C
Continuous Body Temperature Recording from MOA12 during first exposure to 30°C
Continuous Body Temperature Recording for MOA12 during first exposure to 20°C
Continuous Body Temperature Recordings for MOA12 during first exposure to 10°C

Tb (°C)

Day 1

Day 2

Case Numbers
Continuous Body Temperature Recording for MOA12 during first exposure to 10°C followed by second exposure to 30°C

Ta changed to 30°C

Case Numbers

Day 1    Day 2    Day 3    Day 4/Day 1
Continuous Body Temperature Recording for MOA12 during second exposure to 30°C
Continuous Body Temperature Recording for MOA12 during second exposure to 20°C
Continuous Body Temperature Recording for MOA12 during exposure to 20°C for the second time followed by exposure to 10°C (second time) and then 30°C (third time).
Continuous Body Temperature Recording for MOA12 during third exposure to 30°C
APPENDIX 5

CONTINUOUS MEASUREMENTS OF PREFERRED AMBIENT TEMPERATURE IN ADULT *Monodelphis domestica* and *Petaurus breviceps*

Data are shown as measurements of preferred (selected) ambient temperature recorded every six seconds in a longitudinal thermal gradient for a minimum of three consecutive days while subject to normoxic conditions. Recordings were made under hypoxic conditions for five male *Monodelphis domestica* and one female *Petaurus breviceps*.

Recordings from a single day are shown for each individual animal. As recordings were made every six seconds, data is graphed in approximately 12-hour blocks. Some technical difficulties in obtaining data from the thermal gradient resulted in days with missing data. These days have not been included in the appendix.
MOAG13: Control Day
Selected Ambient Temperature (°C)
Cases: 1 through 8000

Ta (°C)
MOAG13: Control Day
Selected Ambient Temperature (°C)
Cases: 8001 through 13756

Ta (°C)

Case Numbers
MOAG15: Control Day
Selected Ambient Temperature (Ta)
Cases: 1 through 8000
MOAg15: Control Day
Selected Ambient Temperature (Ta)
Cases: 8001 through 14400

Ta (°C)

Case Numbers
MOAG16: Control Day
Selected Ambient Temperature (Ta)
Cases: 1 through 8000
MOAG16: Control Day
Selected Ambient Temperature (Ta)
Cases: 8001 through 14400
MOAG17: Control Day
Selected Ambient Temperature (Ta)
Cases: 1 through 8000

Ta (°C)
MOAG17: Control Day
Selected Ambient Temperature (Ta)
Cases: 8001 through 9605
MOAG18: Control Day

Selected Ambient Temperature (°C)

Cases: 1 through 8000

![Graph showing ambient temperature cases from 0 to 8500 with temperature values ranging from 14°C to 38°C. The x-axis represents case numbers from 0 to 8500, and the y-axis represents ambient temperature in °C.]
MOAG18: Control Day
Selected Ambient Temperature (Ta)
Cases: 8001 through 12361
PETAG1: Control Day (1707)
Cases: 1 through 8000

Ta (°C)

Case Numbers
PETAG1: Control Day (1707)
Cases: 8001 through 14368
PETAG1: Selected Position in Gradient (Day 1)
Cases: 1 through 8000
PETAG1: Selected Position in Gradient (Day 1)

Cases: 8001 through 14168
APPENDIX 6

CONTINUOUS MEASUREMENTS OF CORE BODY TEMPERATURE AND PREFERRED AMBIENT TEMPERATURE IN ADULT *Monodelphis domestica* and *Petaurus breviceps* WHEN SUBJECTED TO INJECTIONS OF SALINE AND LIPOPOLYSACCHARIDE (*E.coli*)

Data are shown as measurements of preferred (selected) ambient temperature recorded every six seconds in a thermal gradient and core body temperature recorded every one minute while subject to normoxic conditions. Time of injection of saline followed 24 hours later by injection of lipopolysaccharide (LPS) are shown on each graph. Recordings were made from one female *Petaurus breviceps* and five male *Monodelphis domestica*. One *Monodelphis domestica* was exposed to five repetitive treatments over a period of six weeks.

Any technical difficulties with measuring equipment which may have affected individual results are mentioned accordingly.
MOAG13: Effects of two consecutive injections of isotonic saline

Tb (°C)

inject saline

Day 1
Day 2
Day 3
Day 4
Day 5

Case Numbers
MOAG13: First exposure to injections of saline and endotoxin

![Graph showing temperature changes over days with case numbers and injections marked.]

**Day 1**
- inject saline

**Day 2**
- inject endotoxin

**Days 3 and 4**
- Case numbers: 500 to 5500

**Tb (°C)**
- Axis values from 32.5 to 36
MOAG13: Second exposure to injections of saline and endotoxin

Tb (°C)

Day 1  Day 2  Day 3  Day 4

inject saline  inject endotoxin

Case Numbers
MOAG13: Third exposure to injections of saline and endotoxin

Tb (°C)

Day 1
Day 2
Day 3
Day 4

 inject saline

 inject endotoxin
MOAG13: Fourth exposure to injections of saline and endotoxin

Days 1-4:
- Day 1: 500, 2000, 2500, 3000, 3500, 4000, 4500, 5000
- Day 2: 1000
- Day 3: 1500
- Day 4: 33.5

Temperature $T_b$ ($^\circ{}C$)
MOAG13: Fifth exposure to saline and endotoxin

Tb (°C)

Day 1

Day 2

Day 3

Day 4

inject saline

inject endotoxin
MOAG15: Exposure to two consecutive injections of isotonic saline
MOAG15: Exposure to injections of saline and endotoxin

[Day 4 recordings began at 0800 hours]
MOAG16: Exposure to injections of saline and endotoxin

Day 1  Day 2  Day 3  Day 4  Day 5

Tb (°C)

Case Numbers

inject saline  inject endotoxin
MOAG17: Exposure to saline and endotoxin injections

[recordings ceased at 1330 hours on day 4]
MOAG18 Exposure to injections of saline and endotoxin

Case Numbers

Tb (°C)

Day 1  Day 2  Day 3  Day 4  Day 5

inject saline

inject endotoxin
PETAG1: Exposure to two consecutive saline injections

Tb (°C)

Day 1
Day 2
Day 3
Day 4

infect saline
infect saline

Case Numbers
PETAG1: Exposure to injections of saline and endotoxin

![Graph showing changes in body temperature over time with injections on Days 2 and 3.](image-url)
MOAG13: Effects of Saline A on Selected Ambient Temperature

Cases: 1 through 8000

Ta (°C)

Case Numbers
MOAG13: Effect of Saline B on Selected Ambient Temperature
Cases: 1 through 8000
MOAG13: Selected Ambient Temperature (°C) during Saline 1
Cases: 8001 through 14395
MOAG13: Selected Ambient Temperature during Fever 1
Cases: 14396 through 22395
MOAG13: Selected Ambient Temperature during Fever 1
Cases: 22396 through 28795
MOAG13: Effect of Saline 2 on Selected Ambient Temperature

Cases: 1 through 8000

Ta (°C)
MOAG13: Effect of Saline 2 on Selected Ambient Temperature

Cases: 8001 through 13997

Ta (°C)

8000 8500 9000 9500 10000 10500 11000 11500 12000 12500 13000 13500 14000

Case Numbers
MOAG13: Effect of Fever 2 on Selected Ambient Temperature

Cases: 13998 through 21997

Ta (°C)

Case Numbers
MOAG13: Effect of Fever 2 on Selected Ambient Temperature

Cases: 21998-28363

Ta (°C)

Case Numbers
MOAG13: Effect of Saline 3 on Selected Ambient Temperature
Cases: 1 through 8000
MOAG13: Effect of Saline 3 on Selected Ambient Temperature
Cases: 8001 through 13751

Ta (°C)
MOAG13: Effect of Fever 3 on Selected Ambient Temperature
Cases: 21752 through 28117
MOAG13: Effect of Fever 3 on Selected Ambient Temperature

Cases: 13752 through 21751

Ta (°C)

Case Numbers
MOAG13: Effect of Saline 4 on Selected Ambient Temperature

Cases: 1 through 8000

Ta (°C)

Case Numbers
MOAG13: Effect of Saline 4 on Selected Ambient Temperature

Cases: 8001 through 14267
MOAG13: Effect of Fever 4 on Selected Ambient Temperature

Cases: 14268 through 22267
MOAG13: Effect of Fever 4 on Selected Ambient Temperature

Cases: 22268 through 27500
MOAG13: Effect of Saline 5 on Selected Ambient Temperature
Cases: 1 through 8000
MOAG13: Effect of Saline 5 on Selected Ambient Temperature

Cases: 8001 through 12653

Ta (°C)

8000 8500 9000 9500 10000 10500 11000 11500 12000 12500

Case Numbers: 8000 to 13000
MOAG13: Effect of Fever 5 on Selected Ambient Temperature

Cases: 12654 through 20653
MOAG13: Effect of Fever 5 on Selected Ambient Temperature

Cases: 20654 through 27022

Ta (°C)
MOAG15: Effect of Saline A on Selected Ambient Temperature
Cases: 1 through 8000

[Graph showing variation of Ta (°C) with Case Numbers]
MOAG15: Effect of Saline A on Selected Ambient Temperature
Cases: 8001 through 14268
MOAG15: Effect of Saline B on Selected Ambient Temperature
Cases: 1 through 8000

Ta (°C)

Case Numbers
MOAG15: Effect of Saline B on Selected Ambient Temperature
Cases: 8001 through 14369

Ta (°C)

Case Numbers
MOAG15: Effect of Saline 1 on Selected Ambient Temperature
Cases: 1 through 8000

Ta (°C)

inject saline

Case Numbers
MOAG15: Effect of Saline 1 on Selected Ambient Temperature
Cases: 8001 through 14269
MOAG15: Effect of Fever on Selected Ambient Temperature
Cases: 1 through 8000

Ta (°C)

0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500 7000 7500 8000 8500
Case Numbers
inject endotoxin
MOAG15: Effect of Fever on Selected Ambient Temperature
Cases: 8001 through 10163
MOAG16: Effect of Saline on Selected Ambient Temperature

Cases: 1 through 8000
MOAG16: Effect of Saline on Selected Ambient Temperature
Cases: 8001 through 14281

Ta (°C)

Case Numbers
MOAG16: Effect of Fever on Selected Ambient Temperature
Cases: 1 through 8000

inject endotoxin
MOAG16: Effect of Fever on Selected Ambient Temperature
Cases: 8001 through 14360
MOAG17: Effect of Saline on Selected Ambient Temperature (°C)
Cases: 1 through 8000

Ta (°C)

inject saline

Case Numbers
MOAG17: Effect of Saline on Selected Ambient Temperature

Cases: 8001 through 9157

![Graph showing ambient temperature changes over case numbers]
MOAG17: Effect of Fever on Selected Ambient Temperature

(Data limited due to technical problems with equipment)

infect endotoxin
MOAG18: Effect of Saline on Selected Ambient Temperature
Cases: 1 through 8000

inject saline
MOAG18: Effect of Fever on Selected Ambient Temperature
Cases: 1 through 8000

Ta (°C)

inject endotoxin
MOAG18: Effect of fever on Selected Ambient Temperature
Cases: 8001 through 14368.
PETAG1: Effect of Saline A on selected Ambient Temperature

Cases: 1 through 8000

Ta (°C)
PETAG1: Effect of Saline A on Selected Ambient Temperature
Cases: 8001 through 14239
PETAG1: Effect of Saline B on Selected Ambient Temperature
Cases: 1 through 8000

Ta (°C)

Case Numbers
PETAG1: Effect of Saline B on Selected Ambient Temperature

Cases: 8001 through 14358
PETAG1: Effect of Saline 1 on Selected Ambient Temperature
Cases: 1 through 8000

inject saline
PETAG1: Effect of Saline 1 on Selected Ambient Temperature
Cases: 8001 through 14360

Ta (°C)

8000  9000  10000  11000  12000  13000  14000

18  22  26  30  34  38

8000  8500  9000  9500  10000  10500  11000  11500  12000  12500  13000  13500  14000  14500

Case Numbers
PETAG1: Effect of Fever on Selected Ambient Temperature
Cases: 1 through 8000

Infect endotoxin
PETAG1: Effect of Fever on Selected Ambient Temperature
Cases: 8001 through 14366
APPENDIX 7

CONTINUOUS MEASUREMENTS OF CORE BODY TEMPERATURE AND PREFERRED AMBIENT TEMPERATURE IN ADULT Monodelphis domestica and Petaurus breviceps WHEN EXPOSED TO HYPOXIC CONDITIONS

Data are shown as measurements of preferred (selected) ambient temperature recorded every six seconds in a thermal gradient and core body temperature recorded every one minute while subject to normoxic conditions (21%O₂) followed by 24 hours of hypoxic conditions (10-15%O₂). Time of induction with hypoxia is shown on each graph. Recordings were made from five male Monodelphis domestica and one female Petaurus breviceps.

Any technical difficulties with equipment (particularly during hypoxia) are mentioned accordingly.
MOAG13: Effect of hypoxia on continuous Tb recordings

Tb (°C)

Case Numbers

start hypoxia

stop hypoxia
MOAG15: Effect of hypoxia on continuous Tb recordings

Tb (°C)

Day 1  Day 2  Day 3  Day 4

start hypoxia  stop hypoxia

Case Numbers
MOAG16: Effect of hypoxia on continuous Tb recordings

Tb (°C)

Case Numbers

start hypoxia

stop hypoxia

Day 1

Day 2

Day 3
MOAG17: Effect of hypoxia on continuous Tb recordings

Tb (°C)

Day 1

Day 2

Day 3

start hypoxia

stop hypoxia

Case Numbers
MOAG18: Effect of hypoxia on continuous Tb recordings
PETAG1: Effect of Hypoxia on Continuous Recordings of Tb

Tb (°C)

Day 1

start hypoxia

stop hypoxia

Day 2

Case Numbers
MOAG13 during exposure to hypoxia.

Selected ambient temperature (°C)

Cases: 1 through 8000
MOAG13 during exposure to hypoxia
Selected ambient temperature (°C)
Cases: 8001 through 14454
MOAG15: Selected Ambient Temperature during exposure to Hypoxia
Cases: 1 through 8000

Ta (°C)

Case Numbers
MOAG15: Selected Ambient Temperature during exposure to Hypoxia
Cases: 8001 through 14400

Ta (°C)

Case Numbers
MOAG16: Selected Ambient Temperature during exposure to Hypoxia

Cases: 1 through 8000

Ta (°C)

Case Numbers
MOAG16: Selected Ambient Temperature during exposure to Hypoxia
Cases: 8001 through 14366
MOAG17: Selected Ambient Temperature during exposure to Hypoxia
Cases: 1 through 8000

Ta (°C)

Case Numbers
MOAG18: Selected Ambient Temperature during exposure to Hypoxia
Cases: 1 through 8000
MOAG18: Selected Ambient Temperature during exposure to Hypoxia
Cases: 8001 through 14336
PETAG1: Selected Ambient Temperature during Hypoxia

Cases: 1 through 8000
PETAG1: Selected Ambient Temperature during Hypoxia

Cases: 8001 through 14353
APPENDIX 8

CONTINUOUS MEASUREMENTS OF CORE BODY TEMPERATURE AND PREFERRED AMBIENT TEMPERATURE IN ADULT Monodelphis domestica and Petaurus breviceps WHEN SIMULTANEOUSLY INJECTED WITH LIPOPOLYSACCHARIDE (E.coli) AND EXPOSED TO HYPOXIC CONDITIONS

Data are shown as measurements of preferred (selected) ambient temperature recorded every six seconds in a thermal gradient and core body temperature recorded every one minute. Individual animals were injected with lipopolysaccharide (LPS) and then 2 hours later exposed to hypoxia for a minimum period of six hours. Time of LPS injection and induction with hypoxia is shown on each graph. Recordings were made from five male Monodelphis domestica and one female Petaurus breviceps.

Any technical problems encountered during individual experiments are mentioned on individual graphs accordingly.
MOAG13: Effect of fever and hypoxia on continuous Tb recordings

[day 1 starts at 0920; day 2 finishes at 2000]
MOAG15: Effect of fever and hypoxia on continuous Tb recordings

- Day 1
- Day 2
- Day 3
- Day 4
- Day 5

- Start hypoxia
- Stop hypoxia
- Inject saline
- Inject endotoxin
MOAG16: Effect of fever and hypoxia on continuous Tb recordings

[day 2 finishes at 1730 hours]
MOAG17: Effect of fever and hypoxia on continuous Tb recordings

[Day 1 begins at 1015 hours]
MOAG18: Effect of fever and hypoxia on continuous Tb recordings

- Start hypoxia
- Stop hypoxia
- Inject endotoxin
PETAG1: Effect of fever and hypoxia on continuous Tb recordings

Tb (°C)

Case Numbers

Day 1

Day 2

Inject endotoxin

Stop hypoxia

Start hypoxia
MOAG13: Effect of fever+hypoxia on selected ambient temperature

Cases: 1 through 8000

(case 0 is equal to 0900 hours)
MOAG13: Effect of fever+ hypoxia on selected ambient temperature

Cases: 8001 through 14288
MOAG15: Effect of fever+hypoxia on selected ambient temperature
Cases: 1 through 8000
MOAG15: Effect of fever+hypoxia on selected ambient temperature

Cases: 8001 through 14361

Ta (°C)

stop hypoxia

Case Numbers
MOAG16: Effect of fever+hypoxia on selected ambient temperature

Cases: 1 through 8000
MOAG16: Effect of fever+hypoxia on selected ambient temperature
Cases: 8001 through 10303
(recordings ceased at 1730 due to technical problems)
MOAG17: Effect of fever+hypoxia on selected ambient temperature

Cases: 1 through 8000

Ta (°C)

inject LPS

start hypoxia

Case Numbers
MOAG17: Effect of fever + hypoxia on selected ambient temperature
Cases: 8001 through 12626
MOAG18: Effect of fever+hypoxia on selected ambient temperature
Cases: 1 through 8000
MOAG18: Effect of fever+hypoxia on selected ambient temperature

Cases: 8001 through 14218
PETAG1: Effect of fever+hypoxia on selected ambient temperature
Cases: 1 through 8000

inject LPS
start hypoxia
PETAG1: Effect of fever+hypoxia on selected ambient temperature
Cases: 8001 through 11969
(recording ceased at 2000 hours due to technical problems)
FOURIER ANALYSIS OF CORE BODY TEMPERATURE IN ADULT AND JUVENILE Monodelphis domestica and ADULT Petaurus breviceps

Fourier analysis plots of core body temperature for some individual animals are shown. Data was analysed using a single series Fourier analysis and results plotted by period using transformations in which the mean was subtracted and detrended. The period values corresponding to the three largest periodogram peaks are given for each animal. Analyses were conducted on six juvenile male Monodelphis domestica and six adult animals; five male Monodelphis domestica and one female Petaurus breviceps.

Analyses of core body temperature from animals in longitudinal thermal gradients, constant temperature rooms and various ambient temperatures are given.
## Periods for Core Body Temperature of animals in a Longitudinal Thermal Gradient

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<th>Animal</th>
<th>Variable</th>
<th>Periodogram value</th>
<th>Period (hours)</th>
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<td>Tb</td>
<td>939.8</td>
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Periods for Core Body Temperature of Juvenile Animals in a Constant Temperature Room

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Periods for Core Body Temperature of Adult Animals in a Constant Temperature Room

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## Periods for Core Body Temperature of Adult *Monodelphis domestica* in different Ambient Temperatures (Ta)

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FOURIER ANALYSIS OF SELECTED AMBIENT TEMPERATURE IN ADULT AND JUVENILE Monodelphis domestica and ADULT Petaurus breviceps

Fourier analysis plots of preferred (selected) ambient temperature for individual animals are shown. Data was analysed using a single series Fourier analysis and results plotted by period using transformations in which the mean was subtracted and detrended. The period values corresponding to the three largest periodogram peaks are given for selected Ta in each animal. Analyses were conducted on six adult animals; five male Monodelphis domestica and one female Petaurus breviceps.
### Periods for Preferred Ambient Temperature of animals in a Longitudinal Thermal Gradient

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<th>Periodogram value</th>
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APPENDIX 11

FOURIER ANALYSIS OF THE EFFECTS OF SALINE AND LIPOPOLYSACCHARIDE (LPS) ON CORE BODY TEMPERATURE AND PREFERRED AMBIENT TEMPERATURE IN ADULT *Monodelphis domestica* and one ADULT *Petaurus breviceps*

Fourier analysis plots of preferred (selected) ambient temperature and core body temperature while injected with lipopolysaccharide (LPS) for individual animals are shown. Data was analysed using a single series Fourier analysis and results plotted by period using transformations in which the mean was subtracted and detrended. The three largest periodogram values and corresponding periods are given for each animal. Analyses were conducted on six adult animals; five male *Monodelphis domestica* and one female *Petaurus breviceps*.
Periodogram Peak Values for Core Body Temperature and Preferred Ambient Temperature of animals in a Longitudinal Thermal Gradient: Effects of LPS fever

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### Periodogram Peak Values for Core Body Temperature and Preferred Ambient Temperature of animals in a Longitudinal Thermal Gradient: Effects of Saline

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Periodogram Peak Values for Core Body Temperature and Preferred Ambient Temperature of animals in a Longitudinal Thermal Gradient: Effects of Repetitive LPS Fever in MOAG13

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FOURIER ANALYSIS OF THE EFFECTS OF HYPOXIA ON CORE BODY TEMPERATURE AND PREFERRED AMBIENT TEMPERATURE IN ADULT *Monodelphis domestica* and ADULT *Petaurus breviceps*

Fourier analysis plots of preferred (selected) ambient temperature and core body temperature while exposed to hypoxic conditions for individual animals are shown. Data was analysed using a single series Fourier analysis and results plotted by period using transformations in which the mean was subtracted and detrended. The three largest periodogram values and corresponding periods are given for each animal. Analyses were conducted on six adult animals; five male *Monodelphis domestica* and one female *Petaurus breviceps*. 
Periodogram Peak Values for Core Body Temperature and Preferred Ambient Temperature of animals in a Longitudinal Thermal Gradient: Effects of Hypoxia

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APPENDIX 13

FOURIER ANALYSIS OF THE EFFECTS OF SIMULTANEOUS EXPOSURE TO HYPOXIA AND LIPOPOLYSACCHARIDE ON CORE BODY TEMPERATURE AND PREFERRED AMBIENT TEMPERATURE IN ADULT Monodelphis domestica and ADULT Petaurus breviceps

Fourier analysis plots of preferred (selected) ambient temperature and core body temperature while febrile (injected with lipopolysaccharide) and simultaneously exposed to hypoxic conditions for individual animals are shown. Data was analysed using a single series Fourier analysis and results plotted by period using transformations in which the mean was subtracted and detrended. The five largest periodogram peaks (value:frequency) are given for each plot. Analyses were conducted on six adult animals; five male Monodelphis domestica and one female Petaurus breviceps.
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