

Energy Metabolism



Different measures of energy expenditure

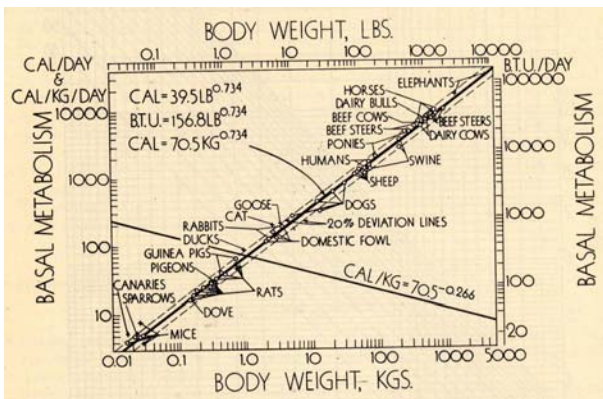
- Resting metabolic rate
- Food intake (dry matter intake; gross energy intake (GE))
- Digestible energy intake (DE)
- Metabolizable energy intake (ME)
- Total energy expenditure (TEE)

Energy Balance

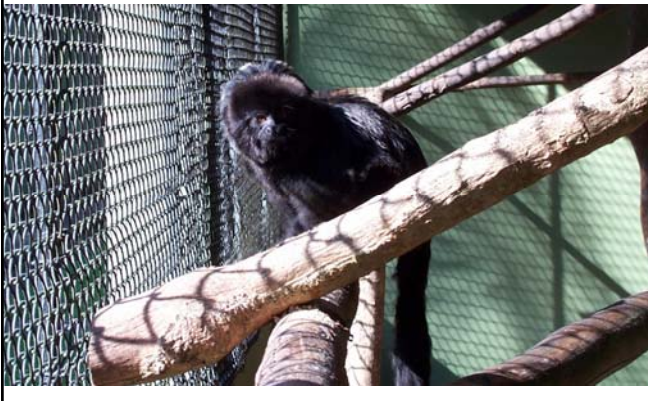
- Energy in - energy expended
- Have to account for
 1. Losses in feces and urine
 2. Losses of other tissue (e.g. hair)
 3. Changes in body composition

Resting metabolic rate (RMR)

- Fundamental property of a species
- Measure of lowest energy expenditure
- Other measures of energy expenditure often are multiples of RMR
- Allows repeatable comparisons among species
- Active phase versus inactive phase
- Temperature dependent



Goeldi's monkey (*Callimico goeldii*)



RMR vs environmental temperature

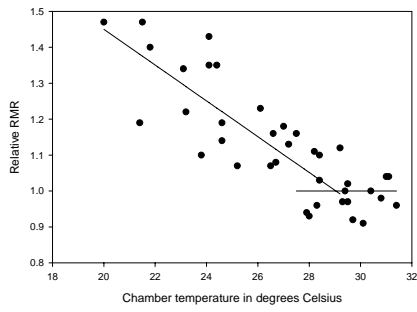
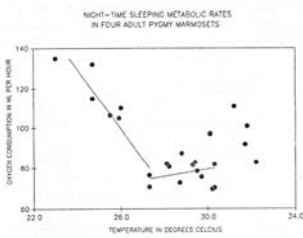




Figure 4
Nighttime O2B versus temperature in pygmy marmosets.

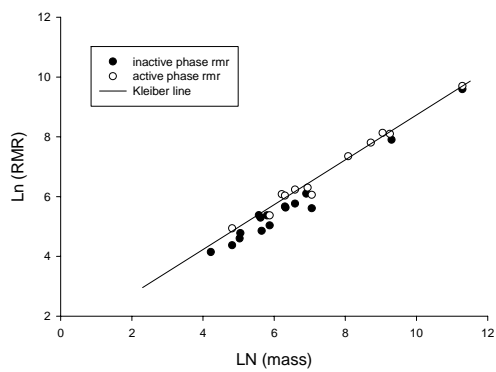


Each circle represents an average of measurements for an individual at that temperature.

Thermal neutral zone for callitrichids (single animal)

27 – 30 degrees C

PRIMATE RMR



CIRCADIAN RHYTHM OF T_B IN *LEONTOPITHEUS ROSALIA*

Lights on Lights out

N = 4

