Circadian oscillations of body temperature in the marmoset, *Callithrix jacchus*

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Summary

The rectal temperature of 8 marmosets was taken regularly throughout a 76 hour period. A pronounced circadian rhythm was detected: body temperature reached a maximum during the light phase and a minimum during the dark phase.

Biorhythms of body temperature have been reported for birds (Winget & Fryer, 1966) and humans (Kleitman & Ramsaroop, 1948), but information on non-human primates is scarce (Galbraith & Simpson, 1903; Winget, Card & Hetherington, 1968). The present study reports the circadian rhythm of body temperature in the marmoset (*Callithrix jacchus*).

Materials and methods

8 adult marmosets (3 male, 5 female), originally imported from South America, were studied. The animals were held in 3 cages (3 males, 3 females, 2 females). Room temperature was maintained at 26 ± 2°C. The lighting regime consisted of 12 h light—12 h dark. Rectal body temperature was measured using a clinical thermometer at 4 h intervals over a period of 76 h. Of necessity, lights were switched on for about 20 min each time measurements were taken during the dark phase. Water was available ad libitum, and the animals were fed once a day with ‘Mazuri Primate Diet’ (Cooper Nutrition Products Ltd, now BP Nutrition (U.K.) Ltd, Stepfield, Witham, Essex, CM8 3AB) together with a supplement of banana or apple.

Results and discussion

A pronounced circadian rhythm in body temperature was observed (Fig. 1). There were no significant differences between individuals or between males and females. Body temperature reached a maximum during the light phase and a minimum during the dark phase. The highest individual temperature recorded was 39.8°C and the lowest 34.0°C. The

![Fig. 1. Circadian oscillations of body temperature in the marmoset, *Callithrix jacchus* (each point represents mean of 8 animals, vertical bars ± 1 standard error).](https://example.com/fig1.png)
temperature increase tended to be more gradual than
the decrease and a plateau was apparent during the
middle of both the light and dark periods.
The daily periodicity agrees in general with results
reported for other diurnal species including man.

The temperature range is, however, considerably
greater than that recorded for man, but is similar to
that of another New World monkey, Cebus albafrons
(Winget et al., 1966; Kleitman & Ramsaroop, 1948).

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