

ABSTRACT

In terms of total number of publications, the laboratory mouse (*Mus musculus*) has emerged as the most popular test subject in biomedical research. Mice are used as models to study obesity, diabetes, CNS diseases and variety of other pathologies. Mice are classified as homeotherms and regulate their core temperature over a relatively wide range of ambient temperatures. However, researchers find that the thermoregulatory system of mice is easily affected by drugs, chemicals, and a variety of pathological conditions, effects that can be exacerbated by changes in ambient temperature. To this end, a thorough review of the thermal physiology of mice, including their sensitivity and regulatory limits to changes ambient temperature is the primary focus of this review. Specifically, the zone of thermoneutrality for metabolic rate and how it corresponds to that for growth, reproduction, development, thermal comfort, and many other variables is covered. One key point of the review, as illustrated below shows that behavioral thermoregulation of mice is geared to minimize energy expenditure. Their zone of thermal comfort is essentially wedged between the thresholds to increase heat production and heat loss; however, this zone is above the recommended guidelines for animal vivariums. Future work is needed to address a variety of facets of the behavioral and autonomic thermoregulatory responses of this most popular test subject.

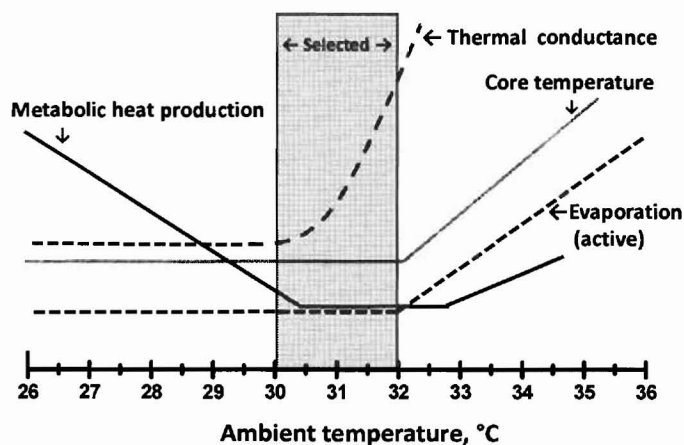


Figure 33