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TEMPERATURE AND TIME OF TESTING AFFECT LOCOMOTOR PERFORMANCE OF FEMALE NOCTURNAL LIZARD

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The body temperature of ectotherms can profoundly influence their physiological and ecological performance: but little is known about how the time of testing affects their performance. Although conducting experiments on nocturnal organisms during daylight hours is convenient to the researcher and provides logistic advantages, how this practice affects the performance of species is not well known. Time of day may be particularly relevant for studies on nocturnal reptiles to ensure that the findings are ecologically sensible. Herein, I investigated whether temperature and time of testing affected the locomotor performance of gravid and non-gravid individuals of the nocturnal velvet geckos, *Oedura lesueurii*. I measured the locomotor performance of 62 adult females (during late pregnancy, and one week after the females laid eggs) at four different temperatures (20°, 23°, 26° and 30°C) during the day and at night. The sprint speed of geckos was affected by the temperature and time of testing; they ran faster at the time of day when they are usually active (*i.e.* night). Both gravid and non-gravid females ran fastest at 26°C, and ran faster at night than during the daytime at all four test temperatures. The number of stops and the total time required to complete the racetrack during the diurnal trials were higher than nocturnal trials in both groups. Gravid females' locomotor performance was lower than the non-gravid females; they suffer from reproductive "cost" and it impaired their locomotor performance. Circadian rhythms affect performance and the animals are likely to be under strong selection to perform best at the time of day when they are mostly active. This research clearly shows that both temperature and time of the day when animals are mostly active, are crucial for estimating locomotor performance of ectotherms. These significant aspects of the experiment design have *hitherto* been ignored in previous performance studies. Indeed, the organisms' circadian rhythm and body temperature during experiments on performance should be considered when modelling the effects of increases in temperature on reptile physiology, behaviour, and performance.