Circadian Rhythms of African Naked Mole-Rats
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References


Methodology
To test out our hypothesis, we analyzed the movements per hour of each animal in both colonies. We did this for a total of 640 consecutive hours for the first colony (Teddy) and 548 consecutive hours for the second colony (Layla-Felix). To conduct this analysis, we used the Lomb-Scargle Periodogram (Scargle, 1982). We were then able to see the peak period for each animal and compare them to the queen.

Discussion
The results from the periodogram show that the peaks for the queen and breeding males were identical to one another in each colony. The peaks were also very similar across colonies. In the Teddy colony, other than the breeding male, no other animals had the same peak as the queen. However, in the Layla-Felix colony, there was one other animal that had an identical peak as the queen and the breeding male. In both colonies, several animals had peaks very close to that of the queen and breeding male. Also, in Teddy, there were a few animals with identical peaks, but not as many as in Layla-Felix, in which more than half of the animals had the exact same peak. The Teddy colony tends to have a more concentrated nest than Layla-Felix. Perhaps this could mean that the animals in Layla-Felix move around more due to not having as concentrated a nest, which may be the reason that Layla-Felix has more animals with a 24-hour cycle than Teddy.

Conclusions
Measuring the periodicity of behavior in two colonies of naked mole-rats revealed a variety of frequencies across animals. While breeding animals appear to have synchronized behavior frequencies, most other colony members have different frequencies. Therefore, our hypothesis is not supported.