Circadian rhythms of subterranean mammals - the geomagnetic field (GMF) as a potential zeitgeber

Initiative: "Experiment!" (beendet)

Ausschreibung: Explorative Phase

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Laufzeit: 1 Jahre 6 Monate

The subterranean ecotope lacks typical environmental factors (e.g. daily changes of light-darkness or temperature) that its inhabitants could use as a zeitgeber. It is proposed that the circadian rhythm of strictly subterranean African mole rats (Bathyergidae) depends on daily fluctuations of the geomagnetic field, which can be suppressed by shielding and reintroduced by simulating such fluctuations. If this hypothesis is true, it would explain why previous studies have failed to demonstrate clear rhythms in subterranean mammals: all studies have been performed inside buildings where iron and electrical devices disturb the local geomagnetic field. Here, mole rats will be brought to an electrically shielded completely non-magnetic research station located outside of town to minimize electromagnetic noise. The findings would constitute first conclusive evidence for a magnetic zeitgeber in a mammal with great implications for research in both, chronobiology and magnetoreception.

Projektbeteiligte

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