Animals in the wild found to use running wheel if given the choice (w/ Video)

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(Phys.org) —A pair of researchers in the Netherlands has found that if a running wheel is placed outdoors in a natural setting, wild animals will come and run on it. Neurophysiologists Johanna Meijer and Yuri Robbers describe in a paper they've had published in *Proceedings of the Royal Society B: Biological Sciences,* how they set up running wheels in natural settings then filmed wild animals using the wheels.

Scientists, researchers and animal rights advocates have argued over the years about the nature of mice running on wheels in their cages. Rights

activists claim the running is a form or neurotic behavior brought about by living in the confines of a small cage. Some researchers, on the other hand, have suggested that the mice seemed to like, or enjoy running on the wheel, and even exhibited unhappy behavior if a wheel was removed. To learn more, Meijer and Robbers decided to carry out a very simple experiment—they set up a running wheel in their backyard, then used an infrared camera to capture on tape how animals in the wild would respond.

To get things, rolling, so to speak, the researchers also laid down some food near the wheel to attract some animals. They also put the wheel inside an enclosure with a small entranceway to keep large animals from knocking the wheel on its side. Examination of the film showed that a lot of animals found the wheel, climbed on and began running on it. Granted, most of the animals were mice, but the camera also caught frogs, rats, shrews and even slugs. The frogs didn't actually run, they simple hopped form one side to the other causing the wheel to roll back and forth, and the slugs appeared to arrive on the wheel by accident. Still, the results were so encouraging that the team set up another wheel and camera in a nearby dune area not accessible to the general public.

In all the team recorded over 200,000 animals using one or the other of the wheels over a three year period. The main runners were mice, some of which jumped on, ran for a while, jumped off, then jumped back on and ran some more. One mouse ran for an incredible 18 minutes.

The researchers claim the animals ran on the wheels because they enjoyed it, which could be a little bit of anthropomorphizing, as no one has been able to prove that animals other than humans experience emotions. Still, the experiments should put to rest the argument about whether mice in the lab are running on wheels because they live in cages—they'll do it anywhere they find one.

More information: Wheel running in the wild, Published 21 May 2014 DOI: 10.1098/rspb.2014.0210

Abstract

The importance of exercise for health and neurogenesis is becoming increasingly clear. Wheel running is often used in the laboratory for triggering enhanced activity levels, despite the common objection that this behaviour is an artefact of captivity and merely signifies neurosis or stereotypy. If wheel running is indeed caused by captive housing, wild mice are not expected to use a running wheel in nature. This however, to our knowledge, has never been tested. Here, we show that when running wheels are placed in nature, they are frequently used by wild mice, also when no extrinsic reward is provided. Bout lengths of running wheel behaviour in the wild match those for captive mice. This finding falsifies one criterion for stereotypic behaviour, and suggests that running wheel activity is an elective behaviour. In a time when lifestyle in general and lack of exercise in particular are a major cause of disease in the modern world, research into physical activity is of utmost importance. Our findings may help alleviate the main concern regarding the use of running wheels in research on exercise.