Researchers build robot rat to induce stress in lab animals (w/ Video)

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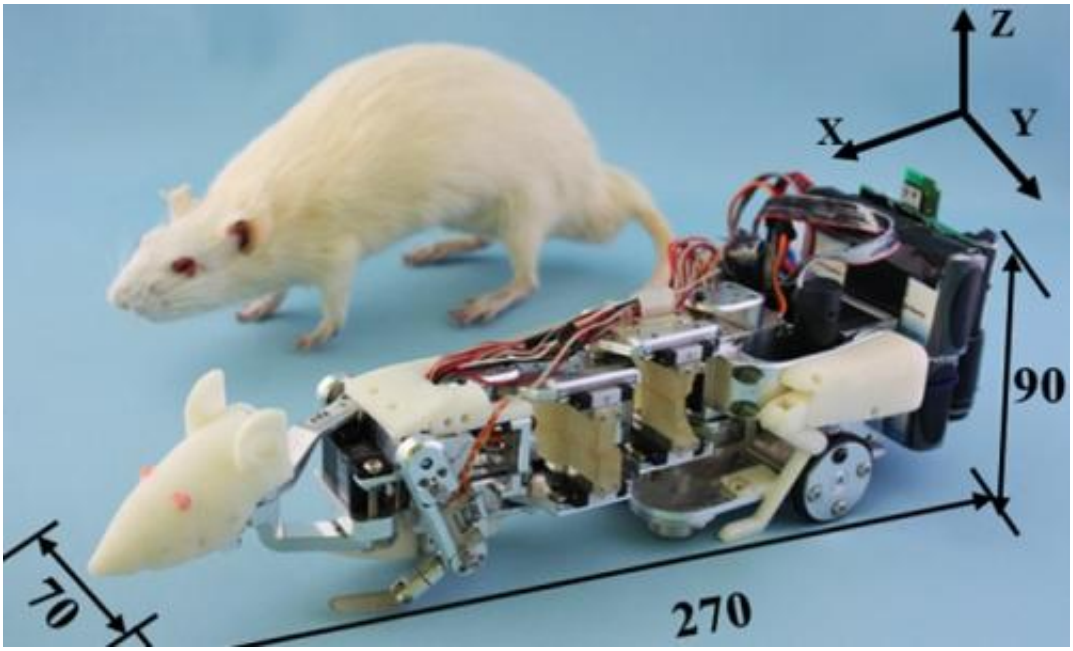

Credit: Takanishi Lab/Waseda University

(Phys.org)—Researchers at Waseda University in Japan have built a robot rat they call WR-4, and whose purpose isto induce stress in lab rats. In studying the impact of stress inflicted on the lab rats, the researchers hope to learn more about how stress affects people.

Scientists have used rats in all manner of lab experiments over the years—sometimes to see how therats react physically to drugs, other times to see how they behave under certain specified conditions,and

sometimes to create mental ailments that mimic those found in the human population. Thepurpose of such experiments is to learn how drugs or environmental conditions affect the rats, and then to apply those results to the better understanding of the similar human conditions.

The Japanese researchers had many goals in mind when building WR-4. They hoped to understand how mice react to living with a robot, and to theorize how humans might react under comparable circumstances. In addition, the researchers wanted to determine which types of aggressive actions by the robot would induce depression in the rats (as demonstrated by rats that become less active), with the purpose of developing therapies to address the depression.

The robot rat is approximately the same size as a regular white rat, and has front legs and feet for steering. In back, it has motorized wheels to help it maneuver. In one series of experiments, the researchers programmed WR-4 to operate in three different modes: chasing, where it simply follows a rat; a continuous attack, where the robot attacks a rat in a non-violent, non-stop fashion for a period oftime; and an interactive attack, where it attacks in a non-violent way only when the target moves. In this study, the researchers found that the interactive attack most successfully instigated the rats' symptoms of depression.

In another series of experiments, researchers stressed rats by putting them in difficult situations, such as having to rely on the robot rat for their food, or having to manipulate the robot physically to get its food.In one test, the robot was programmed to whirl about in random fashion, causing at least one subject rat to attempt to hide.

Such experiments offer insight into how rats react when confronted with a menacing robot rat in their midst—what is not yet clear, however, is how closely their reactions predict those of humans placed under similar conditions.

More information: via NewScientist