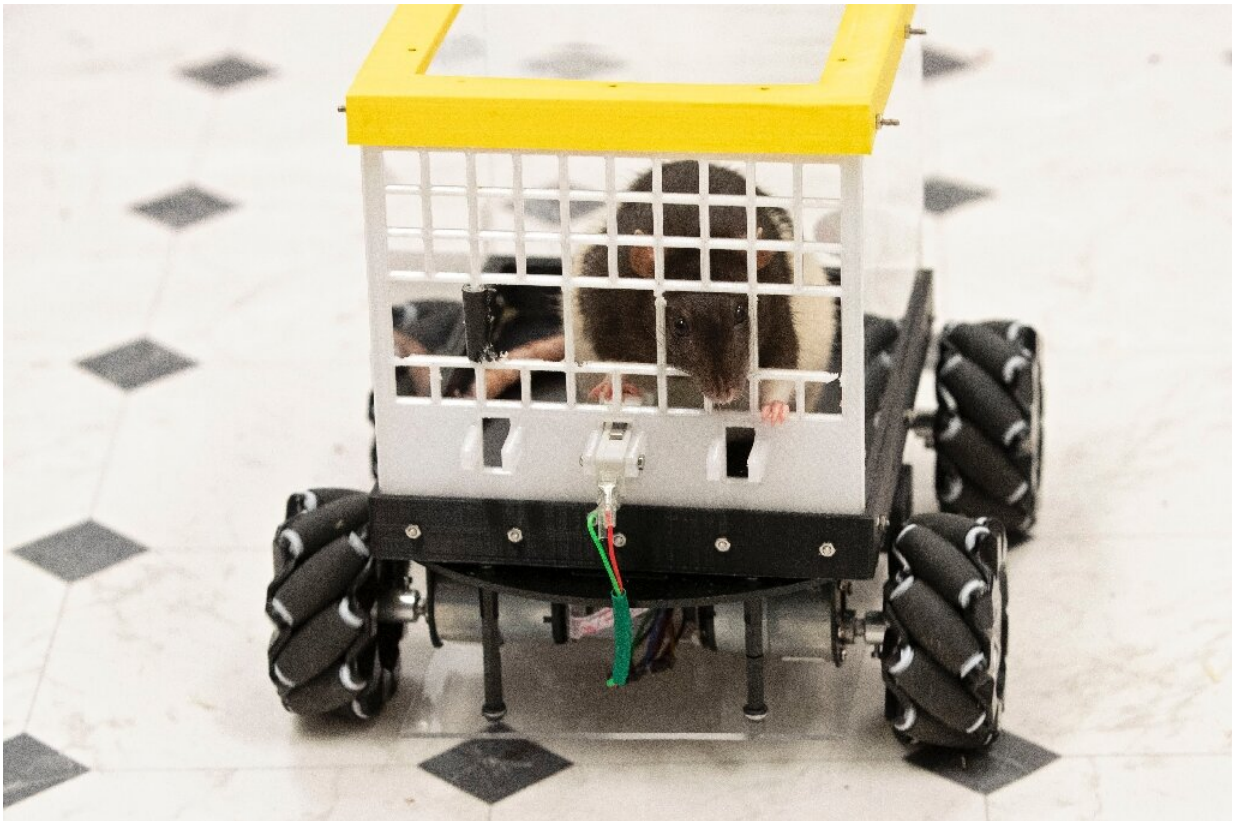


# Rat race: What rodent drivers can teach us about mental health

August 21 2022, by Issam AHMED

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"Black Tail" is up first, taking a few seconds to sniff her surroundings before placing her paws on a lever and zooming away. After storming the finish line, she devours a well-earned Froot Loop that hangs on a "treat tree" .

The girls can't hide their excitement as they're brought out to the racing

arena.

"Black Tail" is up first, taking a few seconds to sniff her surroundings before placing her paw on a lever and zooming away.

After storming to the finish line, she devours a well-earned Froot Loop hanging on a "treat tree."

Black Tail is one of the University of Richmond's rat drivers—a group that first dazzled the world with their ability to operate tiny cars back in 2019.

Now, the rodents serve as ambassadors for the school's Behavioral Neuroscience Laboratory, headed by Professor Kelly Lambert.

"It gets people's attention about how clever and teachable these animals are," explained Lambert, who has to balance her affection for the furry speedsters with the need for scientific detachment—naming them only by the Sharpie colors that mark their tails.

The idea of racing rodents started out as a playful challenge from a colleague.

But far from being a novelty act, the animals are part of a boundary-pushing project exploring the ways in which environmental enrichment sculpts the brain—and could in turn hold potential for solving human mental health challenges.



Rats that learned to drive had biomarkers of greater resilience and lowered stress -- which Lambert suggests might be linked to the satisfaction of acquiring a new skill, like a human mastering a new piano piece.

For Lambert, one of the great failings of modern medicine has been its inability to cure [mental illness](#) through drugs, even as [pharmaceutical companies](#) have reaped in huge profits.

These pharmaceutical approaches have faced increasing scrutiny since a landmark study published in July questioned the theory that chemical imbalances, especially a lack of serotonin, cause depression.

## **Froots of their labor**

Instead, Lambert sees behavior therapy as the key to treating the mind, which is where studying fellow mammals comes in.

"Our brains are changing, from the womb to the tomb," she said. "If we have some type of engaging life, this is probably important and related to depression."

A previous experiment of hers had split rats into groups of "workers," who were assigned an effort-based reward task of digging through dirt mounds for a Froot Loop—or a [control group](#) of "trust fund" rats that were simply handed over treats.

When challenged with stressful tasks, the worker rats persisted longer than those conditioned to remain in a state of what psychologists call "learned helplessness."

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