

Cats—like humans—rely on movement for memory

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News Writer

Cats may seem unappreciative to their owners, but the advances made by a University of Alberta researcher suggest that their memory is influenced not by sight but action, a breakthrough that humans should appreciate.

U of A professor of Physiology Keir Pearson studies the way that our brains control how we know where an object is in relation to our bodies. The experimental concept of testing whether or not an animal needs to perform an action or can merely see an object to remember it is one of the main focuses of Neurophysiology, Pearson's field of study.

"I'm interested in how the brain controls behaviour," Pearson said. "If you move, you still know where objects are relative to your body, so that means there has to be some sort of remapping in your brain to keep track of where those objects are as you move."

The first experiment that Pearson

performed consisted of a cat stepping over an obstacle with its front legs. The cat was then distracted with food for as long as possible while straddling the barrier. Pearson removed the object while the cat was feeding, and then got the cat to continue to move forward. Every time the test was performed, the cat moved forward by raising its hind legs as if stepping over the obstacle.

"The surprising result there was that this memory lasts for a long, long time," Pearson said. "[Possibly] seeing the obstacle would be enough to tell the animal it's there."

However, he inferred that that information could also have been sent to the brain from the cat's forelegs to stimulate memory, and that the sight of the object wasn't the only factor that created the cat's long-term memory.

"[The] paper that we published just recently was to determine what factors would establish this memory," Pearson said. He explained that there were two factors possibly involved: the first being the sight of the object, and the second being the possibility

that the movement of the cat's forelegs sent a message to the brain to remember the obstacle.

To test this, the cat was brought to the obstacle so that it could see it but not step over it. If the cat was distracted for a much shorter period of time, it would remember the obstacle and lift its hind legs as done in the first experiment.

"If it is more than a few seconds, [the cat] completely forgets, so the visual signal by itself is not sufficient," Pearson said. "This indicated to us that it was the actual movement of the front legs over the obstacle that actually established the memory."

Because of the results found in Pearson's tests, researchers have further ideas on how these discoveries will benefit people. Pearson explained that this study helps us understand little things about human behaviour, from how we can go down stairs without actually needing to see the stairs, to being able to find where we parked our cars in a large parking lot—even if it takes some of us slightly longer.

More important are the possibilities



JENNY FROGNER

I HAS A MUSCLE MEMORY Cats show researchers how humans learn.

of what this research can do for our health. Pearson said that people with Alzheimer's, dementia, Parkinson's, or other cognitive disorders can't keep track of objects in their environment.

"[Researchers] might be able to develop some sort of test to see whether there's a memory decline in these patients to do with knowledge of where objects are," he said.

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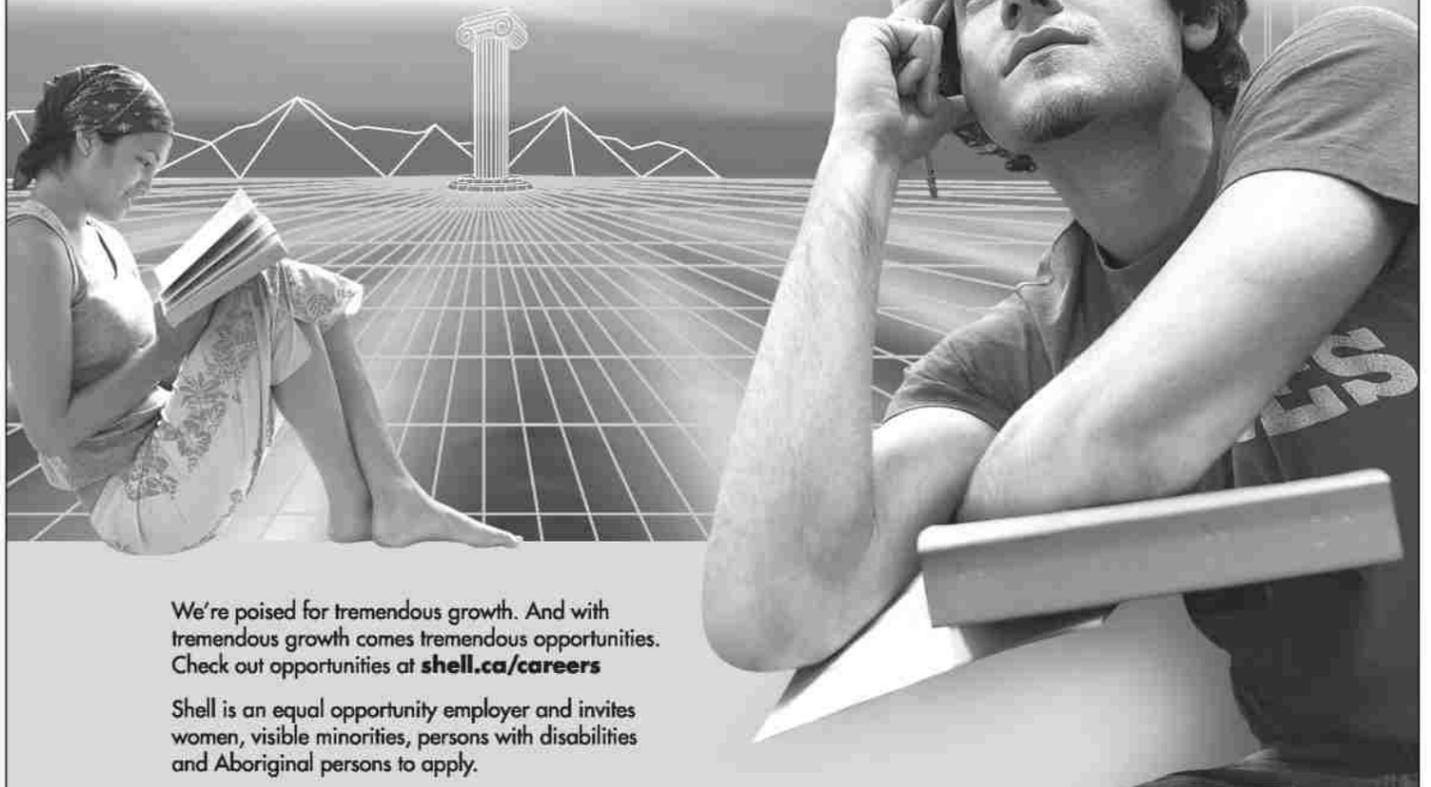
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