

Shear brain power - sheep smarter than previously believed

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Credit: James Bowe

(PhysOrg.com) -- Scientists at the University of Cambridge have discovered that sheep are more intelligent than previously believed.

Despite having a comparable [brain size](#) to other highly evolved animals, sheep have been historically perceived as unintelligent and were therefore not considered to be good animal models for studying diseases that affect learning and memory.

However, new research recently published in the journal *PLoS ONE* shows that sheep are indeed smarter than previously believed. The researchers are hopeful the animals will prove useful for research into diseases that impair the [cognitive abilities](#) of patients, such as

Huntington's disease (HD) and Alzheimer's disease.

"A new line of genetically modified sheep developed by researchers in New Zealand and Australia which carries the [defective gene](#) for HD has given us some unique opportunities to research treatments for this debilitating disease," said Professor Jenny Morton, a University of Cambridge researcher who specialises in HD. "However, if we are going to test the cognitive function in the HD sheep, first we need to understand how the brain works in a normal sheep."

The scientists posed a series of challenging tests similar to ones used to assess cognitive impairments of humans suffering from HD. The tests for the sheep involved making choices that were cued by different coloured or shaped objects, with feed as an incentive. These were each mastered in turn by the sheep. For example, in the first and easiest trial the sheep was presented with a blue bucket containing food and an empty yellow bucket. After a few trials they went automatically to the blue bucket.

Previous research has shown that sheep not only have good memories for faces. This study shows that they also can discriminate colour and shape as separate dimensions.

"The sheep were very amenable to the testing," said Professor Jenny Morton, who conducted the study while she was a Royal Society Leverhulme Senior Research Fellow. "They have an agreeable disposition which lends itself well to being used for such experiments."

The next stage of the research will be to test the Huntington's disease [sheep](#), to see if, like human patients, they also have cognitive deficits.

Provided by University of Cambridge

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