Fighting for love: Dominant male pheasants learn faster

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Dominant male pheasants learn faster than their downtrodden rivals, new research shows.

A group of 18 male pheasants - vying for the attention of 16 females -

were repeatedly placed in front of two tunnels, and had to remember which was clear and which was blocked.

The researchers, from the University of Exeter, found dominant males were better at remembering which tunnel was clear - with top third of males 40% more successful at the task than the least dominant third.

It is unknown whether dominance makes males better learners, males become dominant because they are better at learning, or both are due to other characteristics.

"The higher a male pheasant's social rank, the better their performance on this task," said Ellis Langley, of Exeter's Centre for Research in Animal Behaviour. "They each tried the task 14 times, and by the end of the experiment the more dominant males were more accurate overall. "We can't be certain why this happens. One possibility is that the dominant males are higher quality individuals - and these qualities include both cognitive function and social dominance.

"It's also possible that pheasants differ in stress levels according to their social rank, so subordinate males may be more stressed and have less energy to devote to learning."Future research will explore these possibilities."

Miss Langley, a PhD student in the Pheasant Ecology and Cognition group, added: "Previous studies have looked at pairs of individuals - one dominant and one subordinate - but in the wild pheasants have multiple social relationships."By considering the hierarchy of a large group, these findings provide us with a broader view on how cognitive performances correspond to complex social systems."

Dominance among male pheasants is shown by characteristics including raised ear tufts, larger wattles (fleshy areas around the eyes) and brighter

plumage.

Males also use displays, such as turning side-on to an opponent and fanning out one wing, and they sometimes fight using sharp spurs on the backs of their feet.

In this study, pheasants were randomly assigned to a setup where either the right or the left tunnel was open (leading back to the rest of the group).Each pheasant faced the same setup every time, so if the right tunnel was open to them the first time it was also open on the subsequent 13 tries.The pheasants could not see which tunnel was clear and which was blocked from the entrance without bending down, and if they bent down to look down the blocked tunnel the researchers counted that as a failed attempt.

"Understanding how and why individuals of a species differ in their performance on cognitive tasks is the first step in understanding how natural selection may act on general cognitive processes such as learning," Miss Langley said.

The paper, published in the *Royal Society Open Science* journal, is entitled: "Group social rank is associated with performance on a spatial learning task."

More information: Group social rank is associated with performance on a spatial learning task, *Royal Society Open Science*, rsos.royalsocietypublishing.or … /10.1098/rsos.171475

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