

New sniffer dog research could save lives

December 13 2017, by Sophie Belcher



Potentially life-saving sniffer dog research . Credit: University of Lincoln

A team of scientists has provided the first evidence that dogs can learn to categorise odours and apply this to scents they have never encountered before.

The research reveals how the animals process [odour](#) information and is likely to have a profound impact on how we train [sniffer dogs](#).

The study, led by researchers at the University of Lincoln, UK, and funded by the Office of Naval Research and the Office of Naval Research (ONR) Global in the US, found that dogs are able to categorise odours on the basis of their common properties. This means that dogs can behave towards new smells from a [category](#) in the same way as smells that they already know.

As humans, we do not have to experience the smell of every fish to know that it smells 'fishy'; instead we use our previous experience of fish and categorise the new smell in the correct way. The new research, published in the journal *Scientific Reports*, reveals that dogs can do the same.

Researchers separated dogs into two groups and then trained them to respond to 40 different olfactory stimuli, half of which were accelerant-based. The dogs in the experimental group were trained (through a reward) to offer a behavioural response, for example "sit," when they were presented with smells which fit a specific category, but to withhold that response for other non-category stimuli. The remaining dogs were trained on the same stimuli but were not rewarded for the categorical variable.

The researchers found that only the dogs in the category group were able to learn the task. Even more significantly, when presented with completely unknown smells, the dogs were able to place them in the correct category and to remember the odours six weeks later.

The researchers concluded that this means that dogs can apply information from [previous experience](#) to novel – or new – scents in order to apply an appropriate response.

Dr Anna Wilkinson from the School of Life Sciences at the University of Lincoln said:

"As humans, we are very good at assigning different things to different categories; for example, we know something is a chair because there are identifiable aspects such as a flat space to sit on, or four legs.

Categorising odours works the same way, and we were keen to discover whether dogs would be able to learn those skills.

"This was an extremely hard task for the dogs as the odour stimuli varied in strength, so animals were never trained on exactly the same stimulus. As such, it is even more impressive that the experimental group dogs learned and retained the information.

"These findings add substantially to our understanding of how animals process olfactory information and suggest that use of this method may improve performance of working animals."

The findings have implications in the field of working dog training as it implies that it may be possible to improve the way we train detection dogs.

Ayodeji Coker, the ONR Global Science Director sponsoring the research, said: "The threats being faced by today's warfighter are constantly evolving, especially as it pertains to explosives. Developing new capabilities to better train [dogs](#) to categorize explosives odours will help save lives."

More information: Hannah F. Wright et al. Animals can assign novel odours to a known category, *Scientific Reports* (2017). DOI:

10.1038/s41598-017-09454-0 ,

www.nature.com/articles/s41598-017-09454-0

Provided by University of Lincoln

Citation: New sniffer dog research could save lives (2017, December 13) retrieved 26 April 2024 from <https://phys.org/news/2017-12-sniffer-dog.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.