

# Touchscreen games for dog brain training

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Playing computer games might be the perfect "brain Training" for old dogs.  
Credit: Messerli Research Institute/Vetmeduni Vienna

Spoiling old dogs in their twilight years by retiring them to the sofa and forgiving them their stubbornness or disobedience, doesn't do our four-legged friends any good. Regular brain training and lifelong learning create positive emotions and can slow down mental deterioration in old

age. Physical limitations, however, often do not allow the same sort of training as used in young dogs. In a new study, a team of researchers led by cognitive biologists from Vetmeduni Vienna propose computer interaction as a practical alternative. In the training lab, old dogs responded positively to cognitive training using educational touchscreen games. The aim now is to get the interactive "dog sudoku" ready for home use.

Lifelong learning is not just good for people, it is also good for [dogs](#). Dogs are capable of learning even in old age, and constant brain training and mental problem-solving create [positive emotions](#) and slow the natural pace of [mental deterioration](#). Unlike puppies or young dogs, however, old dogs are almost never trained or challenged mentally. Senior dogs are usually perfectly integrated into our lives and we often forgive them any disobedience or stubbornness. In addition, due to their increasing [physical limitations](#), we usually spare old dogs the sort of training we might expect from young animals.

Cognitive biologists from the Messerli Research Institute at Vetmeduni Vienna propose computer games as an efficient alternative. Simple mental tasks on the computer, combined with a reward system, can replace physically demanding training and still keep the animals mentally fit even in old age. First, however, the method must be taken out of the laboratory and transferred to the living room.

### **Tablet games like sudoku for old dogs**

At obedience school or in private, puppies and young dogs are socialised and challenged using a variety of training methods to help them integrate smoothly into our daily lives. As the dogs get older, however, we increasingly – and unconsciously – reduce the level of regular training and challenges. "Yet this restricts the opportunities to create positive mental experiences for the animals, which remain capable of learning

even in old age," explains first author Lisa Wallis. "As is the case with people, dopamine production in dogs also falls in old age, leading to a decline in memory and motivational drive. But this natural mental deterioration can be countered with the specific training of cognitive skills."

Under laboratory conditions, the training works using computer-based brain-teasers. It does take some preparation to get the dogs used to the touchscreen, but once the animals have got the trick they turn into avid computer gamers. "Touchscreen interaction is usually analysed in young dogs. But we could show that old dogs also respond positively to this cognitive training method," says senior author Ludwig Huber. "Above all, the prospect of a reward is an important factor to motivate the animals to do something new or challenging."

Using simple tasks that can be solved through touchscreen interaction, followed by a reward, even old dogs remain willing to learn. "The positive feeling created by solving a mental challenge is comparable to the feeling that older people have when they learn something new, doing something they enjoy. Regular brain training shakes not only us, but also dogs out of their apathy in old age, increasing motivation and engagement and thus maximising learning opportunities," says Huber.

It is still not clear whether dogs slowly forget the things they once learned because of reduced powers of recollection or due to a lack of [training](#) in old age. The fact is, however, that lifelong learning with the touchscreen can help counteract this development. The research team hopes that this study will not only motivate technicians and software developers, but also interested dog owners, to consider future cooperation. "Our scientific approach could result in an exciting citizen science project to increase the understanding of the importance of lifelong learning in [animals](#)," says Wallis.

**More information:** Utilising dog-computer interactions to provide mental stimulation in dogs especially during ageing. [DOI: 10.1145/3152130.3152146](https://doi.org/10.1145/3152130.3152146)

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