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## People with Tourette's may find it easier to pick up new skills



Are people with Tourette's better at learning tasks like driving?

By **Helen Thomson**

People with Tourette's syndrome seem to have enhanced memory that could make them better at learning tasks unconsciously, such as speaking a second language or driving a car.

Procedural memory helps us do things without conscious thought. An experiment in which children played a computer game suggests that children with Tourette's may be much better at learning in this way. "This highlights the facts that conditions like this can be associated not only with disadvantages, but also potential advantages," says Dezso Nemeth at the Hungarian Academy of Sciences in Budapest.

People with Tourette's syndrome make involuntary sounds and movements called tics. A cluster of neurons deep in the centre of the brain, called the basal ganglia, seems to be involved in the condition, and is also known to be important for procedural memory.

## Memory boost

To see if the two may be linked, Nemeth and his colleagues asked 42 children, aged between 8 and 15, to play a computer game that tested their procedural memory. Half the children had Tourette's.

The game involved pressing a button that corresponded to the position of a dog on the screen. The dog's position appeared to move around at random, but in fact it followed a subtle, repetitive sequence. Trying to track this dog taps into procedural memory, because participants become quicker and more accurate without being conscious of why.

The team found that the children with Tourette's improved at the task 30 to 40 per cent quicker than those without the condition. "It's the first time that this kind of memory has been found to be enhanced in any neurological condition," says Nemeth.

## Tailored learning

Nemeth says it is unclear why the brain changes that lead to Tourette's may also enhance procedural memory, but the team may be able to use its finding to design ways to help children with Tourette's who experience learning difficulties as a result of the condition.

Enhanced procedural learning abilities could be beneficial to people with Tourette's, agrees Simon Morand-Beaulieu at the University of Montreal, Canada.

For instance, if you are taught to speak French by learning that *la chat* means cat, you are utilising your declarative memory – an explicit memory of a fact or event. But if you are shown lots of pictures of cats with *la chat* written next to them, then you would learn the word using your implicit procedural memory.

"Now we know that their procedural memory is enhanced, we could use it to teach children in a different way, helping them learn better," says Nemeth.

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