Medical Xpress

'Tetris' may help reduce flashbacks to traumatic events

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(PhysOrg.com) -- Playing 'Tetris' after traumatic events could reduce the flashbacks experienced in post-traumatic stress disorder (PTSD), preliminary research by Oxford University psychologists suggests.

If this early-stage work continues to show promise, it could inform new clinical interventions for use immediately after trauma to prevent or lessen the flashbacks that are the hallmark symptom of PTSD. Existing treatments can only be provided once PTSD has become established.

The researchers report in *PLoS ONE* that for healthy volunteers, playing 'Tetris' soon after viewing traumatic material in the laboratory can

reduce the number of flashbacks to those scenes in the following week. They believe that the computer game may disrupt the memories that are retained of the sights and sounds witnessed at the time, and which are later re-experienced through involuntary, distressing flashbacks of that moment.

‘This is only a first step in showing that this might be a viable approach to preventing PTSD,’ says Dr Emily Holmes of the Department of Psychiatry at Oxford University, who led the work. ‘This was a pure science experiment about how the mind works from which we can try to understand the bigger picture. There is a lot to be done to translate this experimental science result into a potential treatment.’

The approach relies on three elements. First, the mind is considered to have two separate channels of thought: one is sensory and deals with our direct perceptual experience of the world, the other is conceptual and draws meaning and narrative from our experiences to give them context. For example, we would use one channel to see and hear someone talk and the other to comprehend the meaning of what they were saying.

Second, there appear to be limits to our abilities in each stream: it is difficult to hold a conversation while doing maths problems, for example.

And third, there is a short time after an event in which it is possible to interfere with the way our memories are retained in the brain.

The Oxford team reasoned that recognising the shapes and moving the coloured building blocks around in ‘Tetris’ soon after seeing traumatic events should compete with the visions of trauma to be retained in the sensory part of the brain. The narrative and meaning of the events should be unaffected.

'We know there is a period of up to six hours in which it is possible to affect certain types of memories that are laid down in the human mind,' says Dr Catherine Deeprose. 'We have shown that in healthy volunteers, playing 'Tetris' in this time window can reduce flashback-type memories without wiping out the ability to make sense of the event.'

The Oxford team showed a film to 40 healthy volunteers that included traumatic images of injury from a variety of sources, including adverts highlighting the dangers of drink driving. This is a recognised way to study the effects of trauma in the laboratory. After waiting for 30 minutes, 20 of the volunteers played 'Tetris' for 10 minutes while the other half did nothing. Those who had played the computer game experienced significantly fewer flashbacks to the film over the next week.

'We wanted to find a way to dampen down flashbacks - that is, the raw sensory images of trauma that are over-represented in the memories of those with PTSD,' says Dr Holmes. 'Tetris may work by competing for the brain's resources for sensory information. We suggest it specifically interferes with the way sensory memories are laid down in the period after trauma and thus reduces the number of flashbacks that are experienced afterwards.'

The group is now hoping to develop this approach further as a potential intervention to reduce the flashbacks experienced in PTSD, but they are keen to emphasise that these are only preliminary results. Dr Holmes also stresses that no conclusions can be drawn more generally for computer gaming and its effects.

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Provided by Oxford University