

## Brief diversions vastly improve focus, researchers find

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This is a phenomenon known to anyone who's ever had trouble doing the same task for a long time: After a while, you begin to lose your focus and your performance on the task declines.

Some researchers believe that this "vigilance decrement," as they describe it, is the result of a drop in one's "attentional resources," said University of Illinois psychology professor Alejandro Lleras, who led the new study. "For 40 or 50 years, most papers published on the vigilance decrement treated attention as a limited resource that would get used up over time, and I believe that to be wrong. You start performing poorly on a task because you've stopped paying attention to it," he said. "But you are always paying attention to something. Attention is not the problem."

Lleras had noticed that a similar phenomenon occurs in sensory perception: The brain gradually stops registering a sight, sound or feeling if that stimulus remains constant over time. For example, most people

are not aware of the sensation of clothing touching their skin. The body becomes "habituated" to the feeling and the stimulus no longer registers in any meaningful way in the brain.

"Constant stimulation is registered by our brains as unimportant, to the point that the brain erases it from our awareness," Lleras said. "So I thought, well, if there's some kind of analogy about the ways the brain fundamentally processes information, things that are true for sensations ought to be true for thoughts. If sustained attention to a sensation makes that sensation vanish from our awareness, sustained attention to a thought should also lead to that thought's disappearance from our mind!"

In the new study, Lleras and postdoctoral fellow Atsunori Ariga tested participants' ability to focus on a repetitive computerized task for about an hour under various conditions. The 84 study subjects were divided into four groups:

- The control group performed the 50-minute task without breaks or diversions.
- The "switch" group and the "no-switch" group memorized four digits prior to performing the task, and were told to respond if they saw one of the digits on the screen during the task. Only the switch group was actually presented with the digits (twice) during the 50-minute experiment. Both groups were tested on their memory of the digits at the end of the task.
- The "digit-ignored" group was shown the same digits presented to the switch group during the task, but was told to ignore them.

As expected, most participants' performance declined significantly over the course of the task. But most critically, Lleras said, those in the switch group saw no drop in their performance over time. Simply having them take two brief breaks from their main task (to respond to the digits) allowed them to stay focused during the entire experiment.

"It was amazing that performance seemed to be unimpaired by time, while for the other groups performance was so clearly dropping off," Lleras said.

This study is consistent with the idea that the brain is built to detect and respond to change, Lleras said, and suggests that prolonged attention to a single task actually hinders performance.

"We propose that deactivating and reactivating your goals allows you to stay focused," he said. "From a practical standpoint, our research suggests that, when faced with long tasks (such as studying before a final exam or doing your taxes), it is best to impose brief breaks on yourself. Brief mental breaks will actually help you stay focused on your task!"

#### JOURNAL REFERENCE:

Atsunori Ariga, Alejandro Lleras. **Brief and rare mental 'breaks' keep you focused: Deactivation and reactivation of task goals preempt vigilance decrements.** *Cognition*, 2011; DOI: [10.1016/j.cognition.2010.12.007](https://doi.org/10.1016/j.cognition.2010.12.007)