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What's new? The interaction between novelty and cognition

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English Summary

What's new? The interaction between novelty and cognition

New information may signal reward and threat. Unsurprisingly, people can be distracted by unexpected information. But seeing something new can also lead to an increase in attention and arousal. In this case new information could also have a positive effect on perception and action. Indeed, in the first part of this dissertation it was shown in several experiments that novelty can improve perception and speed up responses. These effects were strongly dependent on the context in which the new stimuli were encountered. When the context was complex and the new stimuli were expected, they attracted less attention, as was reflected by brain signals measured using EEG, and no facilitation was observed. In the second part of the dissertation, the effects of novelty on learning were investigated. While healthy participants remembered more words that were presented in a novel way, processing and learning of new information was compromised in Parkinson's patients. In another study, it was found that also the novelty of the environment can enhance learning. Participants learned more words after exploring a novel versus a familiar environment. To conclude, novelty triggers a cascade of effects in the brain, affecting attention, perception, behavior, and learning. These results show that novelty is a concept that lies at the core of cognitive neuroscience and exposure to novelty can enhance performance on a variety of cognitive tasks.