EFFECT OF A SPATIAL MEMORY TRAINING ON THE PERSISTENCE OF COCAINE-CONTEXTUAL MEMORY

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Modulation of hippocampal memories related with cocaine addiction such as cocaine-context associations could have important clinical implications. It has been shown that learning-related experiences are potent modulators of hippocampal plasticity enhancing neurogenesis. We aimed to evaluate whether a spatial learning task dependent on the hippocampus could reduce the long-term maintenance and reinstatement of these memories. Twenty male C57BL/6J mice were first trained in a cocaine induced conditioned place preference paradigm (CPP). Then, half of them (n=10) were trained in a spatial learning task using the Morris water maze, while the other half stayed in their home-cages. Twenty seven days after conditioning, mice were tested for CPP retention and extinction. Finally, a cocaine priming-induced reinstatement of drug seeking was performed. The results showed that animals trained in the spatial task exhibited a lower long-term CPP retention memory. In addition, it was observed an attenuation of cocaine-induced reinstatement of CPP by spatial training. Further studies could elucidate the biological mechanisms underlying these effects.

Keywords: cocaine; addiction; conditioned place preference; extinction; mice