

Context mediated recovery of extinguished fear in humans

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Studies conducted in nonhuman animals have begun to elucidate the processes underlying the recovery of conditioned fear associations following extinction. Using an experimental paradigm called reinstatement, it was shown that contextual cues play a key role in the reappearance of conditioned responses following extinction, and that the hippocampus is critical for processing these cues. A human analogue of the reinstatement task was recently developed (LaBar & Phelps, 2005). The task was comprised of three stages: 1) acquisition and extinction of an association between a conditioned stimulus (CS) and an unconditioned stimulus (US); 2) reinstatement of the contextual fear by several presentations of the US alone; 3) testing the recovery of the conditioned fear. Conditioned fear transiently recovered if the reinstatement occurred in the same context as the other stages, but not if it took place in a novel irrelevant context. The present study further developed this procedure. Experiment 1 tested whether the conditioned fear recovery would be generalized to non-predictive cues using a delay discrimination procedure with partial reinforcement. We found a reinstatement effect only for the predictive but not the non-predictive cues. Experiment 2 tested whether the contextual reinstatement effect is time-dependent by conducting the stages of the procedure in separate days. We found that a context-dependent reinstatement effect can be demonstrated when the three stages are spread over three consecutive days allowing for the memory of each stage to be fully consolidated. We are currently testing brain areas involved in reinstatement of human conditioned fear using fMRI.

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