

Publication

A systemically administered beta-adrenoceptor antagonist blocks corticosterone-induced impairment of contextual memory retrieval in rats

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Several studies have reported that glucocorticoids impair memory retrieval. The present study examined in male Sprague-Dawley rats the effects of systemically administered corticosterone on retrieval of memory for inhibitory avoidance training. Corticosterone (3.0mg/kg, s.c.) injected 30min before retention testing, 48h after training, significantly impaired retention performance, as compared to vehicle treatment, of rats tested in the training context. In contrast, corticosterone administration did not impair retrieval when rats were tested for retention in a different context. Corticosterone did also not impair retention performance of rats given a mild-intensity footshock that resulted in only weak, non-contextual memory. These findings strongly suggest that corticosterone selectively impaired retrieval of contextual information associated with the training context. The centrally acting beta-adrenoceptor antagonist propranolol (2.0mg/kg), co-administered in a dose that did not affect retention performance alone, blocked the impairment in contextual memory retrieval induced by corticosterone. These findings provide evidence for the view that glucocorticoids interact with noradrenergic mechanisms in influencing memory retrieval.

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