

# A systematic review of occasional reinforced extinction as a method for relapse prevention

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## **Abstract**

### **Introduction**

Fear extinction is more vulnerable than the original fear memory, as relapse phenomena have systematically shown in the literature with different species and procedures. One strategy potentially useful to mitigate relapse is the occasional reinforced extinction (ORE) treatment. In contrast to a standard procedure, this strategy consists of the inclusion of a gradual and sparse number of CS-US pairings within the extinction treatment.

### **Method**

Here, we provide a comprehensive review of the available literature on ORE. We conducted the search using three databases (Web of Science, Scopus, and PsycInfo) in July 2022, with an additional citation search. We collected data on different variables of interest, like the relapse phenomena being studied, the outcome measures, or the specific effects obtained.

## **Results**

A total of 350 studies were identified from the main database search, including 16 in the review. Seventeen additional studies from the citation search were also included. The final sample of 33 reports consisted of 15 empirical and 18 theoretical works. The observed methodological variability makes it difficult to draw a robust conclusion of the effectiveness of ORE to reduce different forms of relapse as the strategy has not consistently proved a general advantage over standard extinction.

## **Conclusion**

The current evidence assessing the effectiveness of ORE does not appear to be consistent, although there are plenty theoretical studies recommending and discussing the potential effectiveness of such technique. Moreover, the lack of clear laboratory evidence seriously call into question how general the potential benefits of its use in clinical settings would be.

**Keywords:** conditioning, extinction, relapse, occasional reinforced extinction