

**Title:** Relapse: The Inability to Unlearn

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**Introduction:**

Relapse into negative behavior is an issue that many therapeutic treatments are centered around, whether it be addiction, lifestyle habits, or practical skills. However, few treatment programs are effective in complete rehabilitation. It has been found that striatal learning (the area of the brain important for habit learning) is not usually unlearned when new behaviors take its place of previously learned ones but instead is only suppressed. Therefore these striatally learned behaviors can be easily reverted back to. This offers an explanation as to why some rehabilitated individuals often relapse into a previous behavior.

**Purpose:**

This study aimed to test whether striatal learning could be truly unlearned if replacement behaviors were introduced slowly with a gradual distancing of overlap between the old and the new learning.

**Method:**

Participants learned to categorize boxes varying in size and density into four categories. In the next phase of the study, half of the participants had the requirements for the categories gradually change. For example, if the requirements for Category A were small and dense boxes, the requirements would become larger and less dense gradually until what was once classified as a Category A was now classified as a Category B. The other half of participants would also have their categories switched, however, they would switch abruptly. After learning the new set of category responses, the participant was either taken back to the phase 1 category or taught a completely new category.

**Results:**

The results showed that in both conditions participants scored higher when the trial switched back to the category from phase 1. However in the condition where the new behavior was gradually introduced, the score for reverting back to the learned behavior was significantly higher.

**Conclusion:**

The initially learned behavior was retained regardless of whether new learning was gradual or sudden. In fact, gradual learning of the replacement behavior actually increased retention of the old learning. Nothing was “unlearned.” These findings suggest that an old habit does not disappear but is simply stored away until a stimulus triggers a relapse.

**Key words:** Unlearning, Relapse, Habit, Categorization