THE EFFECTS OF STRESS ON THE MEMORY TRADE-OFF

Arden Anderson, Kaci Brasher, and Thomas Brehmer
WEAPONS FOCUS EFFECT/EYEWITNESS TESTIMONY
EMOTION-INDUCED MEMORY TRADE-OFF

Kensinger, Garoff-Eaton, Schacter (2007)
METHODS

Study

30 min delay
Stress or Control

Test
CORTISOL - TIME POINTS

Baseline

After Study

Following the Cold Pressor/Warm Water Task

Before Test

After Test
Stress interacts with several regions of the brain.

Previous studies show men have higher cortisol reactions.

Stress and cortisol elevations may impair memory retrieval.

- Examples: test taking, stress on witness stand, etc.

Diagram:
- Hypothalamus - Corticotropin Releasing Hormone (CRH)
- Anterior Pituitary – Adrenocorticotropic Releasing Hormone (ACTH)
- Adrenal Cortex - Cortisol
HYPOTHESES

1. Memory Trade-off Effect

2. Memory retrieval for emotional and neutral items, and backgrounds:
   - Stress Group = ↓ Memory
   - Control Group = No memory change

3. Different effects of stress on memory for males and females.
DID THE STRESSOR INCREASE CORTISOL?

**Graph Description:**
- The graph shows cortisol levels (nmol/l) over five time points (TP 1 to TP 5).
- Two conditions are compared: Control (black line) and Stress (brown line).
- The cortisol levels are higher in the Stress condition compared to the Control condition at TP 3 and TP 4.

**Statistical Analysis:**
- The ANOVA test results are presented as $F(4, 208) = 38.54, p < 0.001$.
- This indicates a significant increase in cortisol levels due to the stressor.
STRESS GROUP = ↓ MEMORY ?
DIFFERENT EFFECTS OF STRESS ON MEMORY FOR MALES AND FEMALES

The graph shows the percentage remembered for males and females under control and stress conditions. The results indicate that stress has a different effect on memory for males and females. The data points are marked with an asterisk (*) indicating statistical significance. The control groups show a slight difference between males and females, with males remembering slightly more. Stress conditions show a significant decrease in memory recall for females compared to males.
CONCLUSION

- A memory trade-off occurred for both stress and control groups.
- Females showed that stress impairs memory at retrieval, which is the effect we hypothesized.
- Memory results were similar for both stress and control groups, which has implications for the use of eyewitness testimony in the court room.
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