

Aging and emotion regulation: An ERP study

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Introduction

- With aging, affect becomes more positive and/or less negative [1, 2]
- This is suggested to result from improved emotion regulation [2]
- Emotion regulation = use of behavioral or cognitive strategies to generate new emotions or alter current emotions [3]
- The late positive potential (LPP) is emotion-sensitive and is modulated by emotion regulation [4, 5]
- Research question: Does emotion regulation improve with age?
- Hypothesis: Larger emotion regulation effects in the event-related potential (ERP) in older than younger adults

Methods

- 19 younger (18-26 yrs) and 20 older (60-77 yrs) participants
- 64-channel EEG registration (Biosemi)
- Neutral, unpleasant, and pleasant pictures (IAPS)
- View, increase feelings, and decrease feelings instructions

• 7 conditions:

view-neutral	increase-unpleasant
view-unpleasant	increase-pleasant
view-pleasant	decrease-unpleasant
	decrease-pleasant

- Same design as [4, 5], for trial overview, see Fig. 1

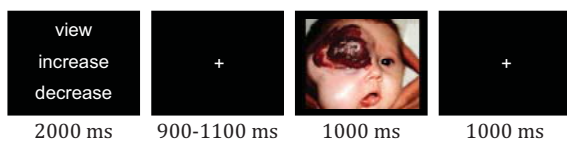


Fig. 1 Trial overview. First, an instruction word ('view', 'increase', or 'decrease', depending on the block) was presented to remind participants of their task, followed by a fixation cross. Then a picture was shown for one second, again followed by a fixation cross.

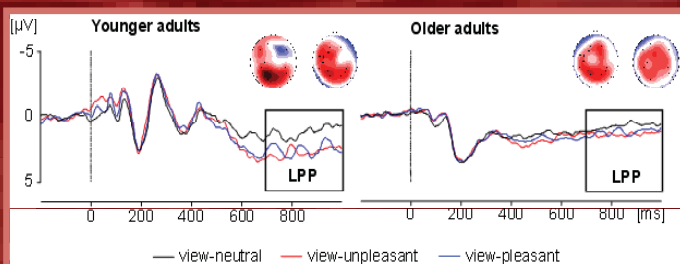


Fig. 2 ERP waveform at medial posterior electrode cluster, showing the more positive LPP (700-1000 ms) for emotional compared to neutral pictures in the view condition. The voltage scalp topographies depict unpleasant - neutral (left) and pleasant - neutral (right), showing the posterior distribution of the valence effects.

Results

- More positive LPP (700-1000 ms) for emotional than neutral pictures in view condition, see Fig. 2
- More positive LPP (700-1000 ms) for unpleasant than pleasant pictures in all instruction conditions
- More positive ERP (150-1000 ms) for increase than view and decrease instructions, see Fig. 3
- More positive ERP (400-700 ms) for decrease than view instruction, see Fig. 3
- No age differences in valence or instruction effects



Fig. 3 ERP waveform at medial posterior electrode cluster, showing the more positive ERP for increase than view and decrease instructions (150-1000 ms) and the more positive ERP for decrease than view instruction (400-700 ms)

Discussion

- Typical valence effects in ERP [4, 5]
- First evidence of ERP modulation by increasing feelings
- Generally no effect of decreasing feelings [in contrast to 4, 5]
- Due to use of less arousing pictures [compared to 4, 5]
- No age differences in emotion regulation effects
- Data do not support the notion that emotion regulation improves with aging
- Age differences in spontaneous utilisation of emotion regulation remain to be investigated

References

- [1] Langeslag & Van Strien (2008). *Int J Psychophysiol*, 70, 105-114.
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- [5] Moser et al. (2006). *Psychophysiology*, 43, 292-296.