

# ELECTROPHYSIOLOGICAL CORRELATES OF OWN-AGE BIAS IN FACE PROCESSING

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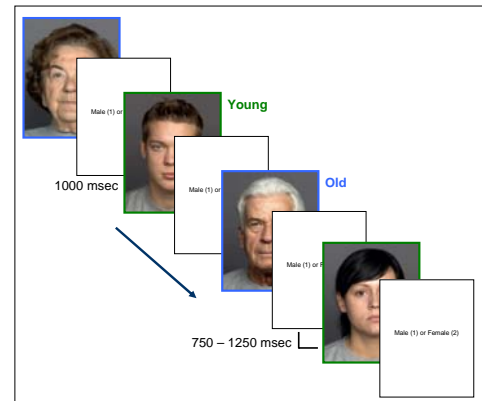


## INTRODUCTION

Previous behavioral research in face recognition and person identification has shown that adults of different ages are more accurate and faster at identifying, recognizing, and remembering faces and persons of their own age as opposed to other ages (e.g., Anastasi & Rhodes, 2006; Lamont *et al.*, 2005). This "own-age bias" suggests that the age of a face constitutes one important factor that influences how a face is processed.

The goal of the present study is to identify the electrophysiological correlates of the own age bias in the processing of faces. (and the influence of implicit attitudes on potential ERP differences across age?)

## METHOD



## Participants

• 22 healthy young adults (Range: 18-29, M 20.68 years old +/- SD3.14; 14 males)

## Task Design

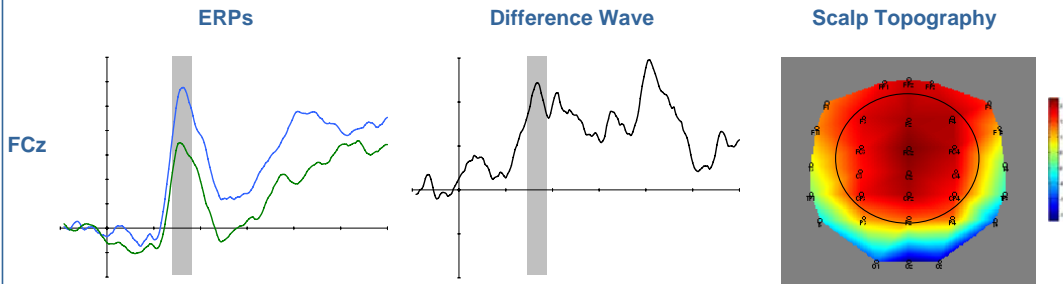
- Gender Discrimination Task
  - 112 Faces
    - 50% Young, 50% Old
    - 50% Male, 50% Female
    - Ebner, Riediger, & Lindenberg (in prep.)
    - Lindenberg, Ebner, & Riediger (under review)
  - Subjects responded when prompted after the face presentation
- Participants performed Age IAT (M 0.479 +/- 0.535 SD)

## Data Recording and Analysis

- ERP recordings: 32 electrodes, modified 10-20 system, bandpass filtered (0.1 - 100 Hz, 60Hz notch filter?), sampling rate = 250 Hz.
- ERP averages were calculated for Young and Old faces.

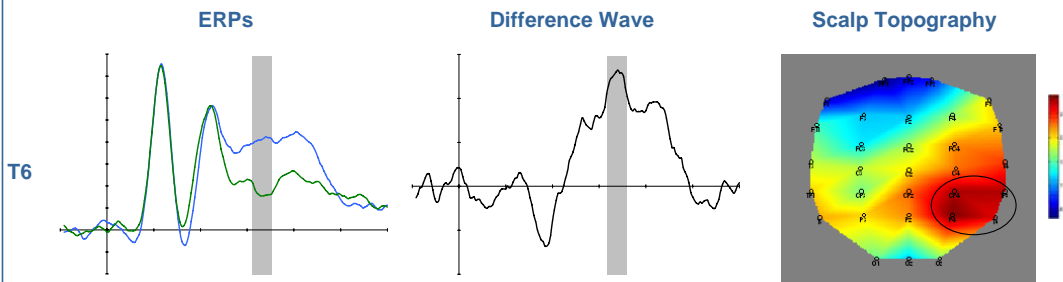
## ERP DIFFERENCES BETWEEN YOUNG & OLD FACES

### Frontal-Central Difference @ ~160 msec



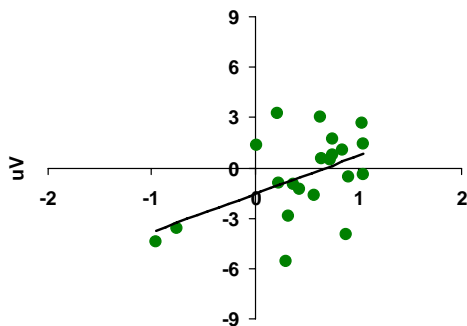
Add Time and amplitude legend here?

### Right Temporal Difference @ ~336 msec



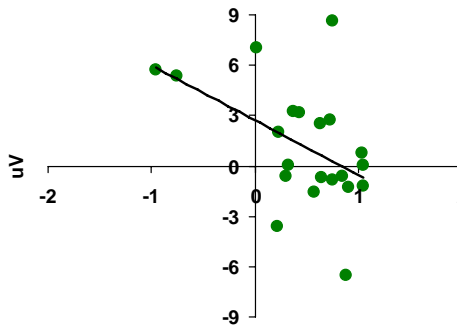
## CORRELATIONS WITH AGE-IAT

### Occipital-Temporal Sites @ ~190 - 230 msec (T6 Shown)



Age IAT (Higher Score - Larger Own Age Preference)

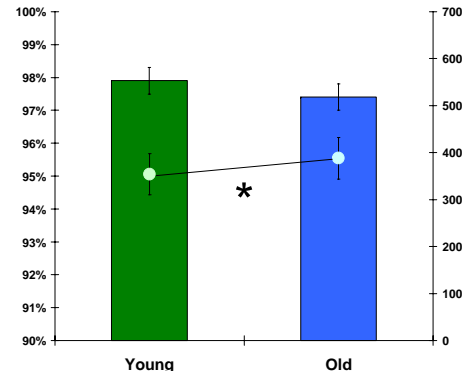
### Frontal & Central Sites @ ~490 - 600 msec (F3 Shown)



Age IAT (Higher Score - Larger Own Age Preference)

Own-Age preference? Add r and p in the figure?

## Gender Discrimination Performance Both RT and accuracy significant?



## DISCUSSION

• The age of a person can be determined ~160 msec after stimulus onset, around the same time face specific ERP components are seen (N170).

• Differences in the processing of young and old faces occur at electrode sites where face specific ERP effects (N170) are traditionally seen (TP8/T6). (but in a later time period?)

• Young adults showed more efficient processing of young than old faces, consistent with the idea that, similar to the own-race bias (Meissner & Brigham, 2001?), the own age bias in face processing may be due to increased familiarity with faces of our own age group.

• Although the significant stimulus processing differences do not correlate with the Age-IAT, correlations are evident on the P2 and Late Positive components.

## REFERENCES

- Anastasi, & Rhodes (2006). Evidence for an own-age bias in face recognition. *North Am J of Psychology*, 8, 237-252.
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- Lamont, Stewart-Williams, & Podd (2005). *Memory & Cognition*, 33, 1017-1024.
- Meissner, C.A., & Brigham, J.C. (2001). A meta-analysis of the verbal overshadowing effect in face identification. *Applied Cognitive Psychology*, 15, 603-616.
- Lindenberg, Ebner, & Riediger (under review). FACES—A database of emotional facial expressions in young, middle-aged, and older women and men: I description.

## ACKNOWLEDGEMENTS

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