We are typically highly accurate at recognizing faces of familiar people. Electroencephalogram (EEG) research using event-related potentials (ERPs) has consistently revealed more negative amplitudes to personally familiar than unfamiliar faces at occipito-temporal channels. This difference starts at around 200ms (N250) after stimulus onset and reflects access to long-term visual representations. It becomes more pronounced between 400-600ms (Sustained Familiarity Effect, SFE).

The functional properties of the SFE are unknown.

This study applied repetition, self- and associative priming to examine the extent to which the SFE is modulated by accessing visual as well as post-perceptual information. Specifically, we examined whether the SFE would be either influenced by the pre-activation of identity-specific information ("Who is this person?") or by the expectation of an upcoming familiar versus unfamiliar target.

**METHODS**

- We have collected 25 images of 2 personally familiar people from each participant. The familiarity of identities was balanced across participants (Figure 1).
- In each trial, participants viewed a face (Repetition Priming; Experiment 1/Figure 2) or a written name (Self-Priming; Experiment 2/Figure 3 and Associative Priming; Experiment 3/Figure 4), followed by a target face image while their EEG was recorded.

**RESULTS**

There was a significant main effect of familiarity in the N250 time window, which was reduced but remained significant beyond 400ms.

We observed a repetition priming effect for unfamiliar but not familiar targets in the N250r time range.

We found a significant main effect of priming between 500 and 600ms, with more negative amplitudes non-repeated than repeated familiar targets. More negative amplitudes were found for repeated than non-repeated unfamiliar targets.

**DISCUSSION**

We observed clear N250 familiarity effects in all three experiments.

Priming effects were observed for both familiar and unfamiliar target faces, suggesting that the prediction of target category (familiar/unfamiliar) rather than access to specific person-related information underlies these effects.

However, familiarity effects were stronger in the primed relative to the unprimed condition (300-400ms), rather than access to specific person-specific representations in the former relative to the latter condition.

Familiarity effects were consistently reduced in the subsequent SFE time window. This suggests that the prediction of a categorical response (familiar/unfamiliar) reduces the SFE.

References: