

Poster presentation

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Eyblinking dynamics underlying decision-making and responses in Stroop Task

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Background and methods

The aim of this study was to investigate whether eyblinking is associated with cognitive process or not by examining the temporal correlation between eyblink timing and decision-making and vocal response timing in Stroop task. 32 subjects performed the auditory and visual stroop tasks and their eyblinks were recorded using EMG moni-

tor systems during color naming and word reading in Stroop task.

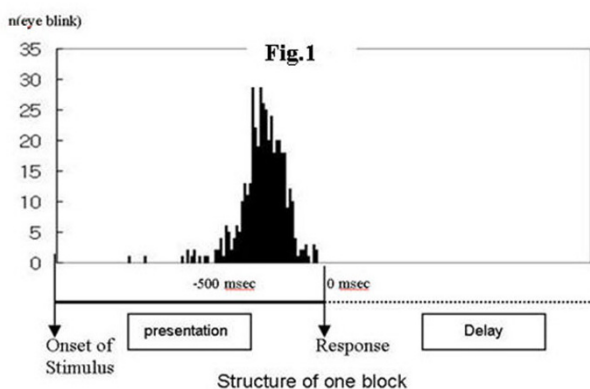


Figure 1
The temporal association between eyblinks and response time measured from all blocks (total = 480) in a subject. The average duration for each block was 2,100 msec and the duration between vocal response and stimulus presentation was 500-1,300 msec. The time of occurrence of the successive stimulus after the response was 1,200 msec.

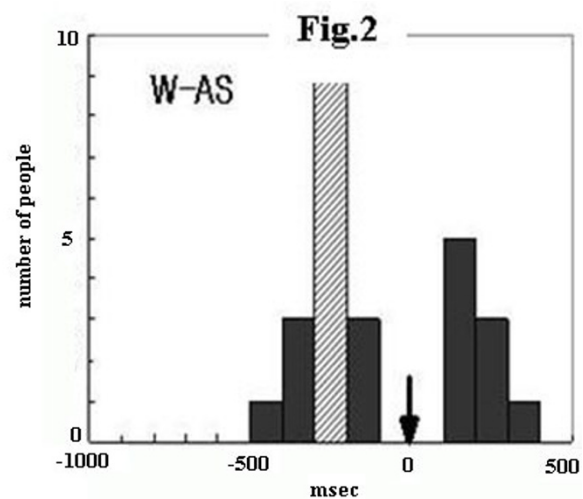


Figure 2
The eyblinking types can be divided into subgroups based on the mean of eyblink and response for all subjects (n = 32) (W: Word Reading, AS: Auditory Stroop). '0' indicates the response timing and the bin with oblique lines represents 9 subjects that have a mean value between eye blink and response time of -300 to -200 msec in the corresponding block (total = 120, (-) means eye blink occurs before the response).

Results and discussion

The main results are graphically presented in Figure 1 and 2: we found a 100–200 ms delayed synchrony between eyeblink and response timing, indicating that eyeblinks induce the vocal response. A similar association was found in the auditory Stroop task, indicating that eyeblinks were closely related to the cognitive processes rather than visual stimulation. However, the length and difficulty of the stimuli were not correlated with eyeblinks. This study suggests that eyeblink may get involved in mode shifting from decision-making to response.

References

1. De Jong PJ, Merckelbach H: **Eye blink frequency, rehearsal activity, and sympathetic arousal.** *Int J Neurosci* 1990, **51**:89-94.

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