

Supplemental Digital Content for

Spontaneous Eye Blink Rate Connects Missing Link between Aerobic Fitness and Cognition

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Spontaneous eye blink rate counted by vertical electro-oculogram (VEOG)

To examine the reliability of the camcorder-counted method used in this study, we measured VEOG in a pilot experiment. Seven healthy young males participated in the pilot experiment, in which the retinal-corneal potential was recorded by means of a potential difference between the electrodes attached to the periphery of the eye. Electrodes were attached to two areas, the area 4 cm above the right eye (i.e., the forehead) and the area 3 cm below the right eyelid (i.e., the cheek: infraorbital region), using double-sided adhesive tape (Figure S1a). The earth electrode was attached to the right parotid-masseteric region. The BrainAmp ExG MR and BrainVision recorder (Brain Products GmbH, Munich, Germany) were used to collect data for VEOG. The voltage difference between the two electrodes placed above and below the right eye was recorded and the clear spike of potential change occurring at around 100-800 ms was assessed as a blink by visual inspection (Figure S1b). Camcorder counts and VEOG counts were respectively measured by two independent researchers. The sEBR measured using VEOG was 16.3 ± 11.2 (range 3.0 - 36.7) per min and confirmed a strong correlation with sEBR measured using a camcorder ($r > 0.99$, $P < 0.001$).

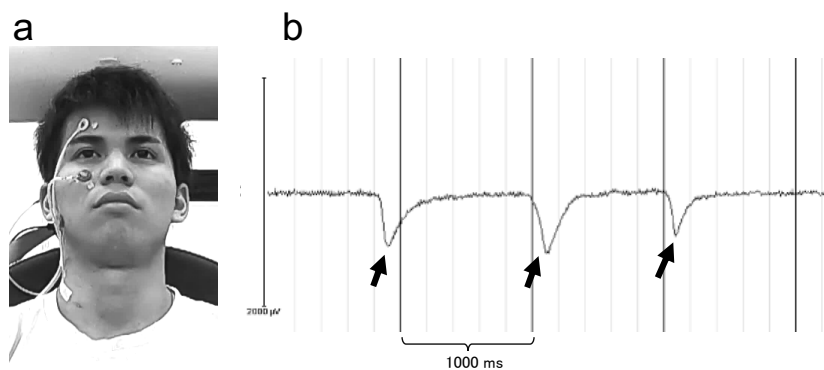


Fig. S1 (a) Position of electrode attachment. (b) An example wave form of VEOG data for sEBR from one typical participant.