

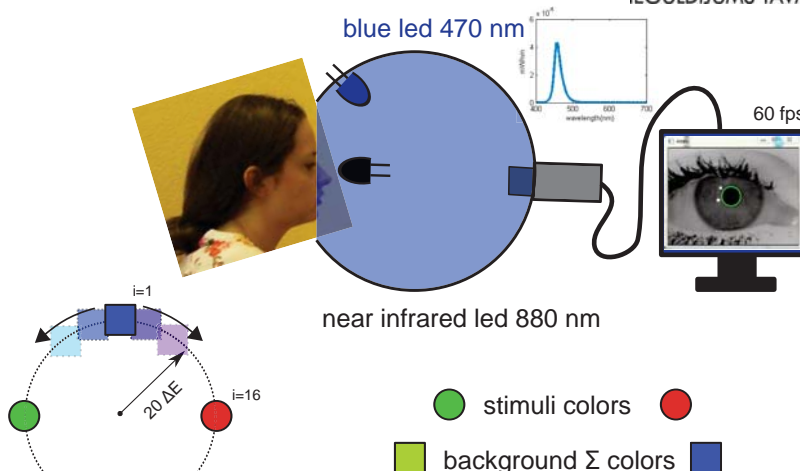
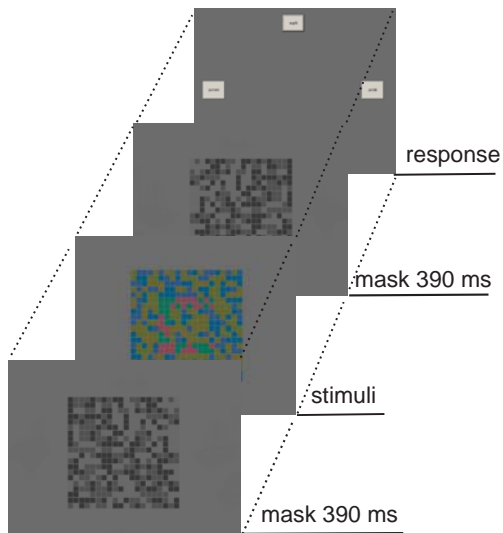


Detection in chromatic noise and visual fatigue



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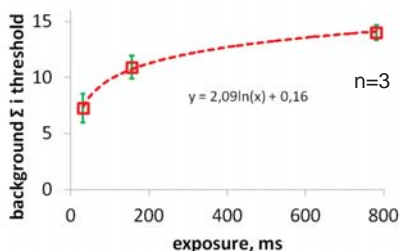
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Background color dimensionality is changed through adaptive 4AFC procedure. New color are added (sum up) or removed from background, 4 colors (i) at a time. Color circle is divide into 64 colors, so 16 steps are possible in between starting background (i=1) and stimuli (i=16). Subjects indicate the direction of the "C" object opening.

Experiment A

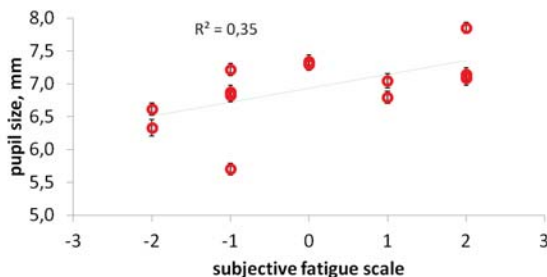
Background chromatic noise is varied at two exposures of 156 ms and 780 ms



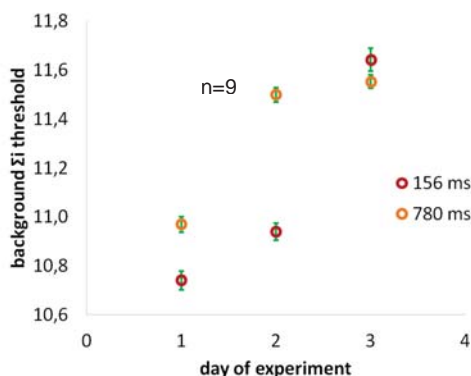
Preliminary data from 3 experienced subjects for 156 ms stimuli exposure

Experiment B

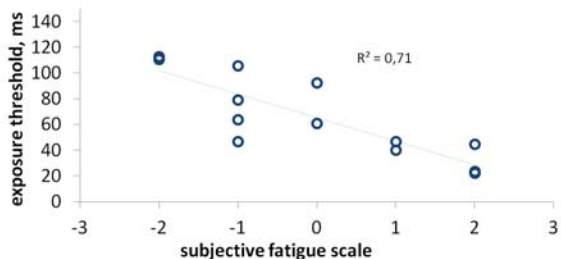
Background chromatic noise is static (4 units), exposures are variable. Subjects were dark adapted for 10 min and pupil size was measured for adapted and 10 cd/m² bright blue stimulus. Subjective fatigue is defined by 25 question fatigue questionnaire. Ages: 24-33 y.o.



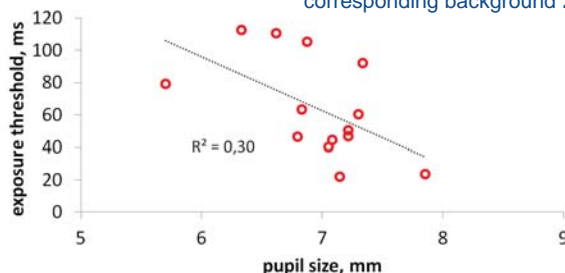
Pupil sizes of 13 subjects vs subjective fatigue scale



Repeated measures for nine unexperienced subjects



Subjective fatigue scale of 13 subjects and corresponding background Σi



it showed up that subjects get trained to the task and improve the Σi threshold through the repeated trials. No repeated trials were allowed in experiment B.

Exposure threshold show high correlation value with the subjective fatigue evaluation scale.

Pupil size provides average correlation value with subjective scales.

Exposure thresholds show medium correlation with dark adapted pupil size.

Acknowledgement

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