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## Pre and postoperative fatigue in patients undergoing neurovascular surgery

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Patients recovering from surgery frequently experience symptoms of fatigue. Objective measures of fatigue could be used to follow recovery progress, optimize daily activities to patient's resources and evaluate working ability. Increased eye closure time per minute (ECT/min) has been used as an indicator of decreased alertness. We used ECT/min to study fatigue of patients undergoing elective neurosurgical treatment for unruptured intracranial aneurysm. We recorded electro-oculography (EOG) from eight patients (40 yrs., SD 12, 3 male) before (9 am) and after (10:30 am) performing demanding computer tasks simulating knowledge work. During the 6.5 min EOG measurements patients watched a muted video film. The ECT/min values were individually baseline corrected to the mean of the first measurement. Measurements were done 1-22 days before and 15-30 days after surgery. All patients were full-time employed with no history of stroke, mental disturbances, and intracranial procedures. In both, pre- and postoperative measurements the ECT/min values were higher after the cognitively demanding tasks (preop:  $W=774$ ,  $p=0.008$ ; postop:  $W=684$ ,  $p=0.0008$ ), suggesting decreased alertness and/or increased fatigue after tasks. Interestingly no difference was found between pre and postoperative measurements ( $W=1136$ , ns.), indicating that fatigue was not significantly greater after surgery. The ECT/min is a promising objective measure to evaluate and follow changes in fatigue and alertness of patients. Longer postoperative follow-up with larger patient groups are needed to study further development of task-related ECT/min values after neurosurgery and can the effect of task on ECT/min predict working ability.

### Biography

Kiti Muller is a Neurologist with a PhD in Neuroimmunology. She is the Senior Neuroscientist at Nokia Bell Labs; Adjunct Professor in Neurology at Helsinki University and; in Cognitive Neuro-ergonomics at Aalto University, School of Science. Her research in Cognitive Neurophysiology focuses on sleep, fatigue and vigilance in different medical conditions and their effects on working ability of patients.

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