

Comparison of Saccade Peak Velocity with Maintenance of Wakefulness Test

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In this study we looked at the use of eye movement parameters in the quantification of daytime sleepiness in healthy workers. Our aim was to develop methods that could be used to follow sleepiness and vigilance fluctuations in the workplace. Maintenance of Wakefulness Test (MWT) was performed and 30 anticipatory saccades were measured from 53 middle aged workers. The tests were done in a sleep laboratory with 15 minute difference between the end of the saccade test and the beginning of MWT. Recordings were done using the Embla (Flaga hf.) polysomnography equipment with a sampling rate of 200 Hz. For Electro-oculography (EOG) we used the standard configuration used in sleep studies picking up both horizontal and vertical eye movements with two electrodes.

From 59 subjects, 29 had no sleep (S1) epochs during MWT of 40 minutes. From the 24 subjects with sleep epochs, only 3 had an abnormal S1 latency of less than 11 minutes. There was a large variance in saccade mean and peak velocities. There was no correlation between the S1 latency and saccade mean and peak velocities in the group. However if there were sleep epochs in MWT, the correlation between the S1 latency and the saccade peak velocity was 0.28. There was also a trend between the S1 latency and the saccade mean velocity and the number of accepted saccades. It is concluded that if the maintenance of wakefulness is slightly impaired, a simple saccade peak velocity test could be used to explain a part of the vigilance fluctuations.