Title: Visual Processing in Sleep Disorders

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Involved disciplines: Visual Perception, Psychobiology of Sleep, Neurology

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Objective: To study the effects of sleep disorders on visual processing, by employing a visual search paradigm.
The effects of sleep disorders on visual processing

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Background

Although several studies have demonstrated that sleep deprivation selectively impair cognitive functions (Versace et al 2006), little is known about their effects of chronic sleep disorders on visual processing (Fulda & Schulz 2001). In our study we will employ a visual search paradigm to test the ability to extract visual information from a context of stimuli. Visual search represents a useful tool to investigate the integration of both perceptual and attentional processes and thus provides a critical evaluation of the visual efficiency (Treisman & Gelade1980).

Goals and tasks

1. Participants will have to detect the presence/absence of a target (letter T) embedded into a set of characters (respectively letters Os, Xs or Ls). The test-stimuli will be presented without time constraints and subjects will be instructed to perform the two-alternatives-forced-choice task as soon as possible. The saliency of the target with respect to the contextual letters (T vs. Os, Xs, or Ls, respectively) and the distractors’ number (15, 30, 60) will be manipulated. As dependent variables, both accuracy and reaction times will be recorded.

2. We will test the performance of patients affected by specific sleep disorders (such as primary insomnia, obstructive sleep apnoea, restless legs syndrome) in a visual search task.

3. Patients’ performance will be compared with the results obtained for the same task by a group of aged-matched controls.

References

