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Introduction

Mental fatigue occurs during monotonous work. It impairs physical performance, which may become apparent of sleepiness, lethargy, attention and concentration decline (Marcora et al., 2009). Our **study aim** is to determine how mental fatigue affects human visual spatial perception and reaction time.

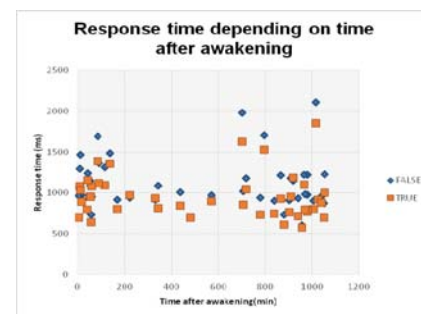
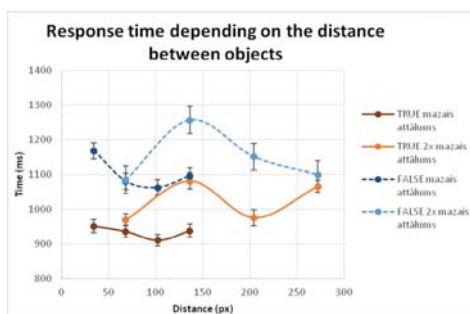
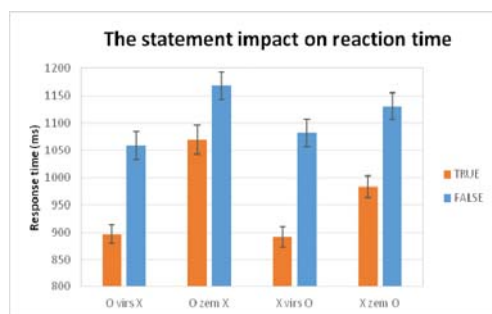
Tasks of study: (1) determine reaction time, perceiving spatial location of objects according to the statement, (2) determine speed of visual perception of objects placed in different distances, (3) determine effects of fatigue on spatial perception reaction time.

Method

Study included 45 participants between the ages of 18-35 years. Participant's task was to give the shortest possible time response whether statement conform with image. The statement had two prepositions - above and below. Participants had to assess 192 steps – the statement and image. At the end they had to answer on a questionnaire about fatigue and health.

Results

When statement („true”) and the layout of objects are matching, participant gives faster response than if the statement is not coincide with picture. Assessing the effects of time of day, the data shows the response time for a longer part of the morning and evening, and this relation is observed both at a "right" and "wrong" statement. The least mistakes (about 4%) of given replies, was in the morning hours. The other times of the day data did not differ statistically. Their number increased up to 7 – 8%. The longest response time on the statement appeared during the first five hours and 10 – 15 hours after awakening.



1.fig. Reaction time differences between true and false statements. In preposition "under" case reaction time is longer than in the preposition "above" case.

2.fig. The distance between located objects have little impact on response time. Latvian language prepositions "above" and "under" have small impact on reaction time.

3.fig. The longest response time on the statement was in the first 5 hours and 10 – 15 hours after awakening. The least mistakes (about 4%) of given replies, was in the morning hours.

Conclusions

Longer reaction time is in the morning, where fewer mistakes are made. During the day people faster bind together statement with image, but the mistake proportion increases. Shorter response reaction time and less mistakes are in response to the statement "above".

Reference

Marcora, S.M., Staiano, W., Manning, V. (2009). Mental fatigue impairs physical performance in humans, *Journal of Applied Physiology*, 106 (3), p.857-864.

Acknowledgements

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