

# ATTENTION AND WORKING CAPACITY DEPENDING ON PERIPHERAL VISUAL STIMULI

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In natural viewing a visual stimulus that is target of attention is generally surrounded by many irrelevant distracters. Actually most of them are perceived by the means of peripheral vision.<sup>1</sup> In order to study peripheral visual perception, we developed a program, in which we binded different types of peripheral visual stimuli. Moreover, it should help to evaluate working efficiency using different peripheral stimuli.

## METHODS

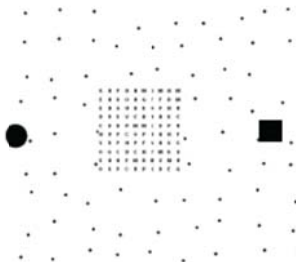


Fig.1. Example of task

- ✓ Three types of peripheral noise: white, five times five or ten times ten black dots
- ✓ Peripheral stimuli of different size appearing for 500ms two times during one task
- ✓ Time needed to accomplish the task and number of specific letters to count with ones that were counted by an individual. See an example in Fig.1.

## RESULTS

1. There is a tendency that central task is completed faster on the dotted background comparing with white background although there is no statistically significant difference (see Fig.2.)

2. Peripheral stimuli significantly increases the time required to complete the task on white background

3. It is easier to determine the peripheral stimuli when they are presented on the dotted background

4. More errors in counting the letters are made when the peripheral stimuli appeared on the white background

5. Three of the eight individuals had not noticed the presence of the peripheral stimuli on any of the peripheral backgrounds

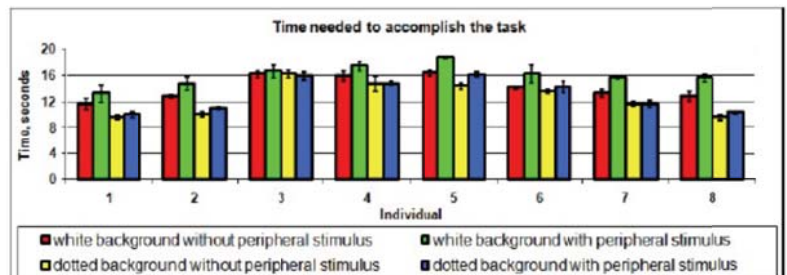


Fig.2. Time needed to accomplish the task. The results of eight individuals.

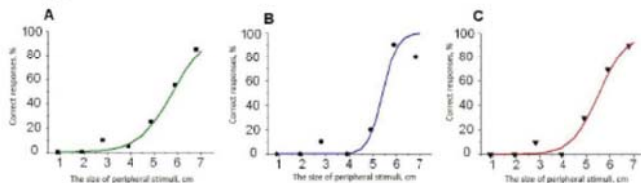


Fig.4. Correct responses according to peripheral stimulus size.

6. The threshold for 50% correct responses for white and ten times ten dotted peripheral background is from 3 cm to 4 cm, whereas for five times five is from 4 cm

## CONCLUSIONS

1. The presence of the peripheral noise (dotted background) requires less time to accomplish the task

2. The presence of a central stimulus can influence individual's ability to discriminate between peripheral stimuli

3. Suppression of the peripheral visual field was increased, focusing on the task performance allowed individuals to "switch off" the peripheral vision

## REFERENCES

1. Chun, M. M, Wolfe J. M. Blackwell Handbook of Perception. Visual Attention. Editor: E.B.Goldstein. Version of July 7, 2000