

## **P5.19.**

### **The role of complexity of the infrequently presented irrelevant stimuli in orientation**

Barkaszi, I.<sup>1,2\*</sup>; Czigler, I.<sup>1</sup>; Balázs, L.<sup>1</sup>

*1: Institute for Psychology, Hungarian Academy of Sciences, Budapest, Hungary*

*2: Institute of Psychology, Debrecen University, Debrecen, Hungary*

The orienting response is an involuntary shift of attention to new, unexpected or unpredictable stimuli, enabling the event to enter the consciousness. If the event is deemed significant, this could lead to appropriate behavioral action. The neurocognitive changes induced by the orienting response enable the organism to respond appropriately to a variety of familiar or unfamiliar environmental events. The brain electrical activity correlates of this response is a component (P3a) elicited by task irrelevant stimuli that is of maximum amplitude over the frontal/central areas with a peak latency of 300-400 ms. This component is typically obtained in response to task irrelevant stimuli. In our experiments participants were asked to perform auditory and visual discrimination tasks. All subjects were given 3 task conditions in each modality. In the conditions 1. and 2. the tasks consisted of simple standards (80%) and targets (10%) and the task irrelevant stimuli were more complex. In condition 1. complex stimuli were similar, however in condition 2. they were different each time. In contrast in condition 3. the standards and targets were more complex and the task irrelevant infrequent stimuli were similar and more simple. The irrelevant infrequent stimuli elicited P3a component in the 1. and 2. but not in the 3. conditions. Our results show that the infrequency and the irrelevance is not enough to elicit orienting response per se, there is a significant role of complexity.