

研究業績 英文表記

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| 表題 | 脳波計測により明らかとなった色による視覚的注意機能の強化 |
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| 英文 | |
| Title | Enhancement of Visual Attention by Color Revealed Using Electroencephalography |
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| Abstract | <p>Attention constitutes a fundamental psychological feature guiding our mental effort toward specific objects, concurrent with processes such as memory, reasoning, and imagination. Visual attention, crucial for selecting surrounding information, often decreases in older adults and patients with cerebrovascular disorders. Effective methods to enhance attention are scarce. Here, we investigated whether color information influences visual attention and brain activity during task performance, utilizing EEG. We examined 13 healthy young adults (seven women and six men; mean age: 21.2 ± 0.58 years) using 19-electrode electroencephalograms to assess the impact of color information on visual attention. The Clinical Assessment for Attention cancellation test was conducted under the black, red, and blue color conditions. Wilcoxon's signed-rank test was used to assess differences in task performance (task time and error) between conditions. Spearman's rank correlation was utilized to examine the correlation in power levels between task performance and color conditions. Significant variations in total task errors were observed among color conditions. The black condition exhibited the highest error frequency (0.7 ± 0.9 times), followed by the red condition (0.5 ± 0.8 times), with the lowest error frequency occurring in the blue (0.2 ± 0.4 times) condition (black vs. red: P = 0.03; black vs. blue: P = 0.00; red vs. blue: P = 0.032). No time difference was observed. The black condition showed negative delta and high-gamma correlations in the central electrodes. The red condition revealed positive alpha and low-gamma correlations in the frontal and occipital areas. Although no correlations were observed in the blue condition, it enhanced attentional performance. Positive alpha and low-gamma waves might be crucial for spotting attentional errors in key areas. Our findings provide insights into the effects of color information on visual attention and potential neural correlates associated with attentional processes. In conclusion, our study implies a connection between color information and attentional task performance, with blue font associated with the most accurate performance.</p> |
| keyword | Attention, Higher Brain Function, Electroencephalography, Neuroimaging, Rehabilitation |

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