Lighting up the aging brain

https://neurodegenerationresearch.eu/survey/lighting-up-the-aging-brain/

Principal Investigators

Carrier, JulieVandewalle, Gilles G

Institution

Hôpital du Sacré-Coeur de Montréal (CIUSSS - NIM)

Contact information of lead PI
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Canada

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Lighting up the aging brain

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Research Abstract

Much of the research on aging has focused on how to age cognitively well, or at least better. Several proposed and validated approaches have addressed physical activity, nutritional aspects, or cognitive training. The long-term goal of this research program is to use light as a simple, non-invasive intervention to enhance vigilance and cognition in the elderly. Light exposure can rapidly improve alertness and increase performance on several cognitive tasks in young subjects, even under sleep loss. We hypothesize that systematic light exposure is an efficient therapeutic strategy to enhance alertness, performance and cognition in older individuals. Some studies suggest that aging may decrease the beneficial effects of light. This in turn may prevent optimized cognitive performance in the elderly. The overall aim of this research program is to understand the effects of light on cognition in aging. First, we will use brain imaging to assess whether the effect of light on cerebral activity during a cognitive task is

reduced in healthy elderly compared to young individuals. We will also evaluate whether age-related changes in the eyes (i.e. lens yellowing) may affect the impact of light on cognition. Hence, we will assess whether light sensitivity is enhanced in cataract patients for whom yellowed lens is replaced with a clear lens, rendering the lens of an elderly patient more transparent than that of a teenager. Finally, we will assess whether systematic light exposure may enhance alertness and cognition in healthy elderly individuals under sleep deprivation, despite lower light sensitivity. This research will provide important cues on how to use light to improve cognition and alertness in aging populations. After completing the proposed program, we will perform similar investigations in clinical populations presenting alertness and cognitive deficits, such as patients with Alzheimer’s or Parkinson’s disease.

Further information available at:

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