Neuroscience-informed computerized cognitive trainings in patients with schizophrenia and healthy ageing individuals

Linda Scoriels

Psychiatry Institute - Universidade Federal do Rio de Janeiro, Brazil

Abstract:

Patients with psychiatric disorders and healthy elderly individuals often suffer from cognitive impairments, which contribute to the worsening of functioning, wellbeing and independence. In the last decade, there has been a focus on digital cognitive trainings in order to remediate cognitive deficits.

Neuroscience-informed computerized cognitive training is a digital training based on the knowledge of how specific exercises act on the brain and its neuroplasticity. PositScience has created exercises based on these characteristics, which focus on several sensory modalities, cognitive domains and different levels of complexity. These exercises are based on at- tention, repetition, and reward, the three pillars for effective learning. The efficiency of these trainings has been evidenced in many studies, but we are still searching the most appropri- ate type of training for a determined category of individuals.

In our laboratory, we created two sorts of cognitive trainings to answer these questions. One training was based on sensory modalities for patients with schizophrenia, who often suffer from auditory hallucinations. We tested the effectiveness of an auditory cognitive training compared to its dynamically equivalent visual cognitive training. For the healthy elderly individuals, we created a 'crescendo' and 'decrescendo' training. The 'crescendo' training corresponded to a set of exercises that trained lower-order cognitive functions first and gradually trained higher-order cognitive functions. The 'decrescendo' training did the opposite. We wondered whether the elderly brain would be more plastic if it trained more basic cognitive functions before dealing with more complex functions.

Overall, psychiatric patients and elderly individuals benefited from neuroscience-informed cognitive trainings.

Biography:

Linda Scoriels is a French cognitive neuroscientist who has completed her PhD at the University of Cambridge (UK) and postdoctoral studies at the Universities of Cambridge and Rio de Janeiro (Brazil). She created and managed the firsts neuroscience-informed computerized cognitive trainings in schizophrenia and ageing in Rio de Janeiro and has a publication record of over 20 papers in reputed journals

Publication of speakers:

1. Scoriels, Linda & Genaro, Larissa & Mororó, Luana & Keffer, Stella & Guimarães, Anna & Siddhārtha, Paulo & Tannos, Filippe & Novaes, Caroline & Franca, Aniela & Goldenstein, Nelson & Sahakian, Barbara & Cavalcanti, Maria & Fisher, Melissa & Vinogradov, Sophia & Panizzut- ti, Rogerio. (2020). Auditory versus visual neuroscience-informed cognitive training in schizophrenia: Effects on cognition, symptoms and quality of life. Schizophrenia Research. 10.1016/j.schres.2020.05.017.

2. Scoriels, Linda & Barnett, Jennifer & Murray, Graham & Cherukuru, Srinivasarao & Fielding, Mark & Cheng, Flora & Lennox, Belinda & Sahakian, Barbara & Jones, Peter. (2011). Effects of Modafinil on Emotional Processing in First Episode Psychosis. Biological psychiatry. 69. 457-64. 10.1016/j.biopsych.2010.09.043.

3. Scoriels, Linda & Salek, Reza & Goodby, Emmeline & Grainger, David & Dean, Anna & West, James & Griffin, Jules & Suckling, John & Nathan, Pradeep & Lennox, Belinda & Murray, Graham & Bullmore, Edward & Jones, Peter. (2015). Behavioural and molecular endophenotypes in psychotic disorders reveal heritable abnormalities in glutamatergic neurotransmission. Translational Psychiatry. 31. 540. 10.1038/tp.2015.26.

4. Avellar, Marcos & Scoriels, Linda & Madeira, Caroline & Vargas-Lopes, Charles & Nascimento, Priscila & Dantas, Camila & Manhães, Alex & Leite, Homero & Panizzutti, Rogerio. (2016). The effect of D-Serine administration on cognition and mood in older adults. Oncotarget. 7. 10.18632/oncotarget.7691.

Webinar on Neuroscience and Psychiatry | November 13, 2020 | Paris, France

Citation: Linda Scoriels, Neuroscience-informed computerized cognitive trainings in patients with schizophrenia and healthy ageing individuals, Psychiatry 2020; November 13, 2020 ❘ Paris, France