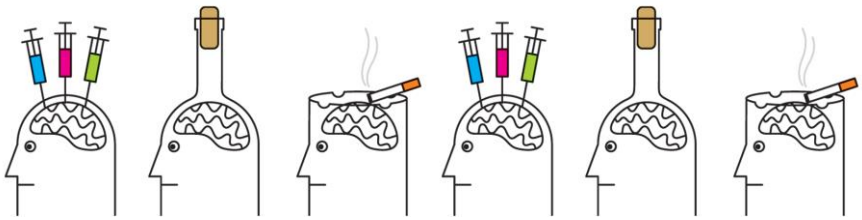


At the University of Brescia, a 14-month research fellowship position will soon open (late November/early December 2024), with a monthly salary of approximately €1,570 (with the possibility of annual renewal), under the supervision of Prof. Giovanni Mirabella, for a project titled:

"Individual Variations in Temptation: The Balance Between Motivational and Inhibitory Control"

RESEARCH PROGRAM SUMMARY

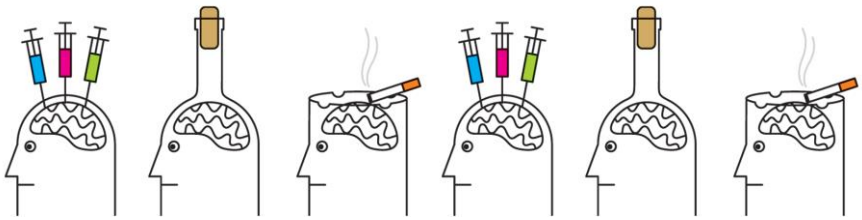
Addiction is a chronic disease with high prevalence in the population. However, only 15-30% of people who use drugs or the internet develop addiction. Theories of addiction assume that individual differences in the development of addiction are linked to associative learning mechanisms between predictive stimuli and reward (e.g., drugs). We will explore the behavioral and neural foundations of two behavioral models that explain differences in vulnerability to addiction: sign-tracking and goal-tracking (Garofalo and di Pellegrino, 2015). Sign- and goal-tracking involve different ways of processing cues that predict a reward/drug. In sign-tracking, the reward/drug-predictive stimulus itself becomes the object of desire, inducing a dopaminergic response. This tendency has been associated with a higher vulnerability to addictive behaviors. However, not all sign-trackers develop an addiction, indicating that this explanation is incomplete. By testing healthy individuals and smokers, we will examine the hypothesis that sign-tracking behavior results from an excessive motivational response to the predictive reward/drug cue and a low proficiency for inhibitory control (Mirabella, 2014, 2021).

OBJECTIVES

1. Clarify the role of inhibitory control in sign- and goal-tracking.
2. Test the relationship between sign-tracking and addiction vulnerability by examining a sample of individuals with tobacco use disorder.

REQUIRED ACTIVITIES FOR THE COLLABORATOR

Programming the presentation of stimuli using common psychophysics software (e.g., OpenSesame, E-Prime, Presentation). Operating the virtual reality system. Collecting data from healthy subjects. Processing the collected data (using Matlab, R, or SPSS) and creating graphs to illustrate the results. Conducting literature reviews on the research topic and writing articles for peer-reviewed international journals.



CANDIDATE REQUIREMENTS

a) **Required Qualification**: A master's degree in neuroscience-related fields (psychology, medicine, neurobiology, neuroscience) or in bioengineering-related areas, or an equivalent qualification obtained abroad.

b) **Preferred Qualification:** A PhD in neuroscience-related fields (psychiatry, neurology, experimental psychology) or in bioengineering-related areas, or an equivalent qualification obtained abroad.

c) **Preferred Professional Skills for the Collaboration:**

1. Proficiency in Office Suite (Word, Excel) and statistical packages (SPSS, R, and JASP).
2. Experience with vector graphics software (Corel Draw, Adobe Photoshop).
3. Knowledge of programming languages for data analysis (e.g., Matlab, Python).
4. Knowledge of programming languages for psychophysical stimulus presentation control (e.g., OpenSesame, E-Prime, Presentation) and/or for designing virtual reality systems.
5. Ability to administer psychophysical tests to healthy subjects and to psychiatric or neurological patients.
6. Proficiency in English.

d) **Interpersonal Skills:** Ability to interact appropriately with other lab members to foster a positive and collaborative work environment.

If interested, please contact me at: giovanni.mirabella@unibs.it

References

Garofalo, S., di Pellegrino, G., 2015. Individual differences in the influence of task-irrelevant Pavlovian cues on human behavior. Front. Behav. Neurosci. 9, 163.

Mirabella, G., 2014. Should I stay or should I go? Conceptual underpinnings of goal-directed actions. Front. Syst. Neurosci. 8, 206.

Mirabella, G., 2021. Inhibitory control and impulsive responses in neurodevelopmental disorders. Dev. Med. Child Neurol. 63, 520-526.