



Doctoral Thesis Candidate

Executive function training in childhood obesity: food choice, quality of life and brain connectivity (TOuCH).

Founded by: Fundació La Marató de TV3 (Obesitat i Diabetis, 2016)

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Our group is seeking candidates to apply for upcoming calls for Doctoral Fellowships (FI and FPU).

Candidates:

- We are looking for highly motivated students interested in neuropsychology.
- Very good academic records are required. The fellowships are competitive, and the academic qualifications are the evaluation item with a heaviest weight on the final score of the candidate. The final cut-off mark for obtaining a stipend has been around 8.5 in the last calls.

Project:

Due to the long-term failure of interventions for obesity, there is a necessity to develop novel approaches to treatment. Obese individuals are known to suffer from significant cognitive deficits, especially in executive functions. Executive functions play an important role for success and health throughout the whole life and have been related to food decision making and ability to maintain energy balance. It is possible to improve executive control abilities through targeted training. Connectivity magnetic resonance imaging (MRI) analysis is a novel way to study plasticity changes produced, among others, by training.

The general hypothesis is that executive functioning training in obese children can improve food choices and produce cognitive and neuroimaging changes (structural and functional connectivity), as well as the psychological status and quality of life measures. Good decision making is one of the most important resources to maintain or lose weight.

Methodology: The design is a randomized controlled single-blind trial with follow-up.

30 obese children will be randomly allocated (1:1) into "executive training" or "control task" groups. Both groups will attend 30-45' individual gamified 5 times per week. All participants will also receive counselling diet information via TCapp during the 5 weeks of the trial.

Main outcome measures will be cognitive, emotional, food decision and quality of life measures, as well as neuroimaging measures (structural and functional connectivity). Participants are studied prior to treatment (T0), just after (T1) and 12 months later (T2).

Expected results: We expect our outcomes to provide preliminary evidence that cognitive training can positively impact not only on cognitive functioning but also food choices, emotional and quality of life measures, as well as produce plasticity changes measured by connectivity parameters in MRI.

