

## DGCN05 – Practical Training & Thesis

### Project proposal

**Project title:** TRuSt: Training Reappraisal under Stress

**On-site supervisor<sup>1</sup>:** Dr. Lisa Wirz

**Principal Investigator:** Dr. Erno Hermans

**Donders Theme(s):** Theme 3: Development and Lifelong Plasticity

**Research centre:** DCCN

**Project description:** Stress triggers a shift in brain networks away from the Executive Control Network (ECN) and towards the Salience Network (SN). Consequently, adaptive emotion regulation strategies such as cognitive reappraisal (CR) that depend on the prefrontal cortex (PFC) as part of the ECN, are impaired under stress. Instead, maladaptive ER strategies such as avoidance, are habitually used and form an important risk factor for psychopathologies. We hypothesize that training CR induces a shift from a controlled and explicit, towards a more automatic and implicit use of this strategy that will be accompanied by reduced PFC dependency. Thereby, the use of CR is less sensitive to the effects of stress and hence stress-induced impairments in CR are prevented. We will test this hypothesis in an fMRI study and assess the effectiveness of a 3-week smartphone-based CR training in promoting emotion regulation during a stressful situation. This study offers a great opportunity to learn different techniques and gain experiences in preparing, executing and analyzing data from a highly relevant research project.

**Relevant literature:** McRae & Gross (Emotion, 2020)  
Denny & Ochsner (Emotion, 2014)  
Hermans et al. (Science, 2011)  
Wager et al. (Neuron, 2008)

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<sup>1</sup> If more on-site supervisors are involved, please add their names as well.