The role of neuromodulation for cognitive processing and behavioural inhibition in problem gambling

SSA PhD Symposium 2017

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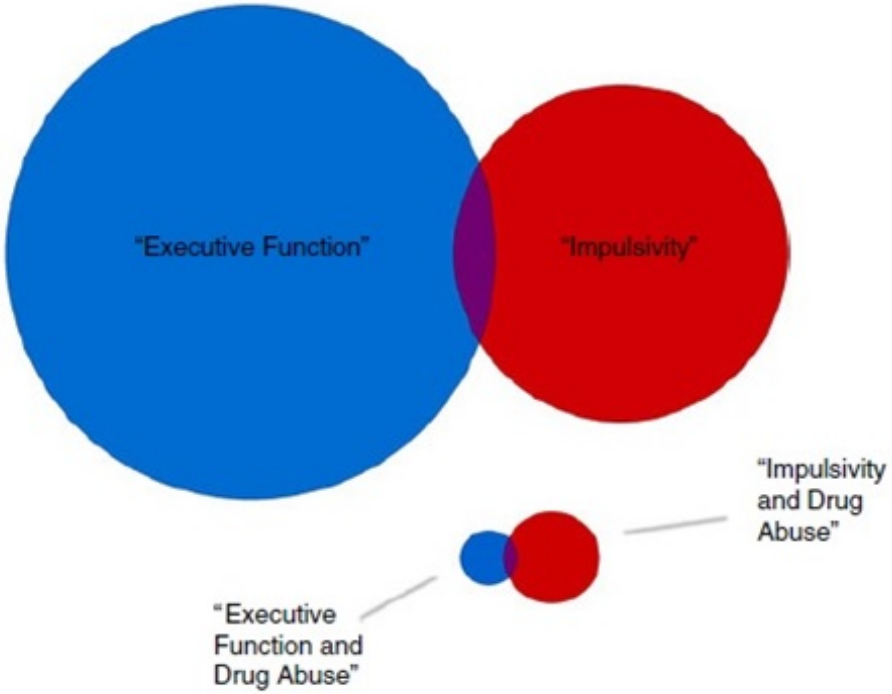
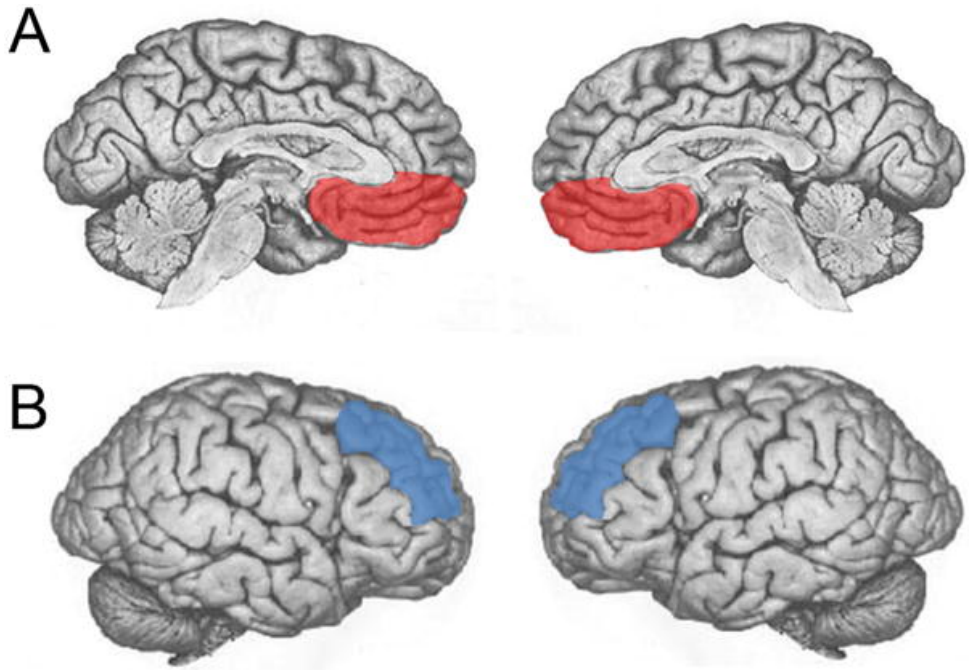
GambleAware

PROBLEM GAMBLING

ADDICTION: UNDERLYING MECHANISMS



(Bickel et al., 2012)



A) vmPFC :	**Emotional related, reward sensitivity**
B) DLPFC :	**Executive functions, control inhibition**

(Koenings & Grafman, 2009)

TRANSCRANIAL DIRECT CURRENT STIMULATION (tDCS)

- Non-invasive, safe, pain free
- No adverse side-effects
- Portable and cheap: home treatment
- Combination with other techniques

Brain Stimulation 7 (2014) 130–132

Contents lists available at ScienceDirect

Brain Stimulation

journal homepage: www.brainstimjrnl.com

Short Communication

Bilateral Transcranial Direct Current Stimulation Over Dorsolateral Prefrontal Cortex Changes the Drug-cued Reactivity in the Anterior Cingulate Cortex of Crack-cocaine Addicts

Catarine Lima Conti*, Ester Miyuki Nakamura-Palacios

Appetite 56 (2011) 741–746

Contents lists available at ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

Research report

Prefrontal cortex transcranial direct current stimulation (tDCS) temporarily reduces food cravings and increases the self-reported ability to resist food in adults with frequent food craving☆

Rachel L. Goldman [a,*], Jeffrey J. Borckardt [a,b], Heather A. Frohman [b], Patrick M. O'Neil [a], Alok Madan [a], Laura K. Campbell [a], Amanda Budak [a], Mark S. George [a,c,d]

Published in final edited form as:
Drug Alcohol Depend. 2014 July 1; 140: 78–84. doi:10.1016/j.drugalcdep.2014.03.036.

Modulation of smoking and decision-making behaviors with transcranial direct current stimulation in tobacco smokers: a preliminary study

Shirley Fecteau*,

EXPERIMENTAL DESIGN

1. Stimulation vs Sham (Problem Gamblers vs Health Participants)

DLPFC	**HPs**	**PGs**
Stimulation	*Transfer*	*Transfer*
Sham	*Transfer*	*Transfer*

vmPFC	**HPs**	**PGs**
Stimulation	*Transfer*	*Transfer*
Sham	*Transfer*	*Transfer*

2. tDCS in combination with CBT (PGs)

DLPFC/ vmPFC (?)	**PGs Stimulation**	**PGs Sham**
Week 1	*Transfer*	*Transfer*
Week 2	*Training*	*Training*
Week 3	*Training*	*Training*
Week 4	*Training*	*Training*
Week 5	*Transfer*	*Transfer*

DLPFC/ vmPFC (?)	**PGs + CBT Stimulation**	**PGs + CBT Sham**
Week 1	*Transfer*	*Transfer*
Week 2	*Training*	*Training*
Week 3	*Training*	*Training*
Week 4	*Training*	*Training*
Week 5	*Transfer*	*Transfer*

MEASURES:

- EEG resting state
- Cognitive Tasks (CANTAB - CGT)
- Questionnaires (UPPS, SOGS)

OBJECTIVES:

- To increase inhibition, promote impulse control
- To improve the treatment outcomes (CBT + tDCS)

Many Thanks

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