

**Neurowetenschap en Psychotherapie:**  
Over de ontwikkeling van nieuwe behandelingen voor depressie op basis van fundamenteel onderzoek

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Vakgroep Experimenteel-Klinische en Gezondheidspsychologie

Breinwijzer, Gent, 19 maart 2018

## Eerste generatie gedragstherapeutische technieken

Exposure, operante technieken

## Tweede generatie

Cognitieve technieken

## Derde generatie

Mindfulness > aandachtsgerichte cognitieve therapie  
Acceptance & Commitment Therapy



## Vierde generatie gedragstherapeutische technieken

Procedures vanuit de experimentele psychopathologie

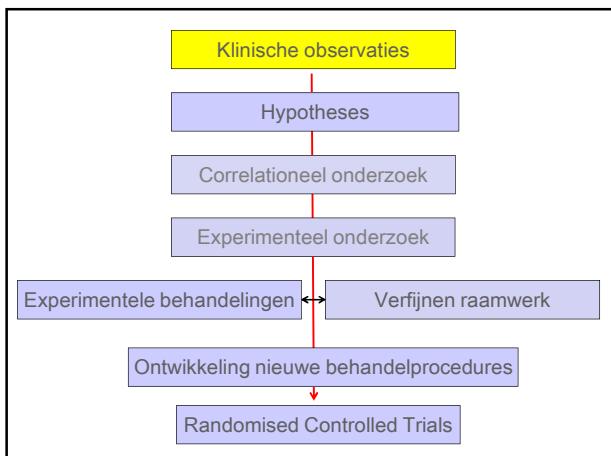
...en de affectieve neurowetenschappen



Scandinavian Journal of Psychology, 2006, 47, 225-236

**Does neuroscience hold promise for the further development of behavior therapy? The case of emotional change after exposure in anxiety and depression**

RUDI DE RAEDT  
*Ghent University, Ghent, Belgium*



## Depressie

Herval na behandeling blijft hoog (*Beshai et al., 2011*)

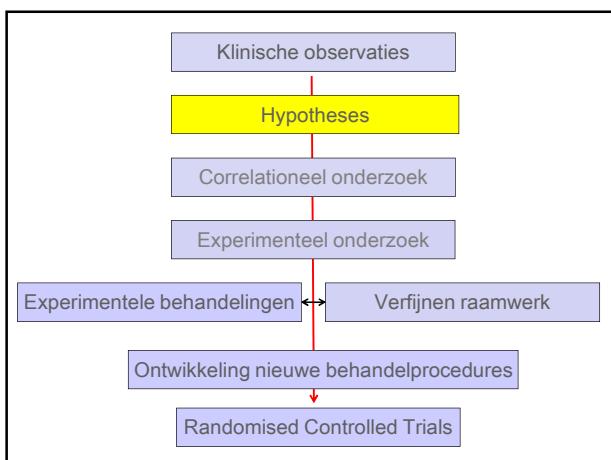
Aantal voorgaande episodes

- Hervalrisico ↑ (*Keller, 2003*)
- Kindling: opeenvolgende episodes worden ontlokt door progressief mildere stressoren (*Monroe & Harkness, 2005*)

Aanhoudende depressieve gemoedstoestand: processen

- Verlaagde stress reactiviteit
- Tendens om te rumineren
- Activatie negatieve zelfschema's



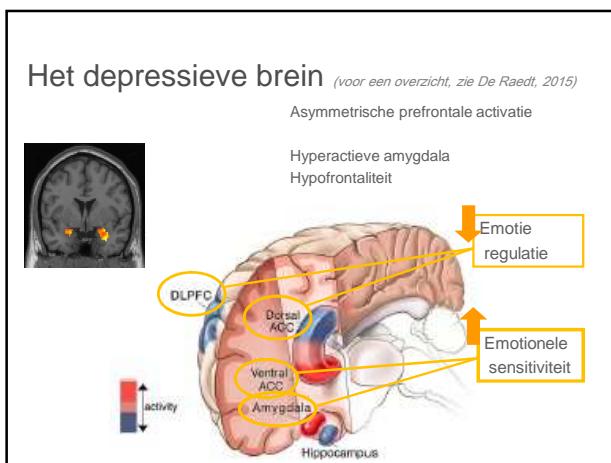


*Cognitive, Affective, & Behavioral Neuroscience*  
2010, 10 (1), 50-70  
doi:10.3758/CABN.10.1.50

**Understanding vulnerability for depression from a cognitive neuroscience perspective:  
A reappraisal of attentional factors and  
a new conceptual framework**

RUDI DE RAEDT AND ERNST H.W. KOSTER  
*Ghent University, Ghent, Belgium*





**Depressie: Causale hypothese**

Dorsale hersenregio's gerelateerd aan cognitieve controle zijn niet meer in staat om ventrale emotieproducerende regio's te reguleren  
(Phillips et al., 2003)



**Verlaagde cognitieve controle > episodes**

ERPs gedurende cognitieve controletaak

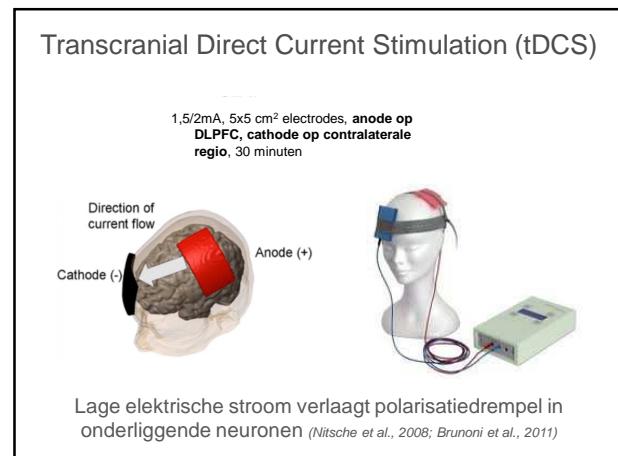
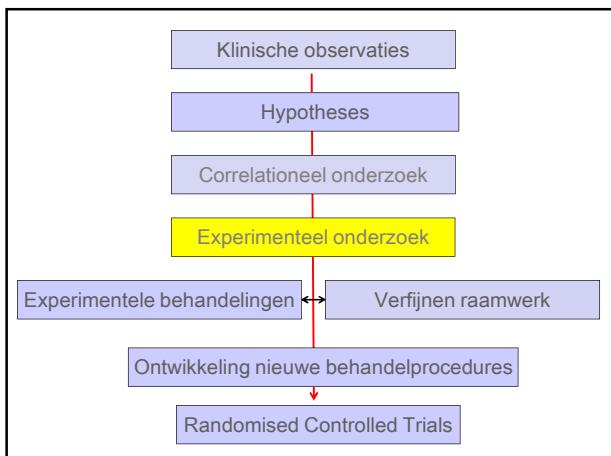
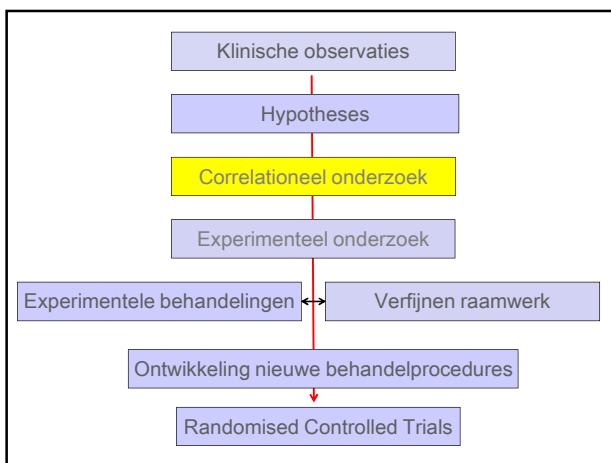
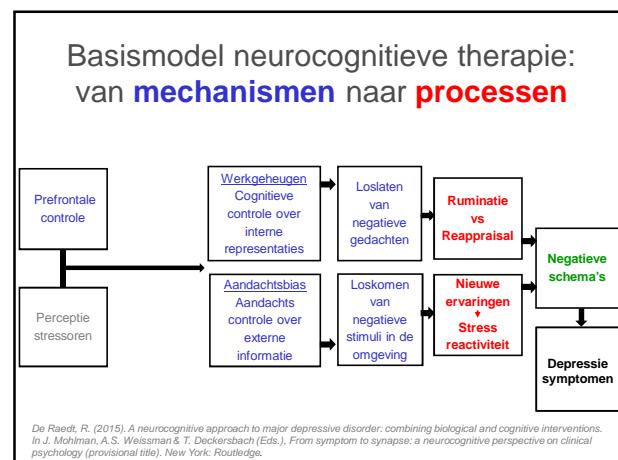
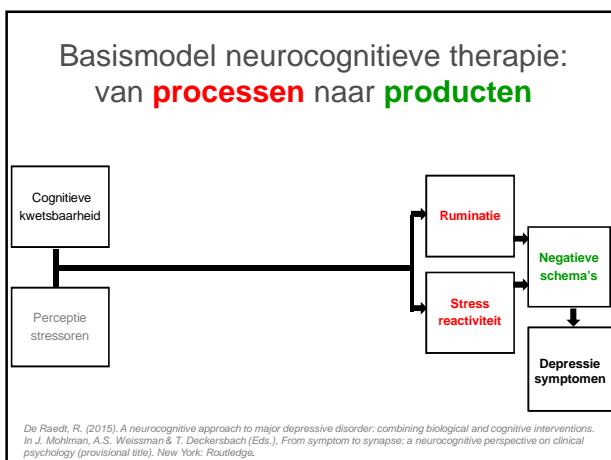
Cognitieve controle, geïndexeerd door ACC gerelateerde amplitude, vermindert met aantal depressieve episodes ( $r=.51$ ;  $p < .01$ )  
(Vanderhasselt & De Raedt, 2009)

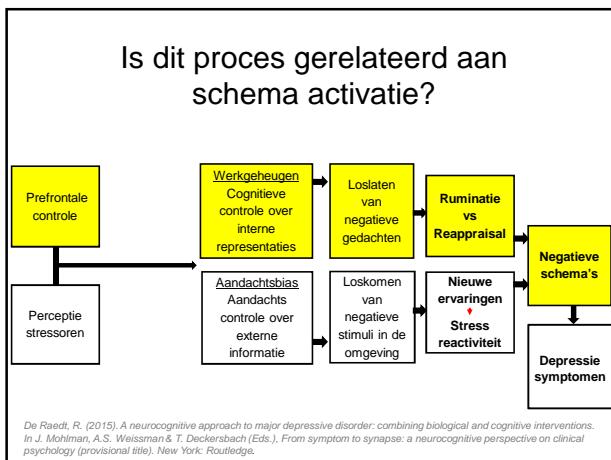
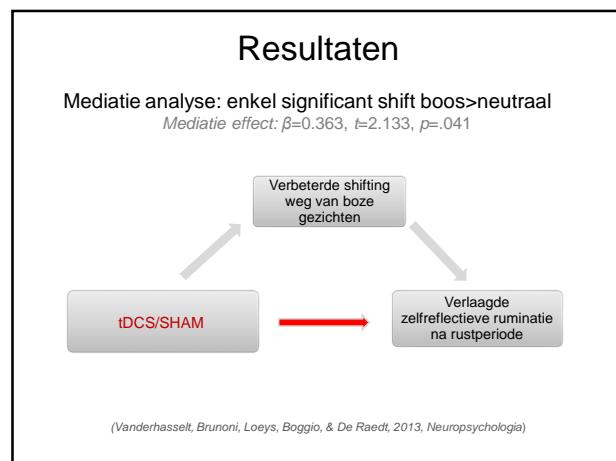
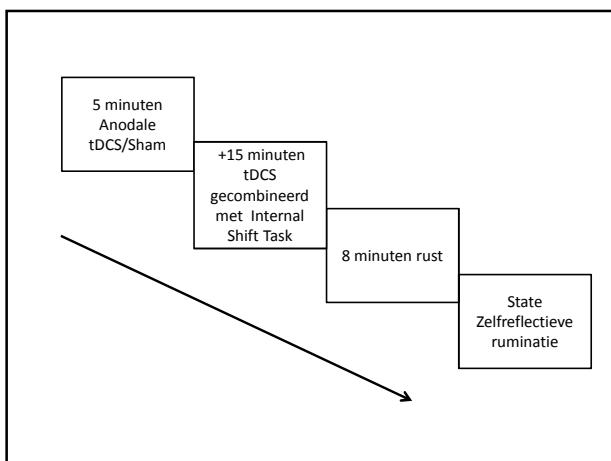
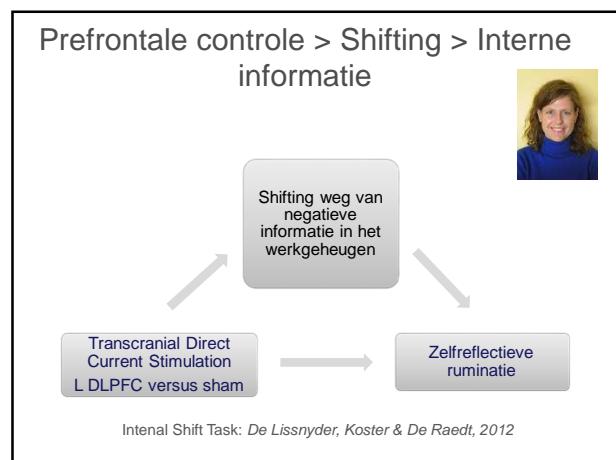
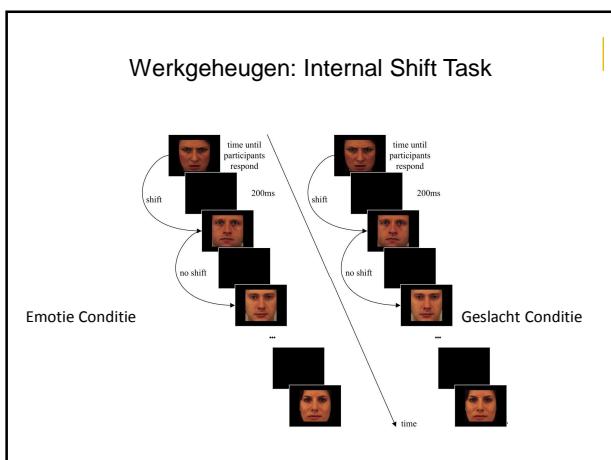


**Twee processen mbt verlaagde controle**

- Over externe informatie
- Over interne processen



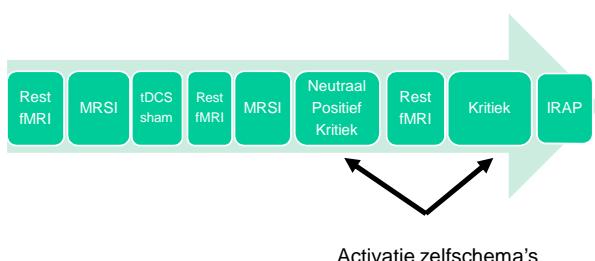




## tDCS > zelfreflectieve ruminatie > zelfschema's

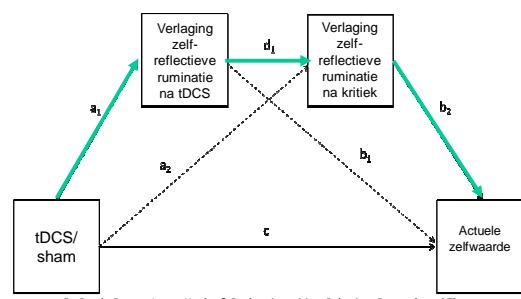
Zelfreflectieve ruminatie > MRSI (Mor, Marchetti, & Koster, 2015)

Zelfschema's: "implicit relational assessment procedure (IRAP): meet relaties tussen concepten ipv eenvoudige associaties (Remue et al., 2013; 2014)



## Resultaten tDCS > zelfschema's

De geschatte coëfficiënten van het dubbele mediatiepad zijn allen significant



De Raedt, Remue, Loeys, Hooley & Baeken, in revision, Behaviour Research and Therapy

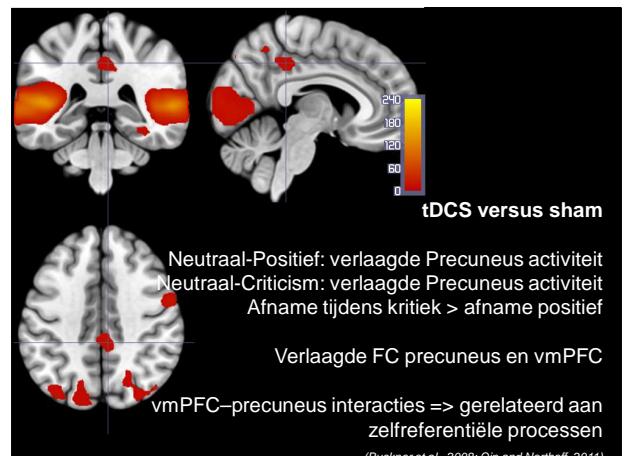
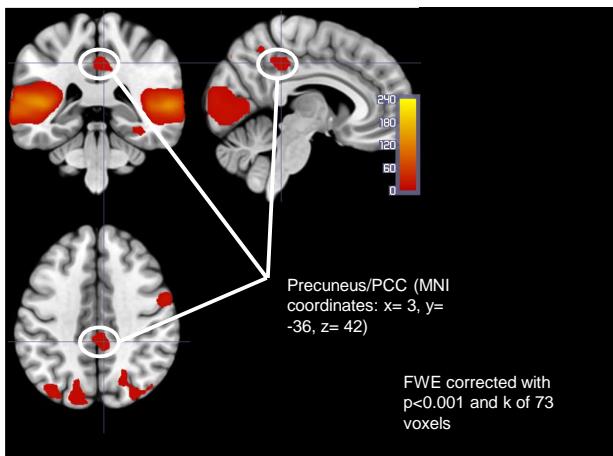
## Positief effect tDCS zelfreflectieve ruminatie

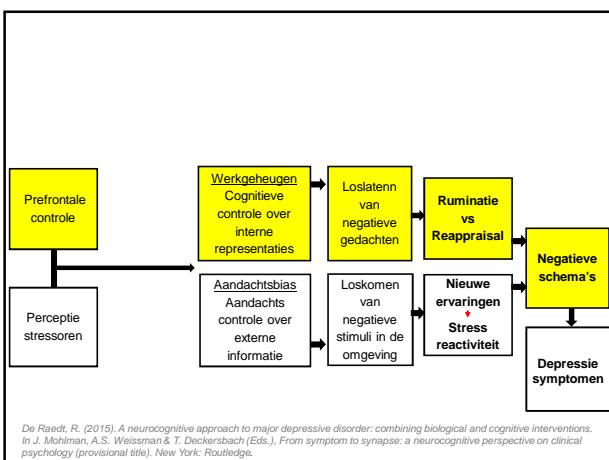
➤ tDCS verhoogt cognitieve controle over

zelfreflectieve ruminatie (cfr. Vanderhasselt et al., 2013)

Verhogen DLPFC activiteit geen direct effect op zelfwaarde

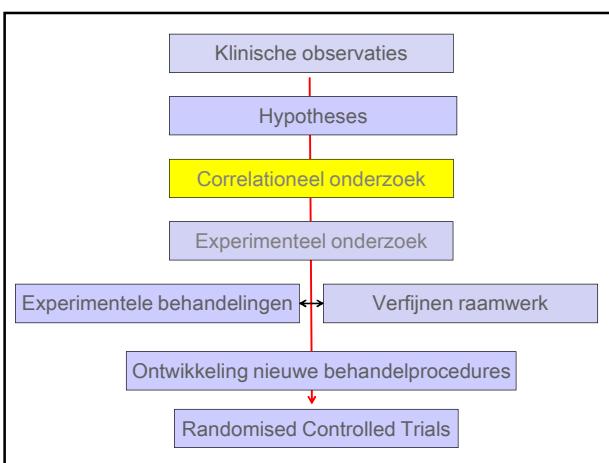
➤ Enkel indien negatieve zelfschema's geactiveerd worden





## Twee processen ivm cognitieve controle

➤ Over externe informatie

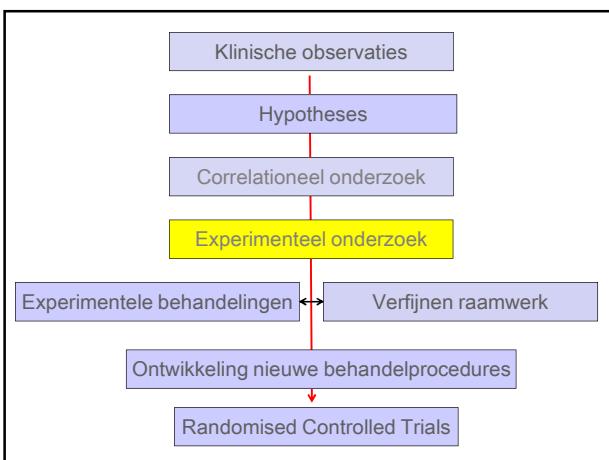


## Twee processen mbt verlaagde controle

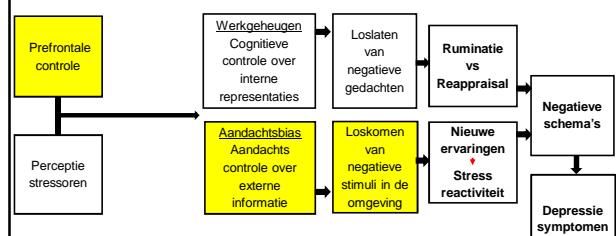
➤ Over externe informatie

Depressie > moeilijkheden met loskomen van negatieve informatie

(voor een overzicht, zie: De Raedt & Koster, 2010, Cognitive, Affective and Behavioral Neuroscience)



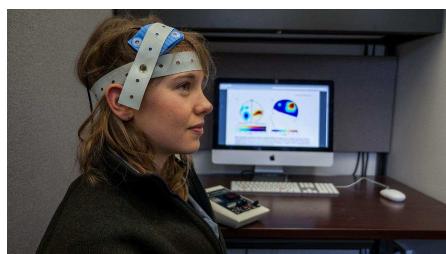
## Is prefrontale controlegerelateerd aan loskomen van negatieve informatie



*De Raedt, R. (2015). A neurocognitive approach to major depressive disorder: combining biological and cognitive interventions. In J. Mohiman, A.S. Weissman & T. Deckersbach (Eds.), From symptom to synapse: a neurocognitive perspective on clinical psychology (provisional title). New York: Routledge.*

Experimentele psychopathologie benadering:  
Frontale asymmetrie induceren bij gezonde mensen

Effecten neurostimulatie van DLPFC  
Op verwerking van emotionele informatie

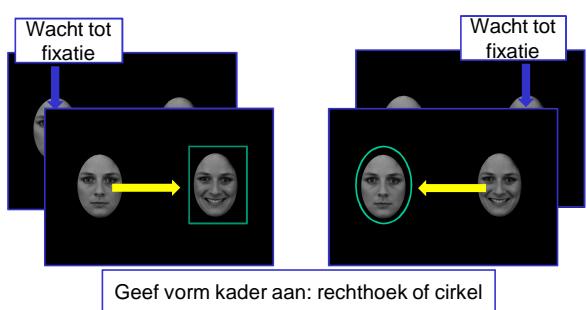
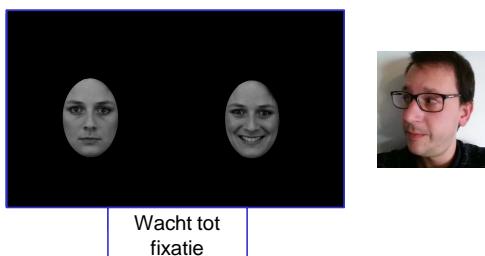


tDCS rechter DLPFC:  
> Depressieve hersenen

tDCS linker DLPFC:  
> Veerkrachtige hersenen

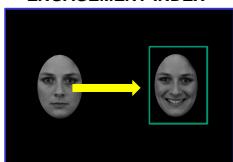
Effecten op loskomen van emotionele  
informatie  
Aandachtstaak gecombineerd met  
oogbewegingsregistratie

tDCS linker versus rechter DLPFC:  
Effecten op aandacht

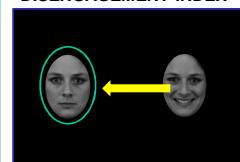


Tijd tot fixatie naar gezicht in het kader (ms)

ENGAGEMENT INDEX



DISENGAGEMENT INDEX

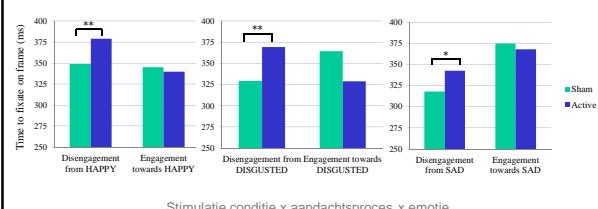


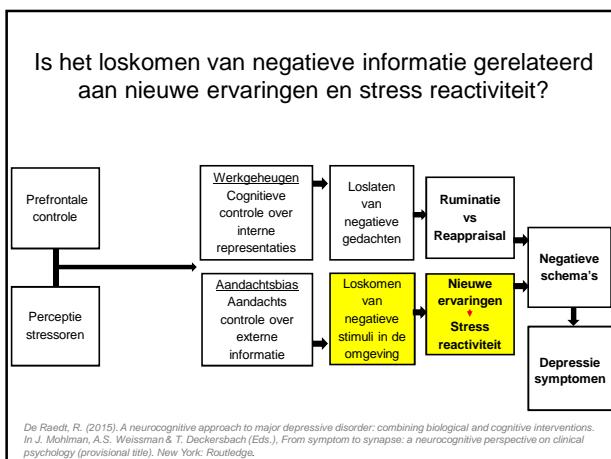
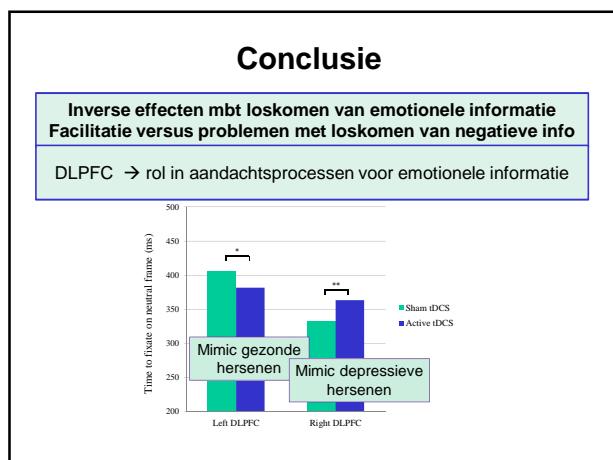
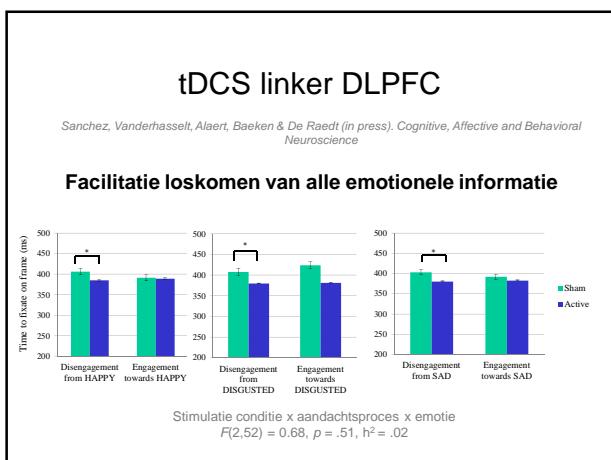
72 trials: Blie, Walgende en Droevige gezichten

### tDCS rechter DLPFC

Sanchez, Vanderhasselt, Alaert, Baeken & De Raedt (in press). *Cognitive, Affective and Behavioral Neuroscience*

#### Problemen met loskomen van alle emotionele informatie





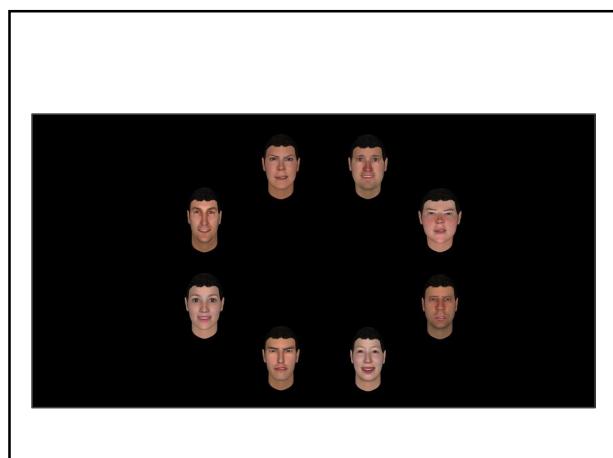
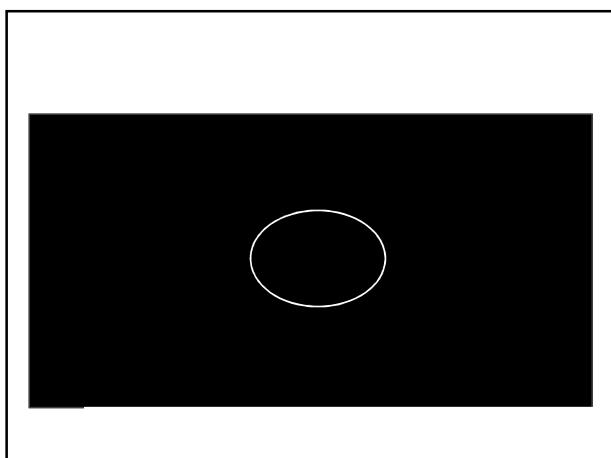
### Is het loskomen van negatieve informatie gerelateerd aan nieuwe ervaringen en stress reactiviteit?

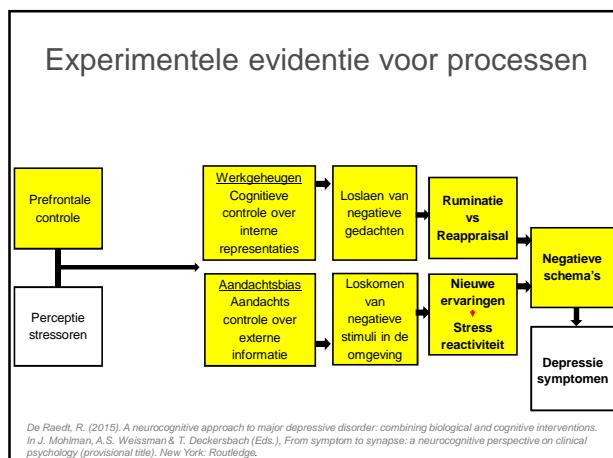
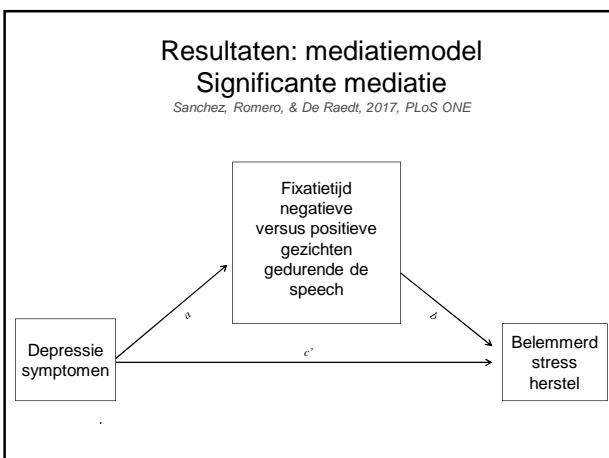
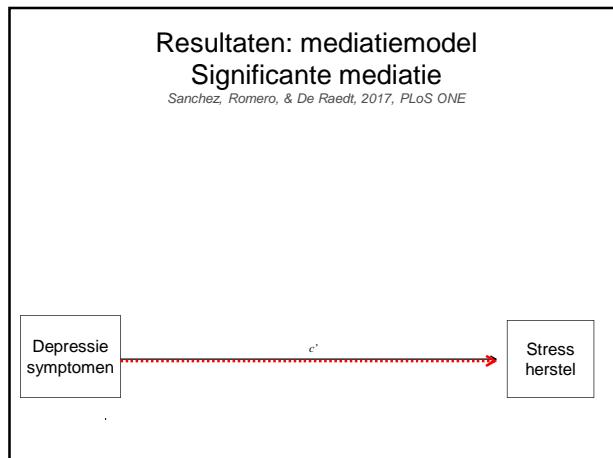
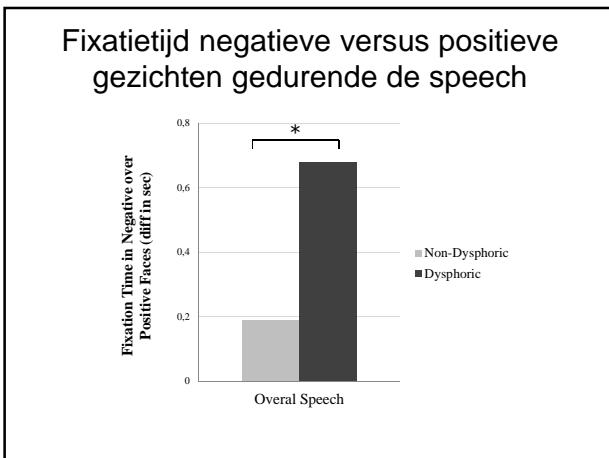
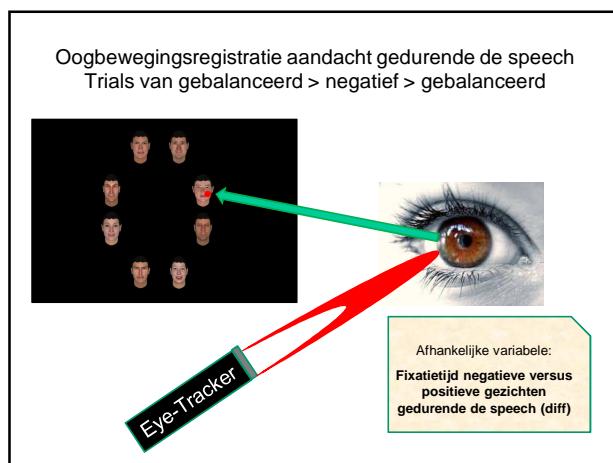
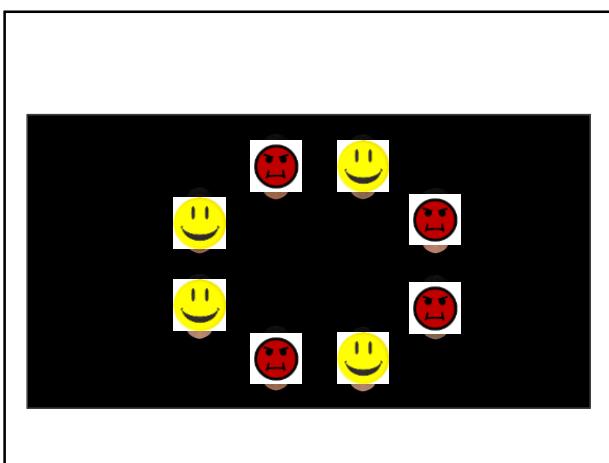
Stress Inductie (Speech Taak) gecombineerd met oogbewegingsregistratie

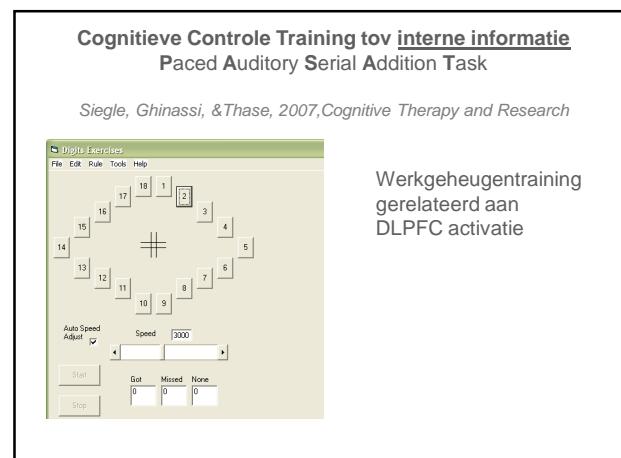
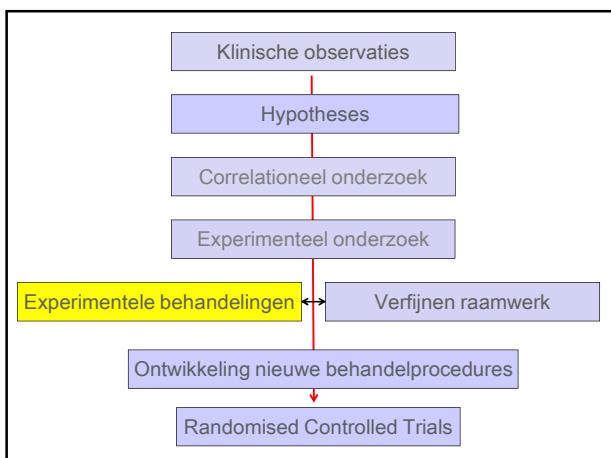
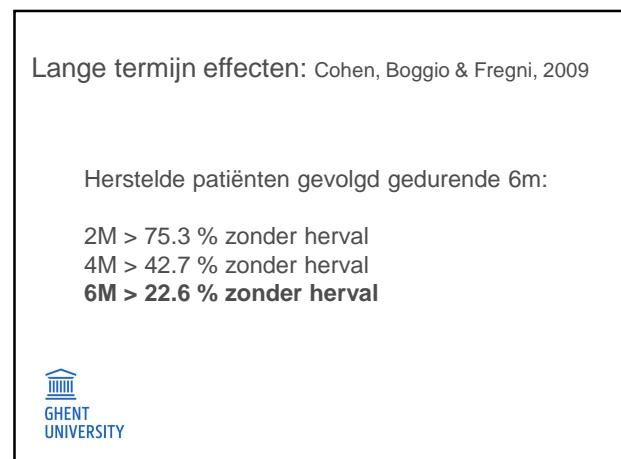
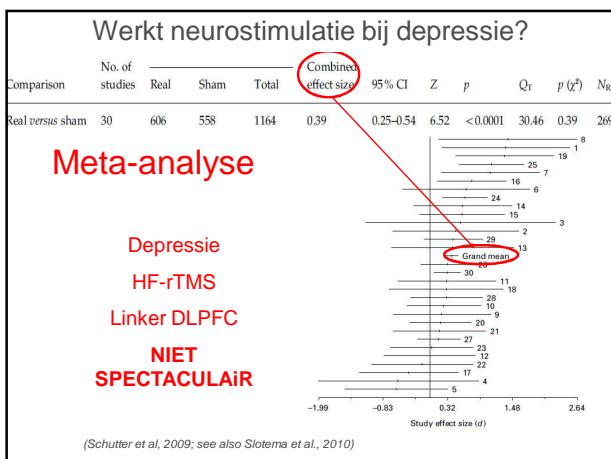
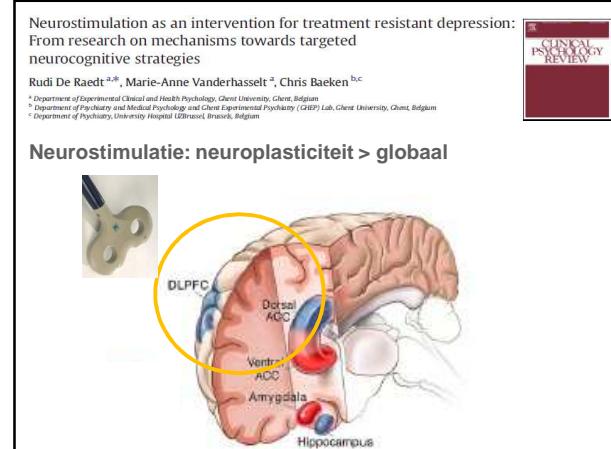
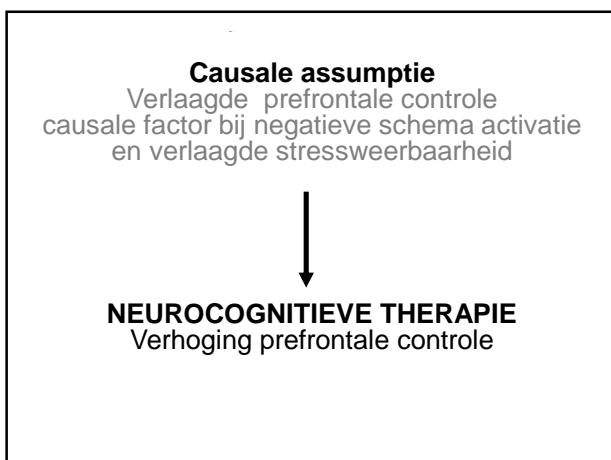
Aan proefpersonen werd verteld dat:

- ze een speech moeten geven van vijf minuten terwijl ze geëvalueerd worden
- de evaluatoren online meevolgen en dat ze avatars gekozen hebben om hun evaluatie gedurende de speech te laten zien
- de evaluatoren hun avatar updaten na korte tijdsintervallen

GHENT UNIVERSITY







**Cognitive Control Training related to internal information**  
Paced Auditory Serial Addition Task

Siegle, Ghinassi, & Thase, 2007, *Cognitive Therapy and Research*

Pupilidilatatie gedurende de taakstimuli voorspelt effecten op ruminatie en depressie

Siegle, Price, Jones, Ghinassi, Painter, & Thase, 2014, *Clinical Psychological Science*

**Cognitive Control Training related to internal information**  
Paced Auditory Serial Addition Task

Siegle, Ghinassi, & Thase, 2007, *Cognitive Therapy and Research*

**Journal of Consulting and Clinical Psychology**  
**Internet-Delivered Cognitive Control Training as a Preventive Intervention for Remitted Depressed Patients: Evidence From a Double-Blind Randomized Controlled Study**  
Kristof Hoorelbeke and Ernst H. W. Koster  
Online First Publication, June 30, 2016, <http://dx.doi.org/10.1037/cmp0000128>

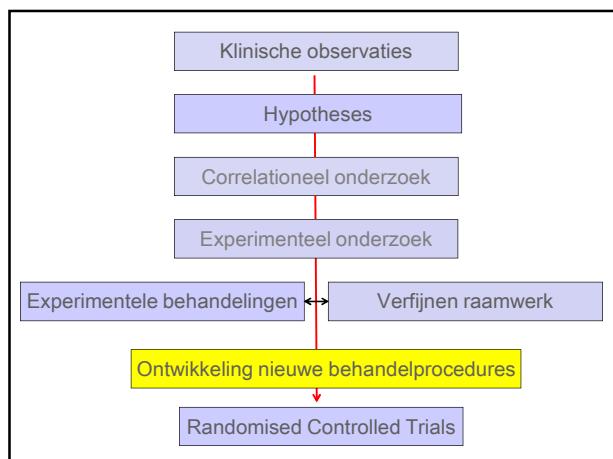
**Maar: geen effecten bij huidig depressieve patiënten (grote internationale studie 100 deelnemers)**

**Aandachtstraining gerelateerd aan externe informatie:**  
**Aandachtstraining**  
(MacLeod et al., 2002)

OOK geen effecten bij depressieve patiënten

Hallion & Ruscio, 2011. A meta-analysis of the effect of cognitive bias modification on anxiety and depression. *Psychological Bulletin*

**DEPRESSIEVE PATIËNTEN KUNNEN DOOR VERLAAGDE PREFRONTALE CONTROLE HUN AANDACHT NIET VOLDOENDE MOBILISEREN GEDURENDE DE TRAINING**

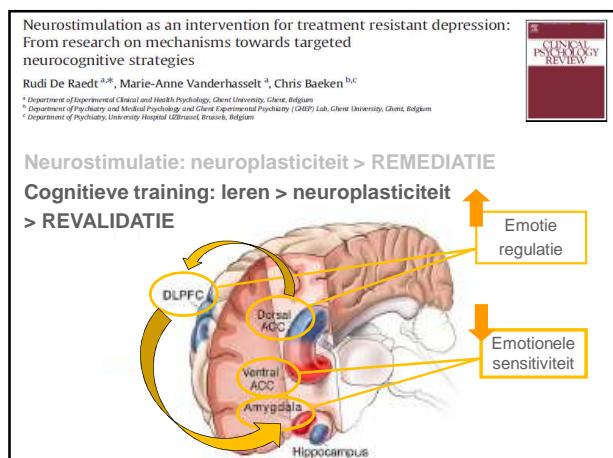


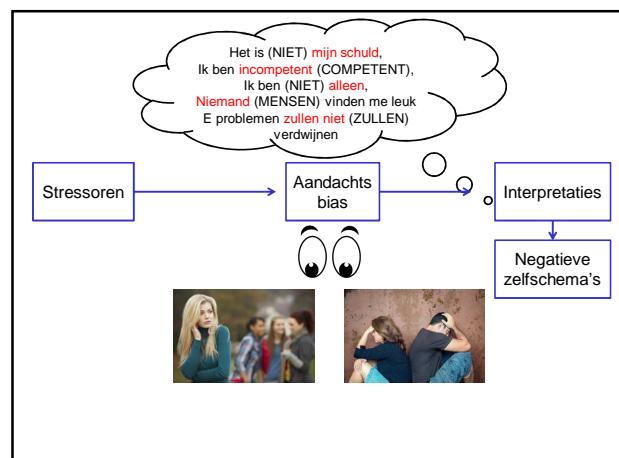
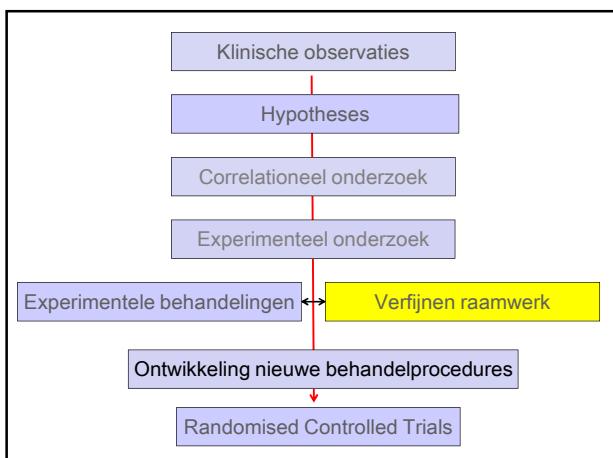
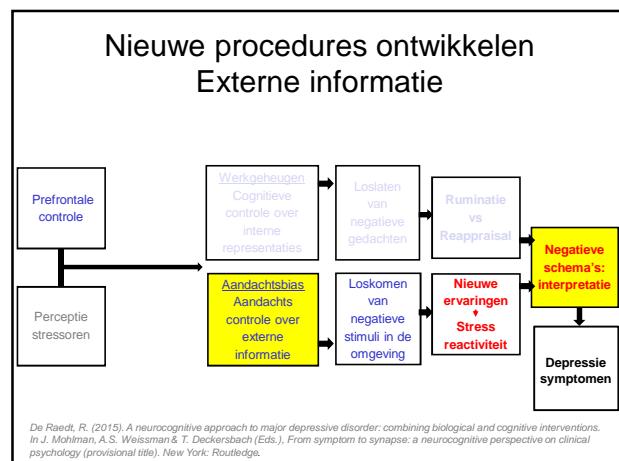
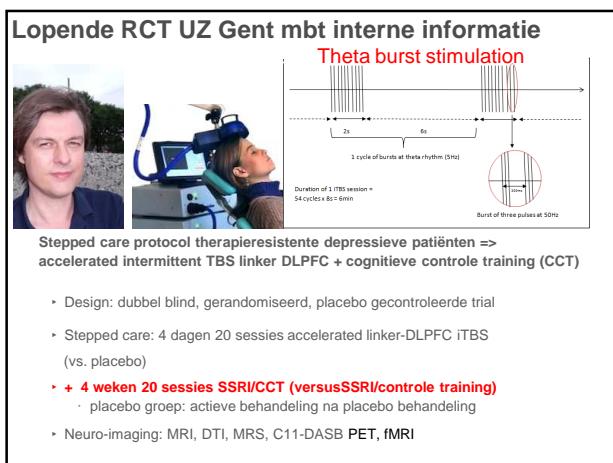
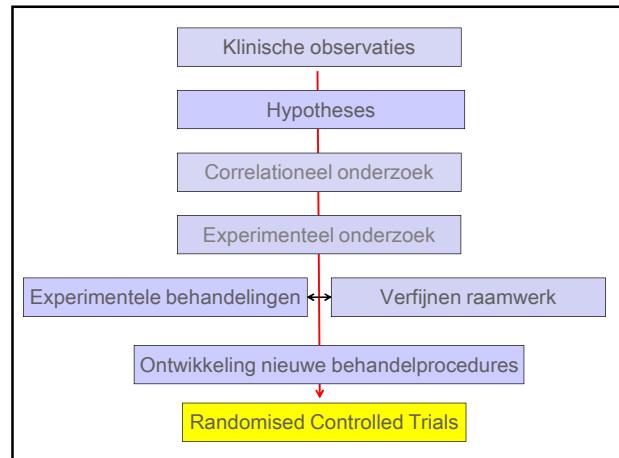
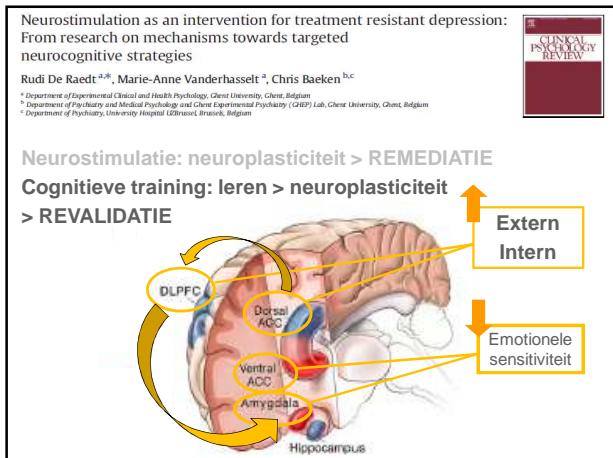
- DLPFC gerelateerde taakengagement voorspelt effect van training
- Depressieve patiënten kunnen hun aandacht niet mobiliseren gedurende de taak

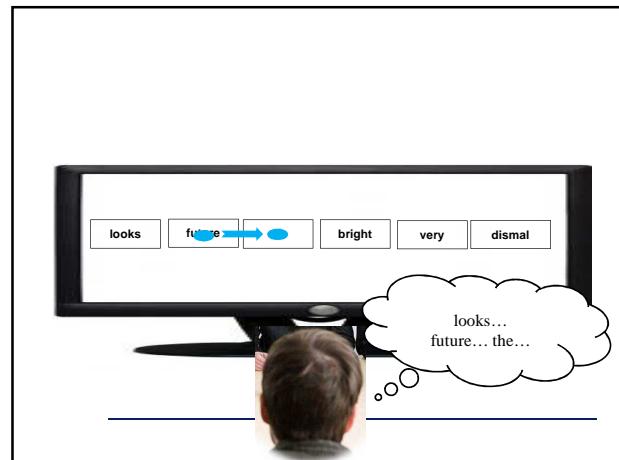
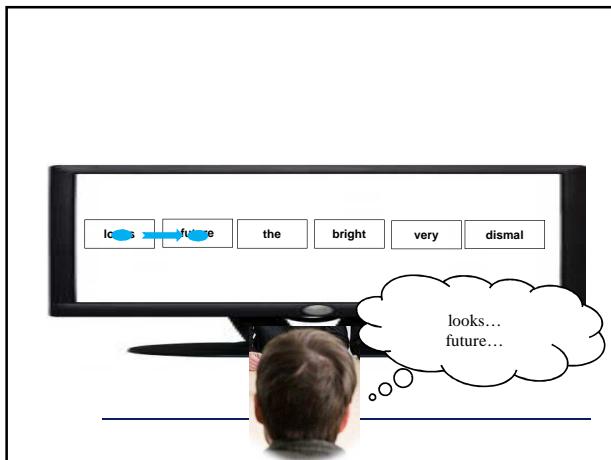
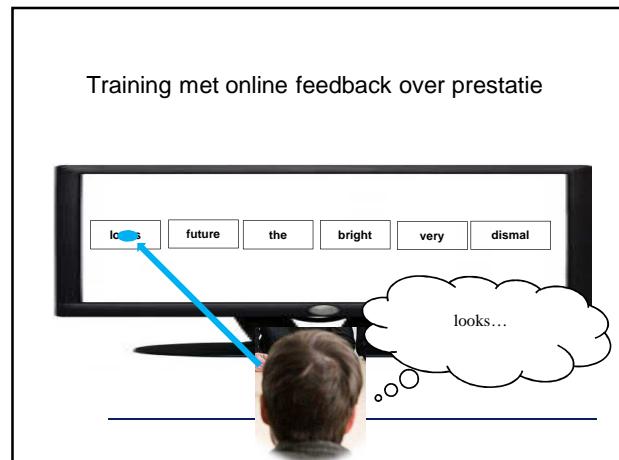
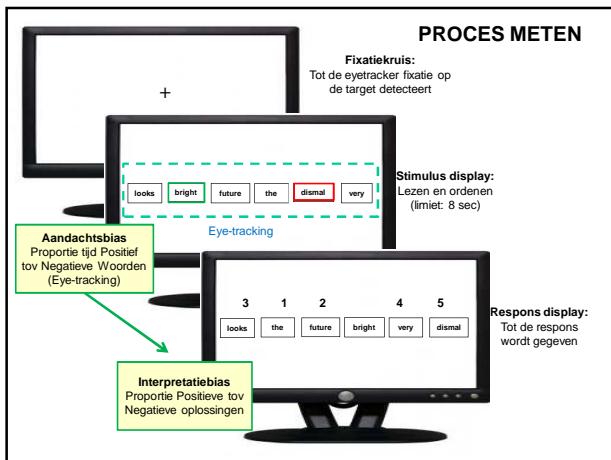
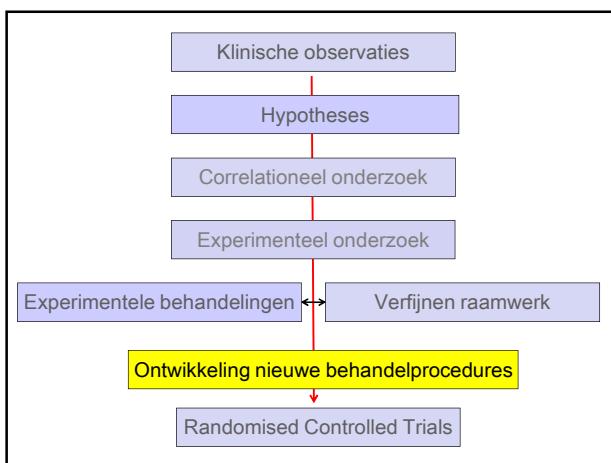
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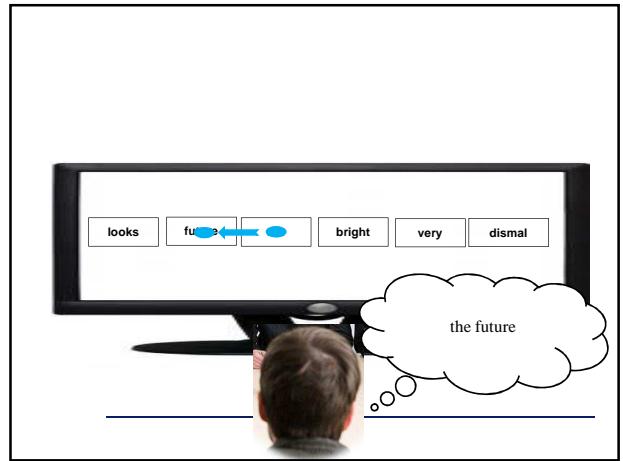
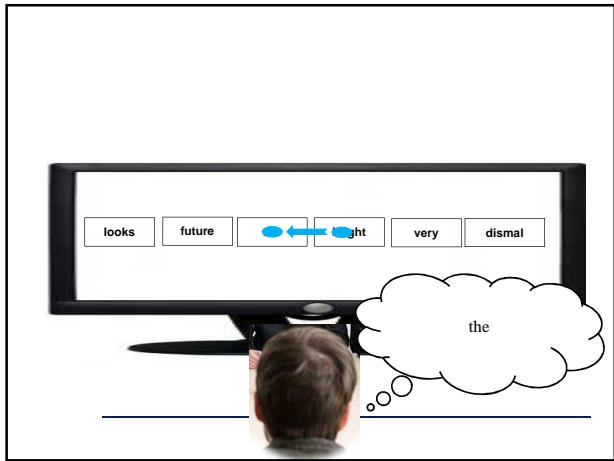
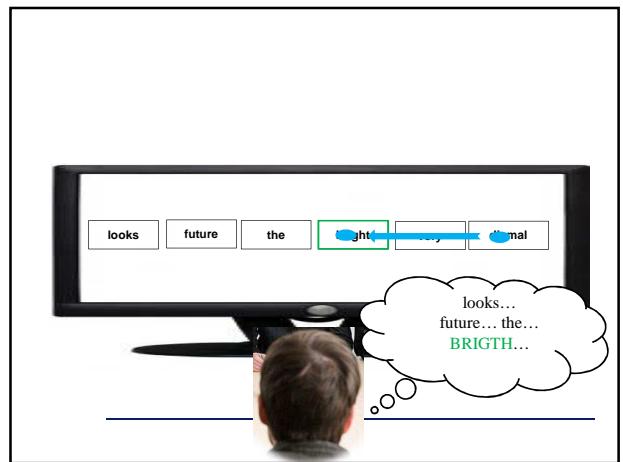
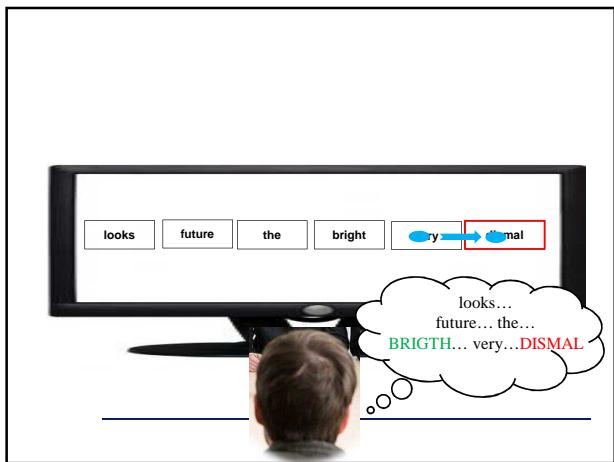
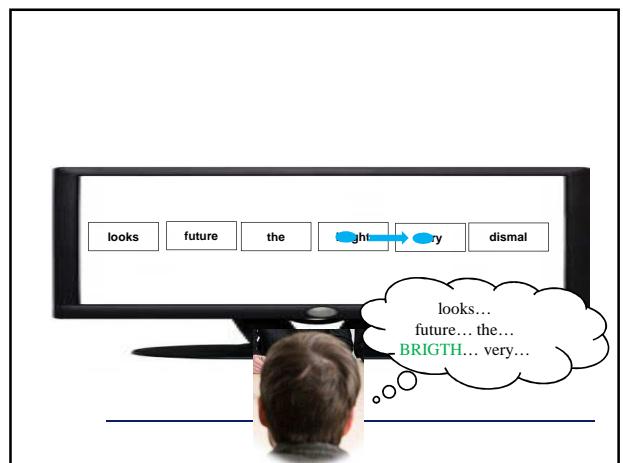
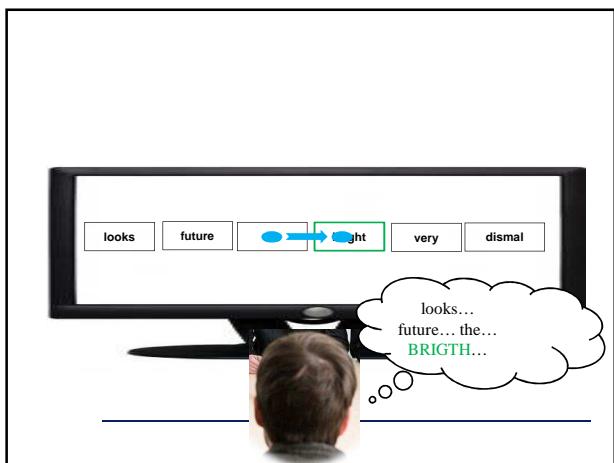
Combineren DLPFC stimulatie met Cognitieve Controle Training

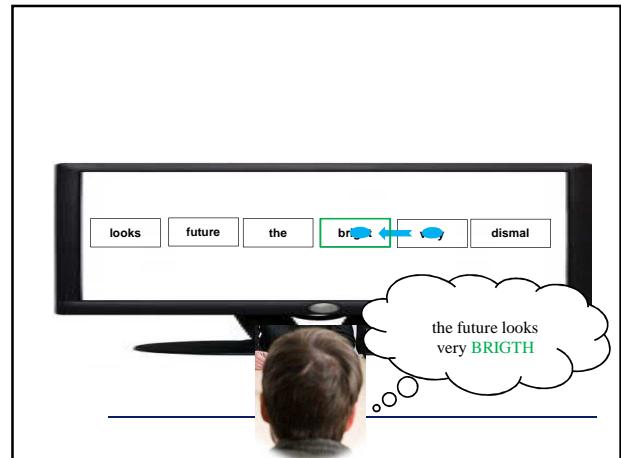
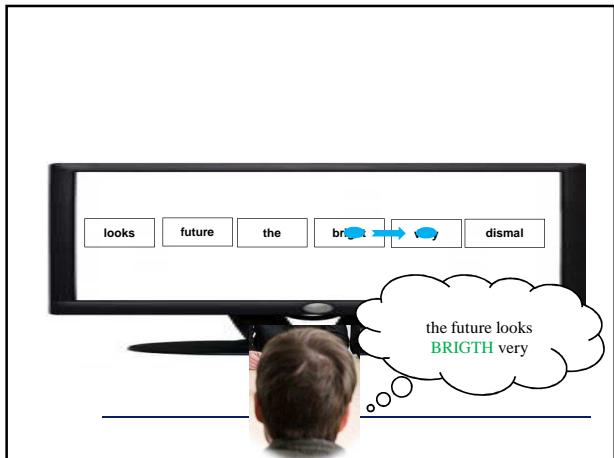
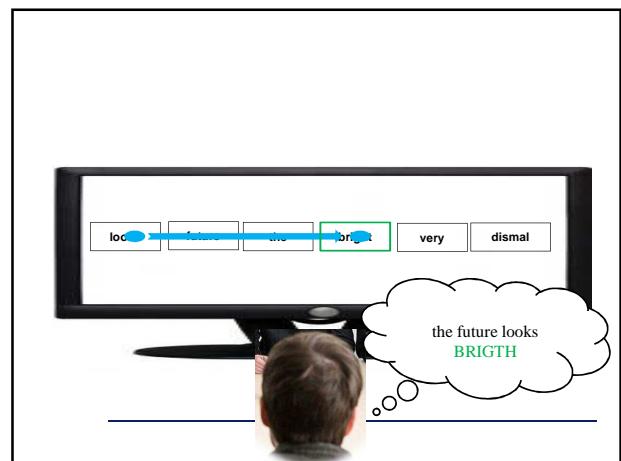
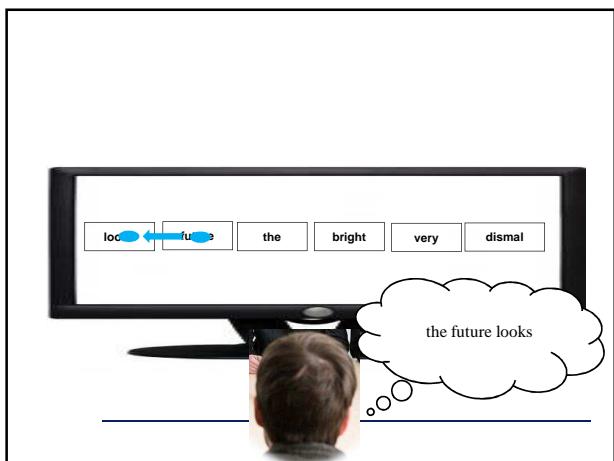








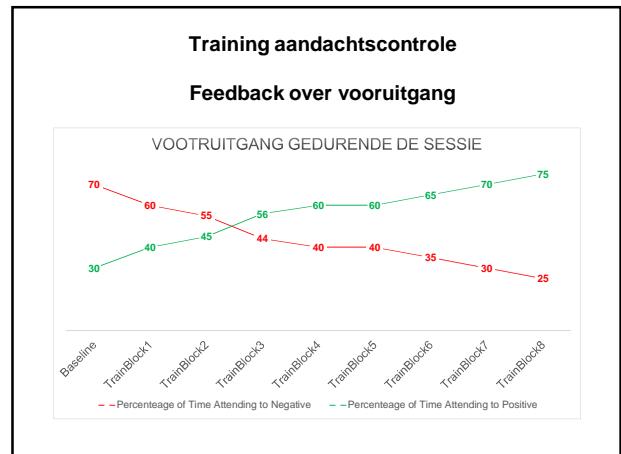


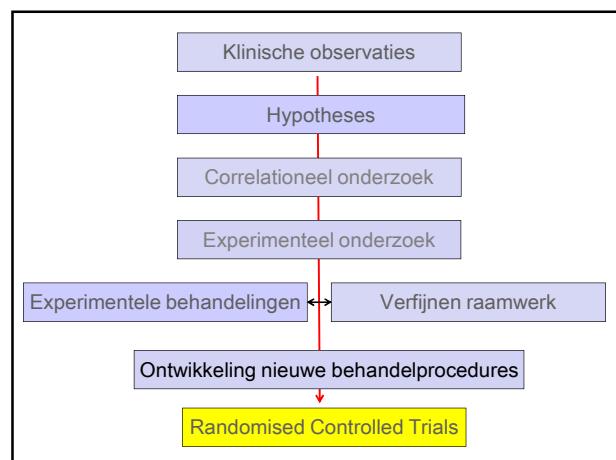
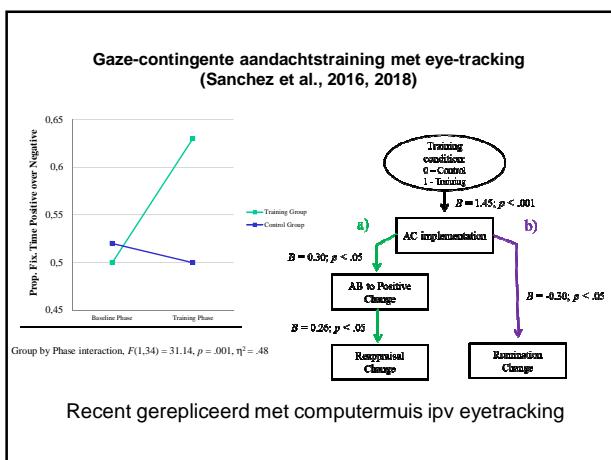


**Aandachtscontrole trainen via eye tracker**

**Online Feedback over prestatie**

- Aandacht leren vestigen op positieve vs. negatieve woorden, om aandachtscontrole tot emotionele informatie te verhogen
  - Intentionele engagement naar **positieve woorden**, om positieve interpretaties te bevorderen
  - Loskomen van **negatieve woorden**, als er aandacht aan wordt besteed





**Huidig onderzoek**

Innovatieke training van aandacht en interpretatie

- 10 sessies computertraining thuis ( $\pm 12$  min/sessie)
- 2 sessies (1 voor & 1 na) in de universiteit, inclusief psychoëducatie

**Doel**

- Verbeteren van emotieregulatie
- Voorkomen van depressieve klachten

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**Wanneer**

- Tussen april en augustus (onderling te bespreken)

**Synergie**

**INHOUD**  
**Cognitieve gedragstherapie**  
Gedrag en cognitie

**PROCESSEN: Transdiagnostisch?**  
**Vierde generatie gedragstherapeutische technieken**  
Cognitieve training & neurostimulatie & psychoëducatie

