



Hypnose – et lovende redskab i neurorehabilitering?

Jonas Kristoffer Lindeløv, Ph.D.

Hvad er hypnose?



Hvad er hypnose?



Lidt om placebo...

Placebo forte: Ways to maximize unspecific treatment effects

Rainer Schneider*, Julius Kuhl

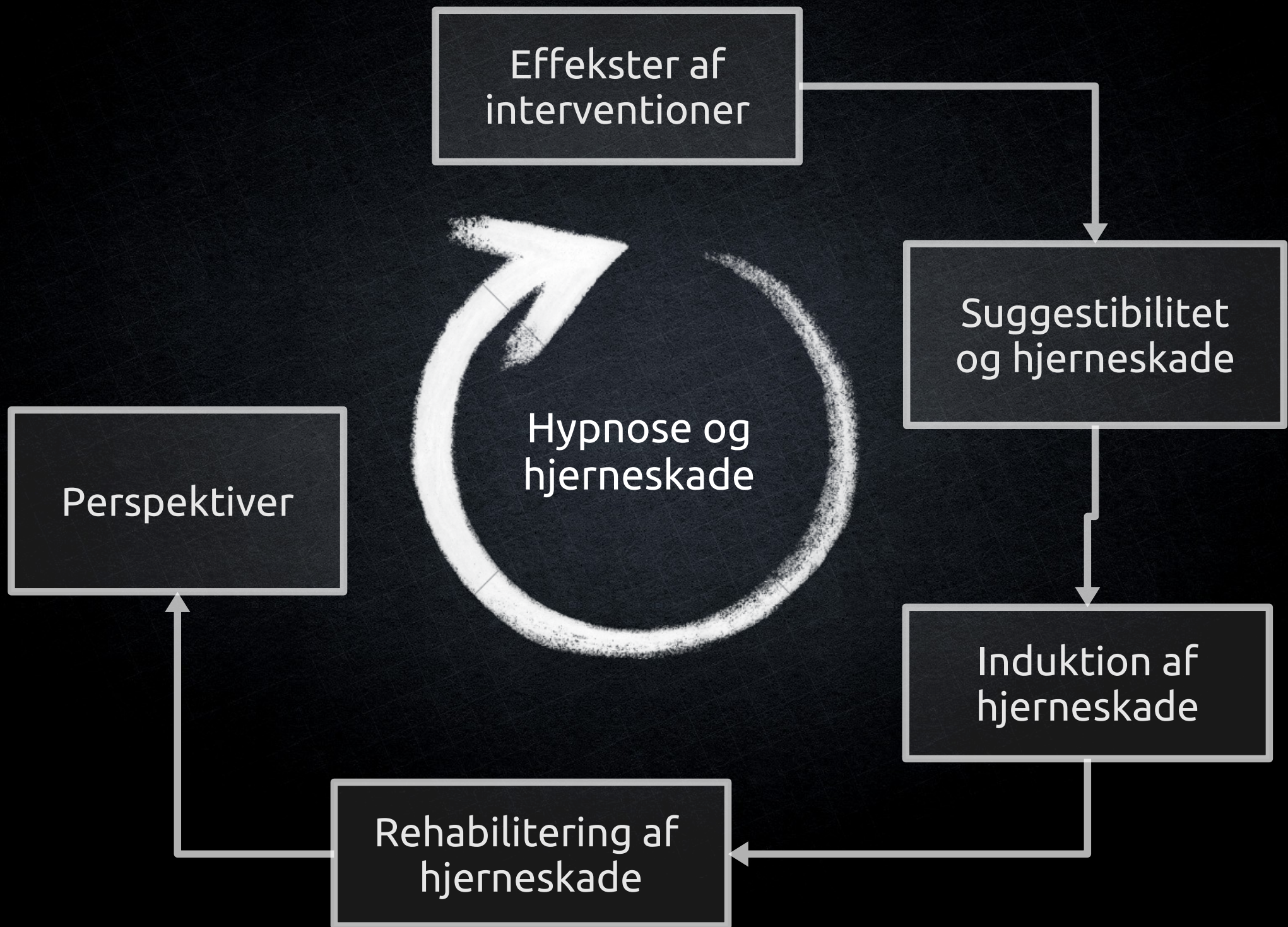
Department of Human Sciences, Personality Psychology Unit, University of Osnabrück, Osnabrück, Germany.

Enhancing Placebo Effects: Insights From Social
Psychology

Jim Sliwinski and Gary R. Elkins

Baylor University, Waco, Texas, USA

Hypnobo?
(Raz, 2007)



Sammenligning af effekter

- **NNT:** Number Needed to Treat.
- **T-HNT:** Therapist Hours Needed to Treat ($T-HNT = NNT \times \text{timer}$).
- **P-HNT:** Patient Hours Needed to Treat ($P-HNT = NNT \times \text{timer}$).
- Eksklusiv overhead og transport/afbrydelse!

Artikel	Behandling	Terapeut timer	Patient timer	NNT	T-HNT	P-HNT
Barker-Collo (2009)	APT	13.5	13.5	9.6	129	129

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Park (1999)	APT	40.0	40	26.1	1043	1043
Johanssen (2012)	MBSR	5.6	64	9.6	54	614
Azulay (2013)	MBSR	6.6	> 40	14.9	98	>596
McMillan (2002)	MBSR	3.8	21	38.3	49	804

Sammenligning af effekter

Artikel	Behandling	Terapeut timer	Patient timer	NNT	T-HNT	P-HNT
Studenski (2005)	Exercise	54	54	31.1	1679	1679
Quaney (2009)	Exercise	36	18	6.45	232	116
Meythaler (2002)	Amantadine			4.3		
Schneider (1999)	Amantadine			∞		
Lee (2005)	Methylphenidate			14.2		
Lee (2005)	Sertraline			(negativ)		
Computer naive	Higher cognition	> 0.5	> 7	10.6	> 5	> 74
Computer transfer	Higher cognition	> 0.5	> 7	70.0	> 35	> 490

Sammenligning af effekter

Artikel	Behandling	Terapeut timer	Patient timer	NNT	T-HNT	P-HNT
Lindeløv (2017)	Hypno vs aktiv	4	4	3.3	13.2	13.2
Lindeløv (2017)	Hypno vs passiv	4	4	1.6	6.4	6.4
Lindeløv (submitted)	Hypno vs passiv	8	8	1.6	12.8	12.8
Lindeløv (2017)	Mindful-hypno vs passiv	4	4	3.2	12.8	12.8

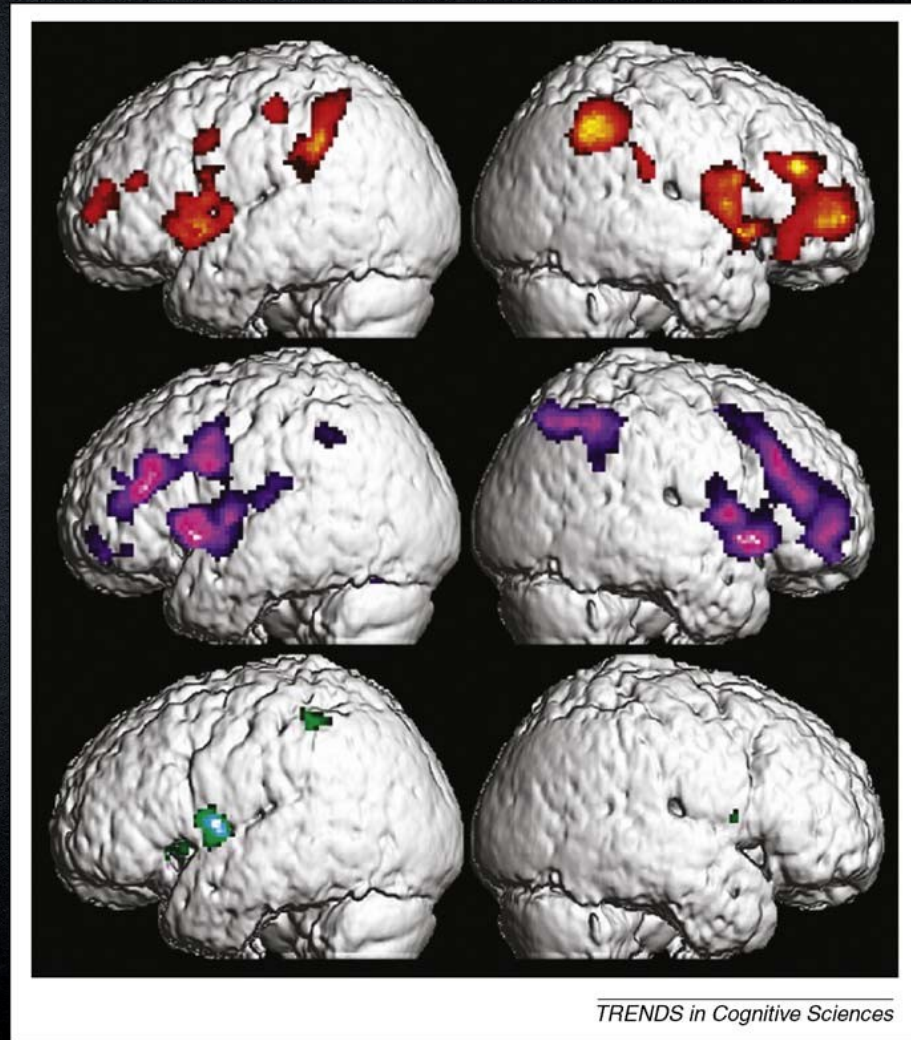
Hypnose i neurovidenskaben

Induktion af smerte

Hypnotisk
smerte suggestion:

Smerte stimulation:

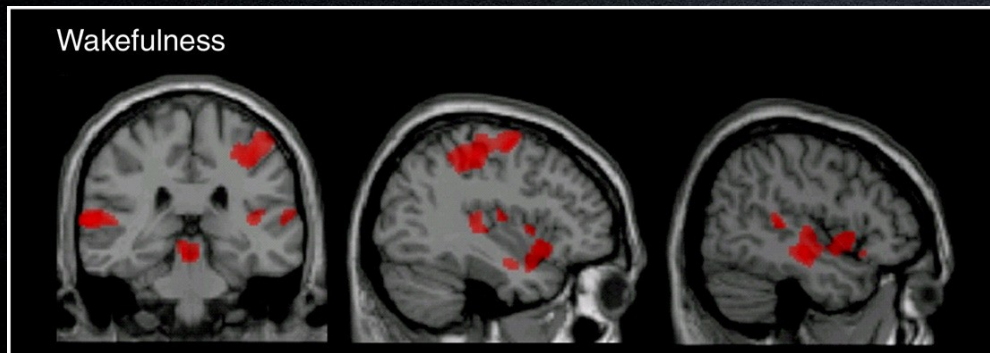
Vågen
smerte suggestion:



Derbyshire et al. (2004). Cerebral activation during hypnotically induced and imagined pain. *NeuroImage*, 23(1), 392-401.

Analgesi (fravær af smerte)

Mild stimulation



Smerte



Vanhaudenhuyse et al. (2009). Pain and non-pain processing during hypnosis: A thulium-YAG event-related fMRI study. *Neuroimage*, 47(3), 1047–1054.

Analgesi (fravær af smerte)

Mild stimulation



Smerte



Vanhaudenhuyse et al. (2009). Pain and non-pain processing during hypnosis: A thulium-YAG event-related fMRI study. *Neuroimage*, 47(3), 1047–1054.

Hypnose efter hjerneskode

nonetheless
—insignifi-
the above
should be
this pilot
ted with a
a replica-
ore specific
ons raised
problems
nclude ob-
and latent

state. They will be tested again after having been age-regressed during hypnosis to their premorbid state, and finally after having been given a posthypnotic suggestion of having regained health. If hypnosis can remove anxiety in the face of actual brain damage, these truly brain-damaged subjects should perform better under such hypnotic and posthypnotic conditions.

REFERENCES

- BARBER, T. X. Physiological effects of "hypnosis."
Psychol. Bull., 1961, **58**, 390-419.
- BARBER, T. X. Experimental controls and the

Fromm, E., Sawyer, J., & Rosenthal, V. (1964). Hypnotic simulation of organic brain damage. *The Journal of Abnormal and Social Psychology*, 69(5), 482.

a natural consequence. The use of hypnosis as a treatment modality for the symptoms of postconcussion syndrome is then logical.

Laidlaw, T. M. (1993). Hypnosis and attention deficits after closed head injury. *International journal of clinical and experimental hypnosis*, 41(2), 97-111.

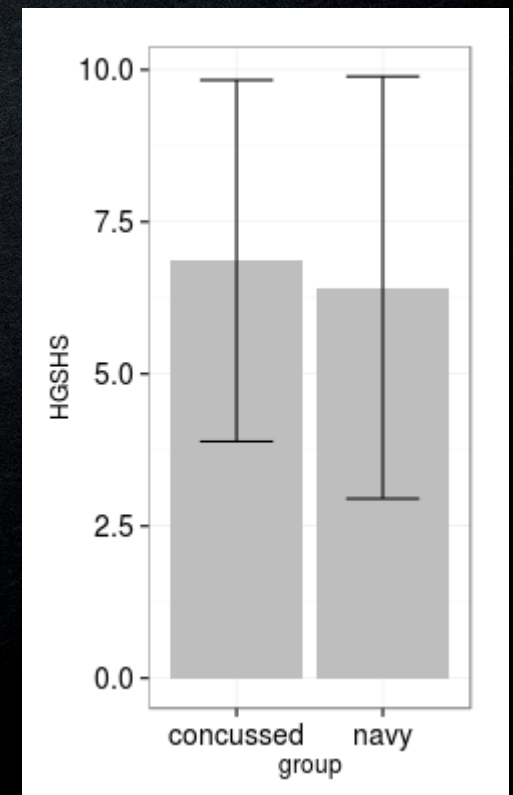
Hypnosis as a neurocognitive rehabilitation tool

Given the extensive and growing knowledge of the cognitive architecture for many neuropsychological and neuropsychiatric disorders and the ability of hypnotic suggestion to reliably modulate performance at cognitive, behavioural and experiential levels, an underexploited opportunity remains for using hypnosis to make a meaningful contribution to neuropsychological interventions in the

Oakley, D. A., & Halligan, P. W. (2009). Hypnotic suggestion and cognitive neuroscience. *Trends in Cognitive Sciences*, 13(6), 264–270.

Hypnotiserbarhed: Laidlaw (1993)

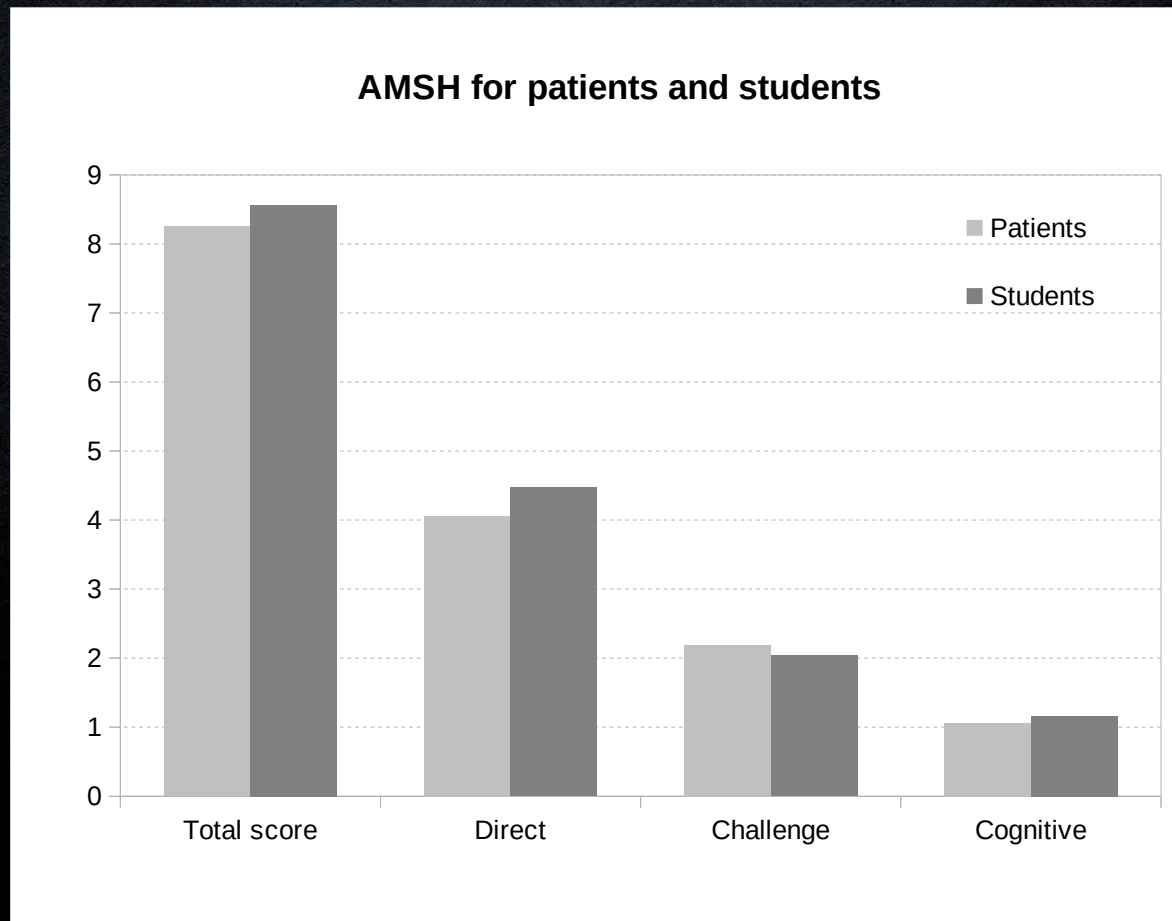
- 21 unge commotio borgere >6 måneder efter skaden vs. 31 matchede raske.
- Testet på HGSHS:A og to opmærksomheds-tests.
- Der var ingen forskel på patienter og raske.



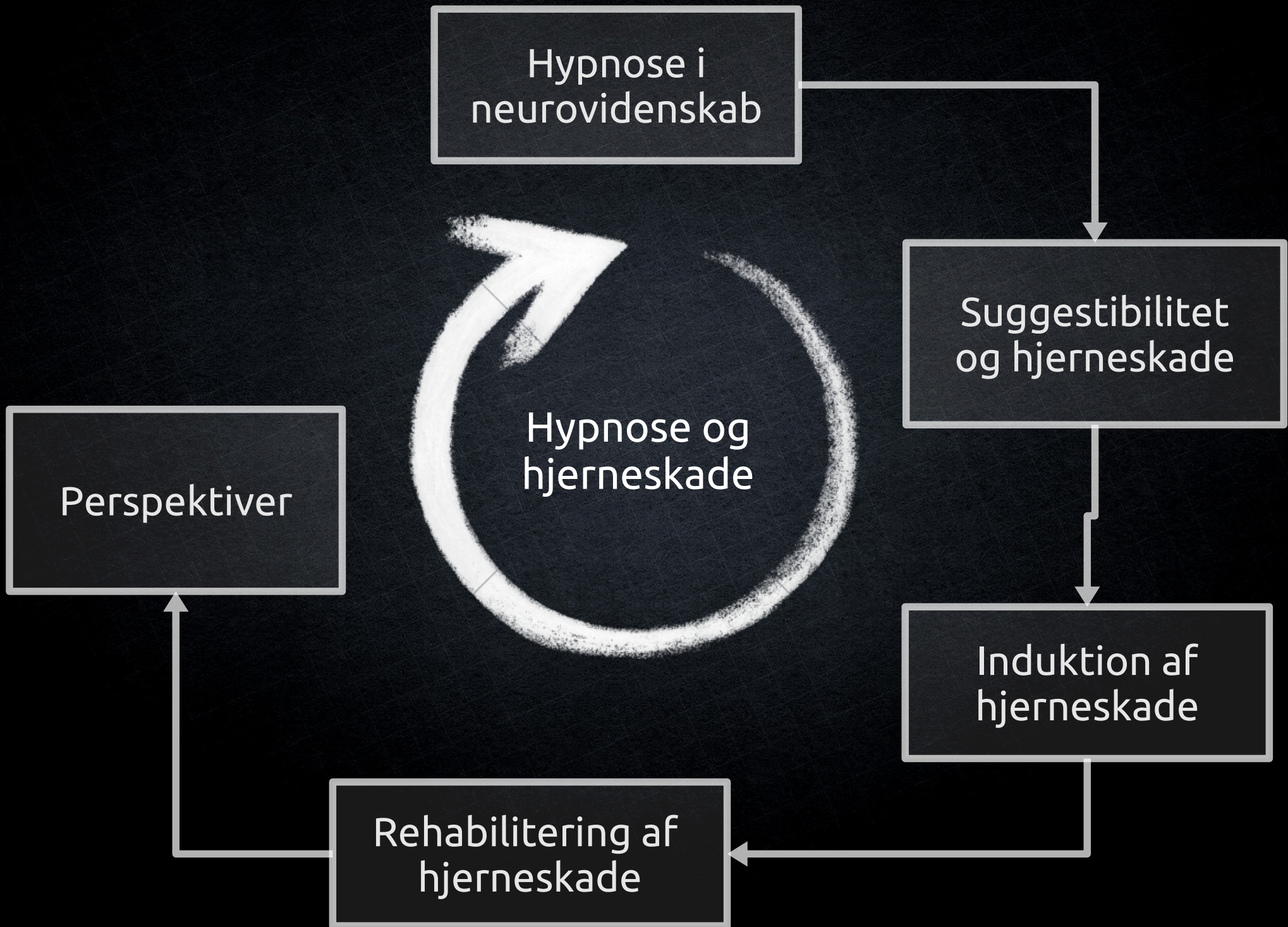
Laidlaw, T. M. (1993). Hypnosis and attention deficits after closed head injury. *International journal of clinical and experimental hypnosis*, 41(2), 97-111.

Kihlstrom et al. (2013):

- Ingen forskel mellem stroke og raske.

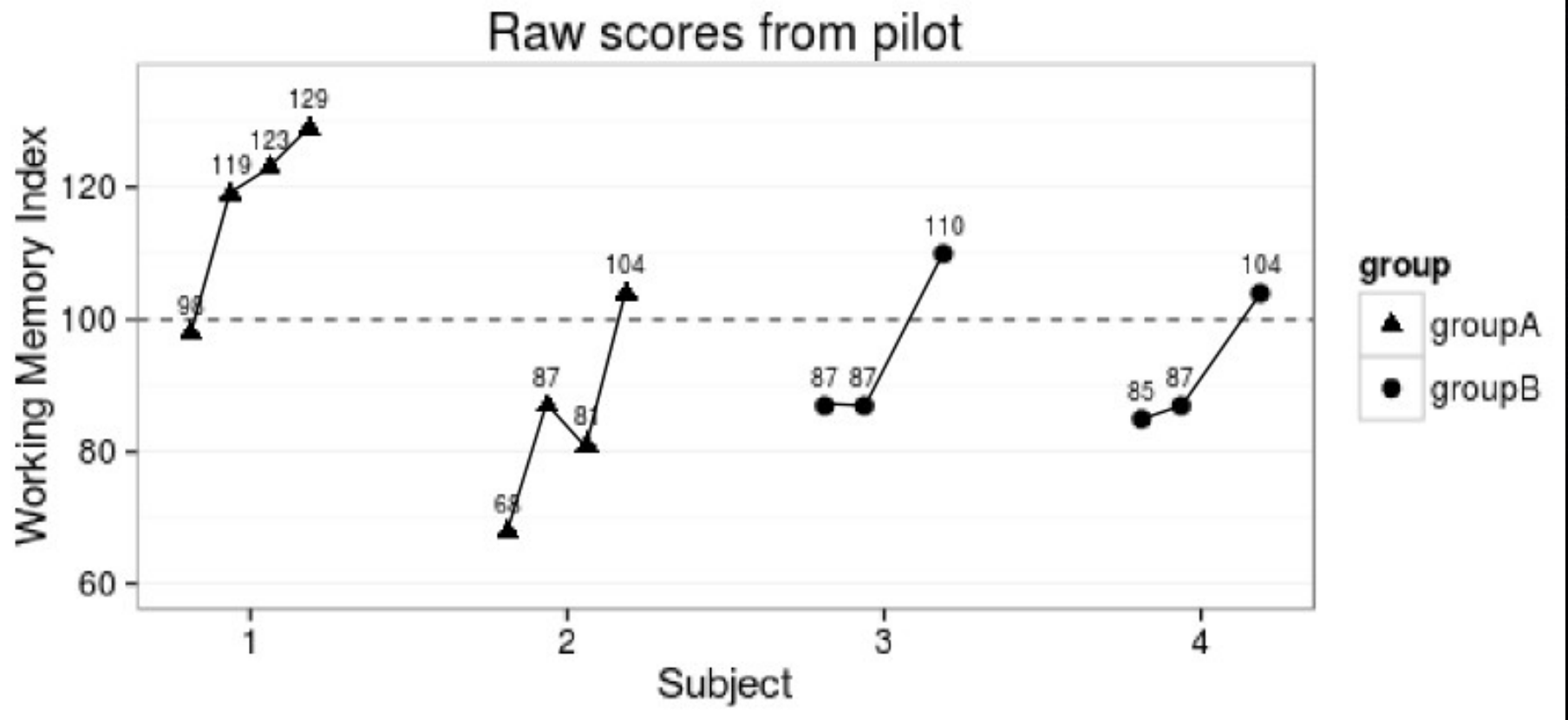


Kihlstrom, J. F., Glisky, M. L., McGovern, S., Rapcsak, S. Z., & Mennemeier, M. S. (2012). Hypnosis in the right hemisphere. *Cortex*.

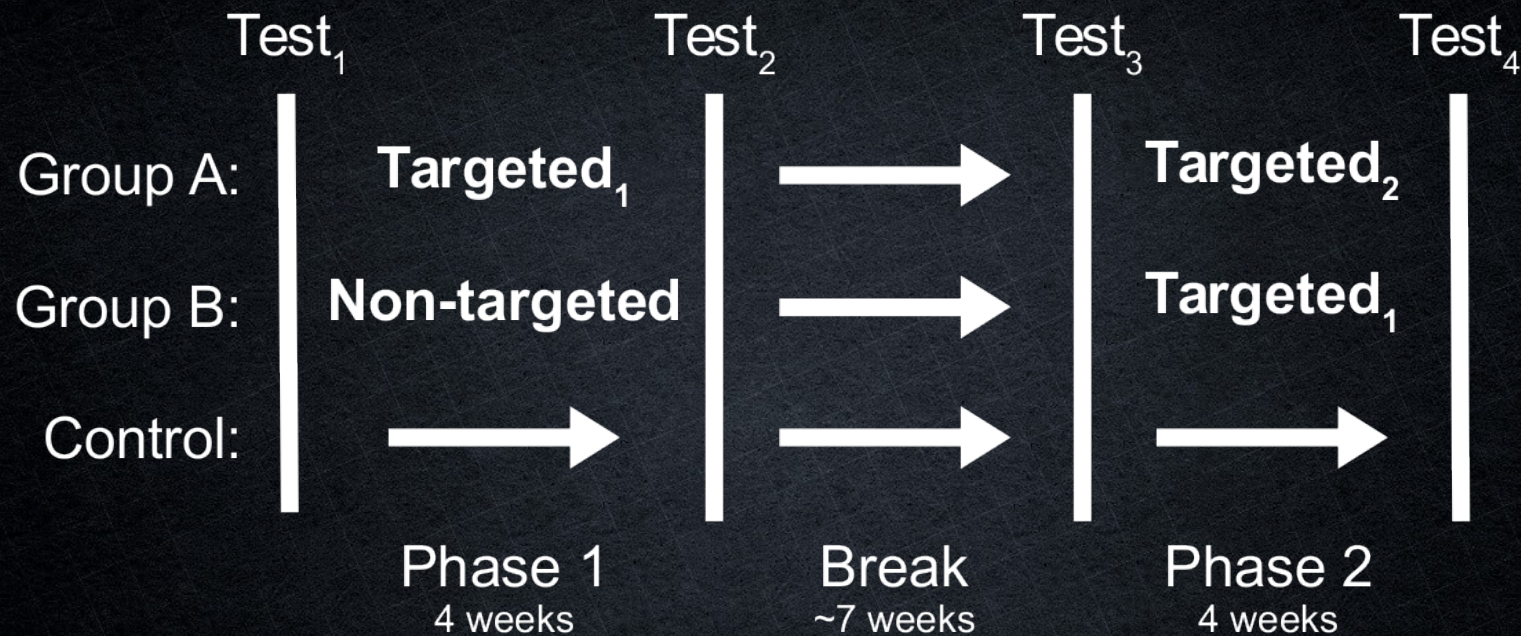


Hypnose som rehabilitering af hjerneskode

Pilotforsøg

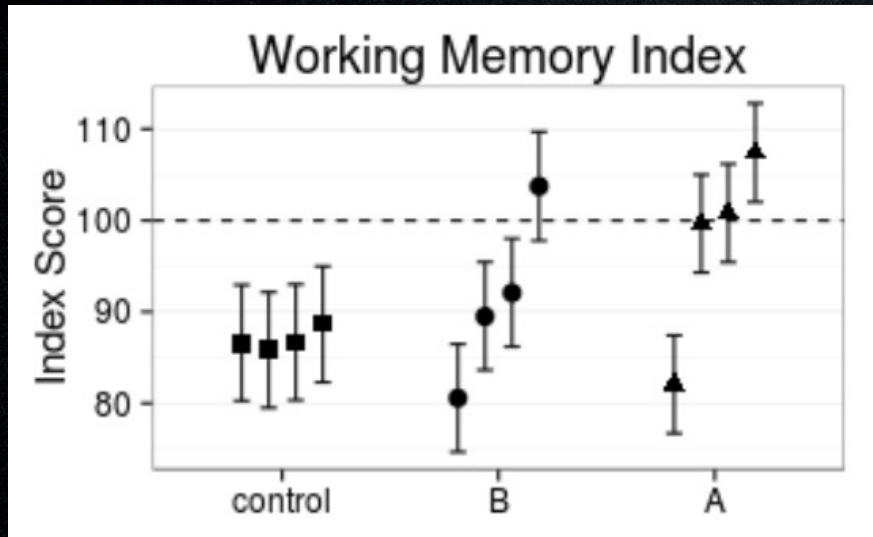


Deltagere og design

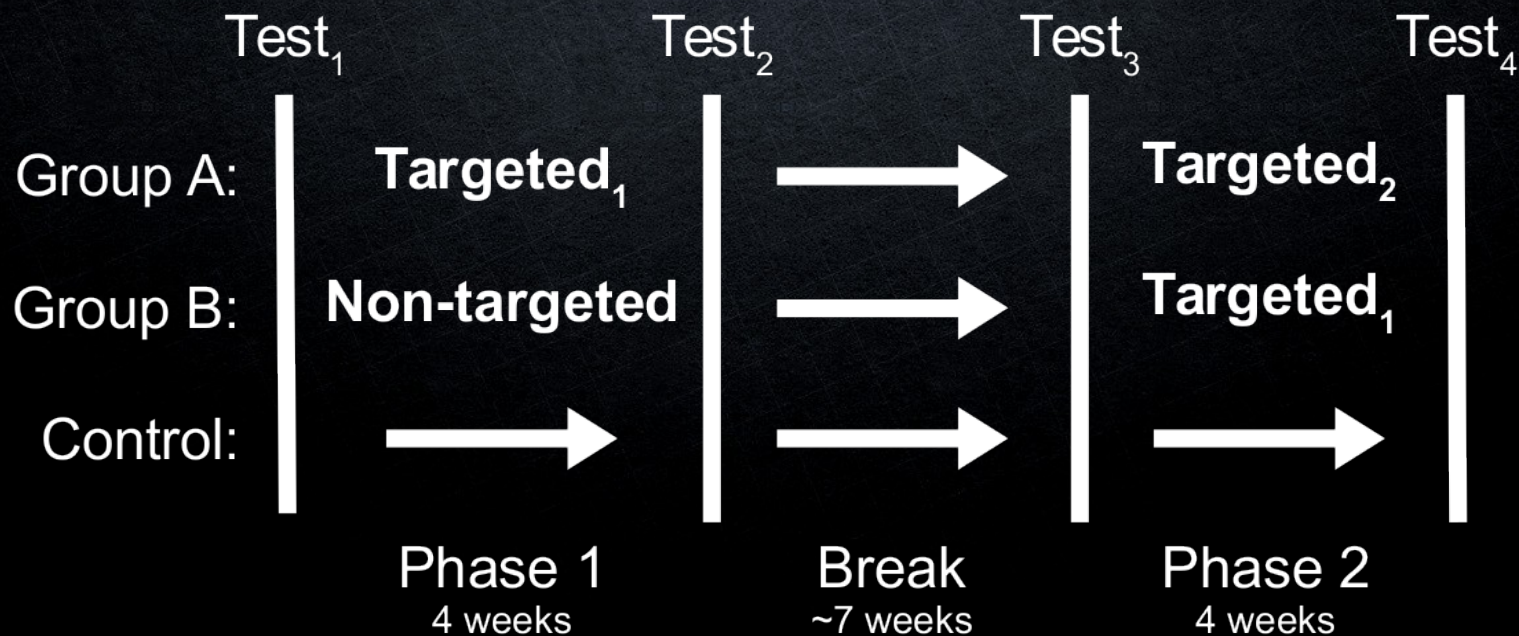


	N	TBI / Stroke / other / NA	Age (SD)	Years since injury (SD)	Sex F/M	SHSS:C (SD)
Group A	27	18 / 5 / 4 / 0	45.2 (13.0)	5.0 [4-11]	15/12	7.7 (2.1)
Group B	22	12 / 5 / 5 / 0	47.0 (14.1)	6.5 [2-11]	14/8	6.8 (3.3)
Control	19	4 / 10 / 3 / 2	54.1 (11.7)	7.0 [3-16]	11/8	NA

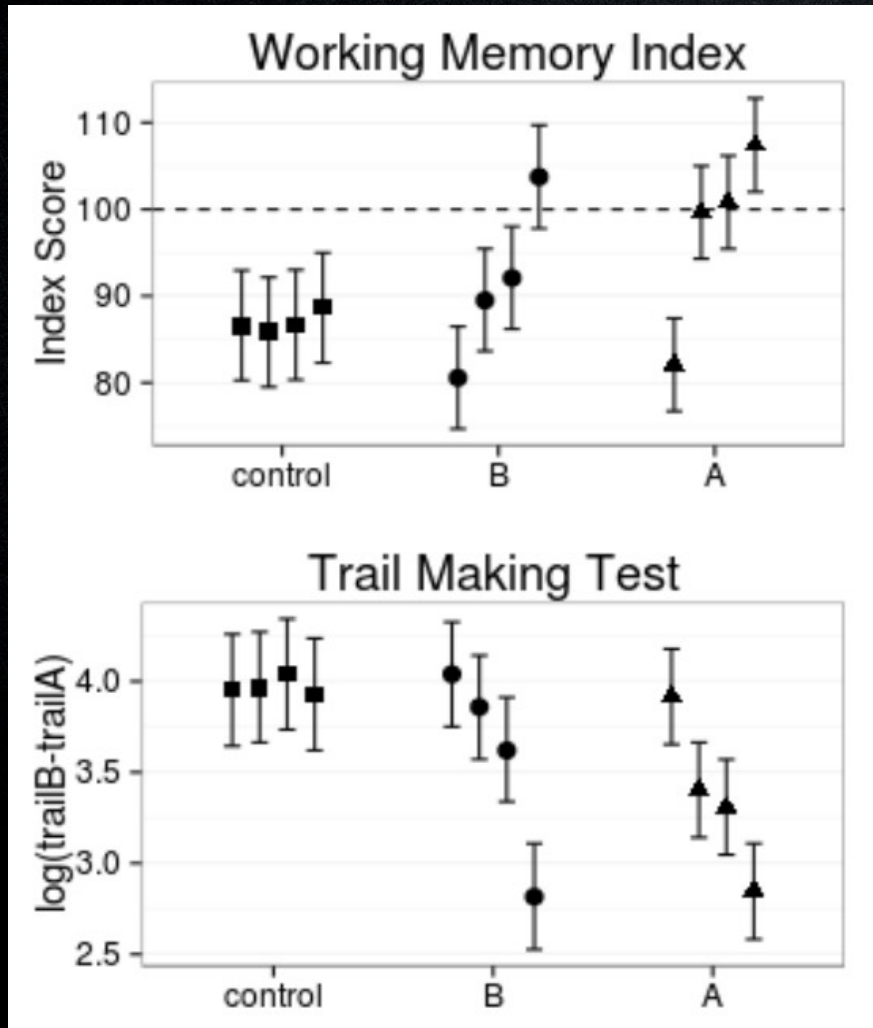
Results



- **Arbejdshukommelsen** blev normal på 4-8 sessioner.
- Ikke en simpel retest-effekt.
- Der er en specifik effekt af **suggestionernes indhold**.



Results

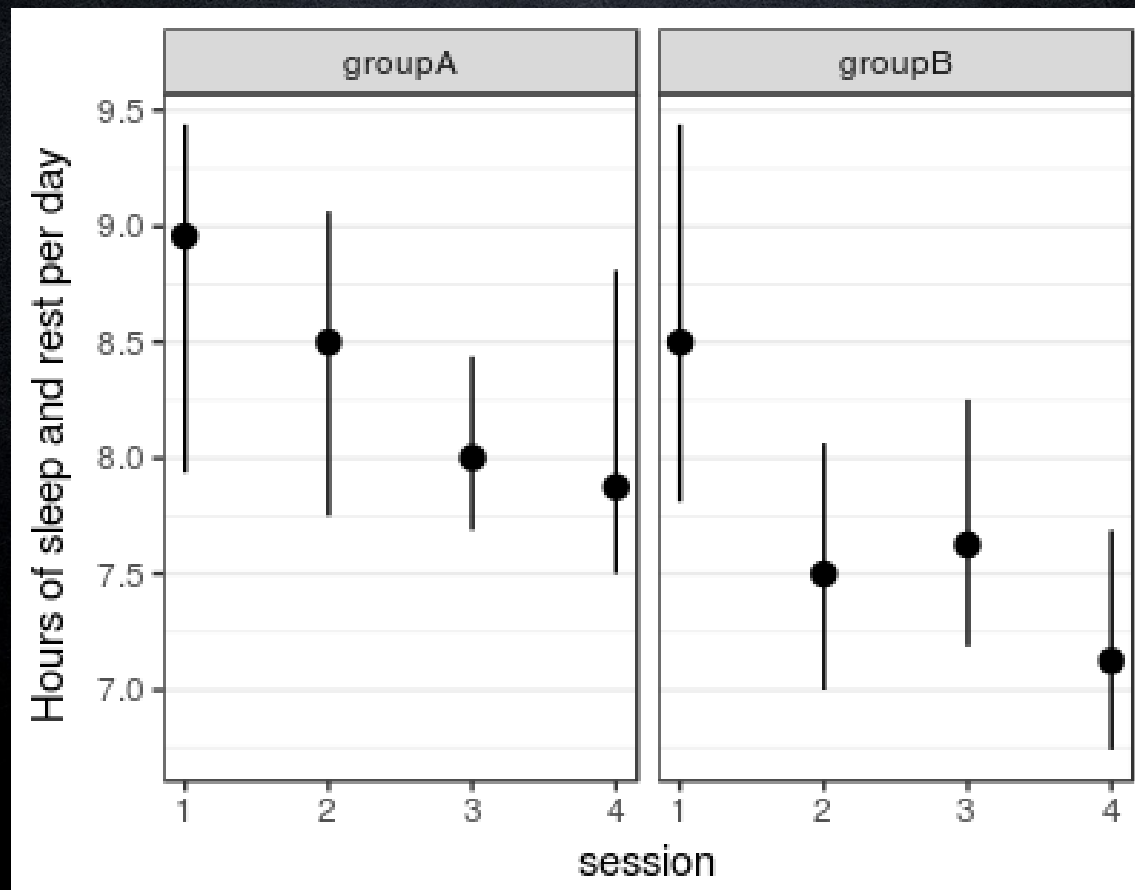


- **Arbejdshukommelsen** blev normal på 4-8 sessioner.
- Ikke en simpel retest-effekt.
- Der er en specifik effekt af **suggestionernes indhold**.
- Effekten er generel (?)

Posterior modes and 95% credible intervals per test session.

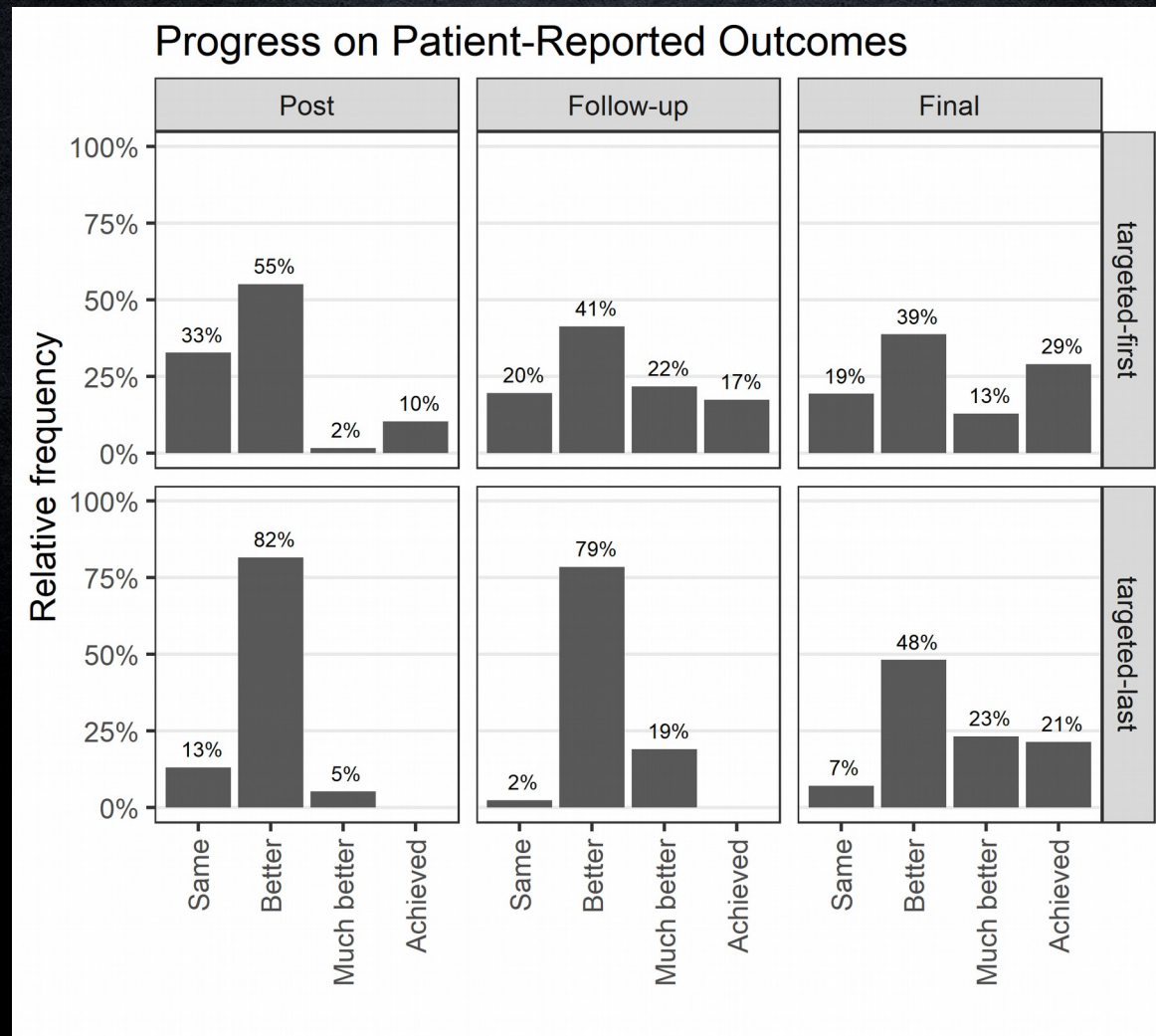
Søvn og hvile

- Behov for søvn og hvile er reduceret med 1 time.

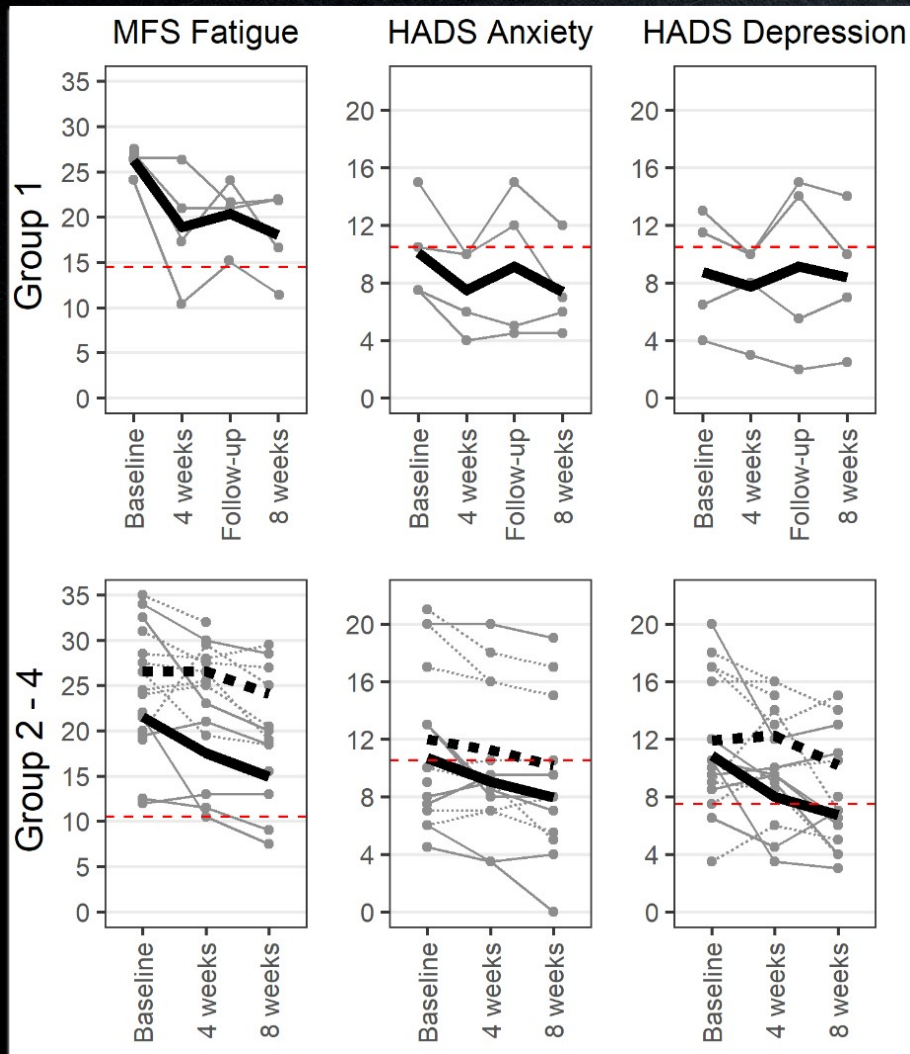


Patient Reported Outcomes

- Mål nås kun efter den målrettede hypnose.



Commotio?



Independent samples t-test on gain scores:		<i>d</i>	<i>t</i>	<i>p</i>	BF ₁₀	<i>d</i> non-litigating
Mental Fatigue Scale	19 (7)	0.8	4.0	0.001	41.1	1.8
HADS anxiety	20 (7)	0.5	3.8	0.001	29.5	0.9
HADS depression	20 (7)	0.6	3.4	0.003	14.0	0.8

Lær mere

NEUROSCIENCE, STATS, AND CODING

A blog by Jonas Kristoffer Lindeløv

HYPNOSIS ▾

PSYCHOPY COURSE ▾

BAYES INTUITIONS ▾

Scientific papers on hypnosis and brain injury

🕒 30. May 2017

This is an attempt to make a complete up-to-date list of all literature pertaining to hypnosis and brain injury. I now consider the literature so big and dispersed that I feel quite confident that my list won't be complete, but hopefully, it can get close. In each section, the most informative paper(s) are highlighted in **green font**.

This list contains many case-studies so there is likely a strong positive bias. I would advise reading the

lindeloev.net

→ Hypnosis → Scientific Papers

Cognition

Status (April 2018): Completed.

Summary of the literature: There are (large) positive effects of hypnosis on cognition following acquired brain injury.

- **Cui-ping, L. S. (2011). Influence of hypnosis therapy on recovery of hemorrhagic stroke. *Journal of Taihan Medical College*, 1, 625. <http://dx.doi.org/10.10184-1574201101025.htm> (see my [English translation and comments](#))**
An RCT showing large effects ($d = 1.0$ to 1.7) on verbal, memory, and depression in stroke patients given ten sessions of hypnosis between one and twelve weeks after the injury onset. The study is relatively large with 120 treatment-as-usual patients of which 40 had additional adjunctive hypnosis. It was published in Chinese in a Chinese journal with impact factor 0.1, and it is unclear whether it was peer-reviewed. In general, there are many reasons to be skeptical of the quality of this paper. Nonetheless, everything else being equal, it does increase the probability that hypnosis can improve cognition following acquired brain injury. With the help of Chinese friends, I got hold of the paper and helped reading it. I've added a link to my translation in the reference above, containing comments to clarify particular unclear sections and dubious statistics.
- **Lindeløv, J. K., Overgaard, R., & Overgaard, M. (2017). Improving working memory performance in brain-injured patients using hypnotic suggestion. *Brain*, 140(4), 1100-1106. <https://doi.org/10.1093/brain/aww001>.** Our study, showing a large specific effect on working memory performance of hypnotic suggestions including the return to pre-injury (or normal) functioning. It's an RCT with a total of 68 patients, randomized to targeted hypnosis, an active control, and a passive control. The effect of four and eight treatment sessions is assessed with long-term follow-up.
- **Milos, R. (1975). Hypnotic exploration of amnesia after cerebral injuries. *International Journal of Clinical and Experimental Hypnosis*, 23(2), 103-110. <http://dx.doi.org/10.1080/00227147508419314>**
This paper is not really on cognitive rehabilitation but it does manage to (temporarily) get retrospective reports of organisms that were otherwise inaccessible (due to retrograde or anterograde amnesia) during hypnosis in 7 out of 20 cases of severe injury. It was not checked whether these reports were accurate, so this is prone to confabulations in changes in response to events rather than true cancellations of amnesia.
- **Sullivan, D. S., Johnson, A., & Bračkovšič, J. (1974). Reduction of behavioral deficits in organic brain damage by use of hypnosis. *Journal of Clinical Psychology*, 30(1), 96-98. [https://doi.org/10.1002/1097-4679\(197401\)30:1<96::AID-CLP2276390133>3.0.CO;2-4](https://doi.org/10.1002/1097-4679(197401)30:1<96::AID-CLP2276390133>3.0.CO;2-4)**
Later we discovered this similar study had been carried out by Sullivan et al. (1974). The Sullivan study, however, had an intervention consisting of just seven sessions repeated twice - probably less than two minutes. They obtained a small positive effect on the Picture Completion task from the WAS battery but not on the Stroop-Gestalt test. They had a quite small sample, and the two-page article leaves many details unreported.
- **Vanhauwenhuyse, A., Leareys, S., & Faymonville, M.-L. (2015). The use of hypnosis in severe brain injury rehabilitation: a case report. *Acta Neurologica Belgica*, 115(4), 771-772. <https://doi.org/10.1007/s13760-015-0459-3>**
A brief report on a 50-year case with cerebral hemorrhage, who underwent hypnosis when he was deemed chronic with severe symptoms. Hypnosis sparked further improvement. As a side note, the authors write that "To the best of our knowledge, this is the first study reporting on the integration of hypnosis as part of rehabilitation treatment of severe brain injury patients." Well. 🙄

Motor disorders

Status (April 2018): Approximately 80% completed. Needs a search for post-2000 literature, references, and citations.

With the notable exception of Sparkes & Feenan (1962) and Somers et al. (2018), this literature consists largely of single-case studies, making it very vulnerable to publication bias. Considering this, most studies report positive findings while Sparkes & Feenan (1962) only report positive outcomes for four out of nineteen patients with cerebral palsy. Although somewhat discouraging, this observation may not generalize to all of the literature given the large variability in patient characteristics and treatment protocols between papers.

- **Alexander, L. (1966). Hypnosis in primarily organic illness. *American Journal of Clinical Hypnosis*, 8(4), 250-253.**
- **Appel, P. R. (1990). Clinical Applications of Hypnosis in the Physical Medicine and Rehabilitation Setting: Three Case Reports. *American Journal of Clinical Hypnosis*, 33(2), 85-93. <https://doi.org/10.1080/00029157.1990.10462969>**
See case number 100.
- **Chappell, D. T. (1961a). A Psychological Approach to Traumatic Paraplegia: Use of Hypnosis. *The Journal of Nervous and Mental Disease*, 133(5), 432.**
- **Chappell, D. T. (1961b). The Reduction of Spasticity in Paraplegia with Hypnosis. *American Journal of Clinical Hypnosis*, 8(4), 213-229. <https://doi.org/10.1080/00029157.1961.10401844>**
- **Chappell, D. T. (1964). Hypnosis and Spasticity in Paraplegia. *American Journal of Clinical Hypnosis*, 7(1), 33-36. <https://doi.org/10.1080/00029157.1964.10402388>**
- **Crasileck, H. E., & Hall, J. A. (1970). The use of hypnosis in the rehabilitation of complicate vascular and post-traumatic neurological patients. *International Journal of Clinical and Experimental Hypnosis*, 18(3), 145-159.**
- **Diamond, S. G., Davis, D. C., Schaechter, J. D., & Howe, R. D. (2006). Hypnosis for rehabilitation after stroke: six case studies. *Contemporary Hypnosis*, 23(4), 173-180. <https://doi.org/10.1002/ch.319>**
- **Halroyd, J., & Hill, A. (1989). Pushing the limits of recovery: Hypnotherapy with a stroke patient. *International Journal of Clinical and Experimental Hypnosis*, 37(2), 120-128. <https://doi.org/10.1080/00227148708410641>**
- **Irwani, C., Mardiyono, M., Suharto, S., & Santjaka, A. (2018). COMBINATION OF**

De næste trin

RCT på Jobcenter Silkeborg

Opfølgning på gamle deltagere

Kommunikationscenter Bornholm

Pilot på BOMI Roskilde

Take-home message:

*Hypnose til kognitiv rehabilitering er stadig **eksperimentel**.*

*Der er dog gode indikationer for **stærk omkostningseffektivitet**.*

