



MILTON H.
ERICKSON
INSTITUTE

[Relatore: MAURO CAVARRA]

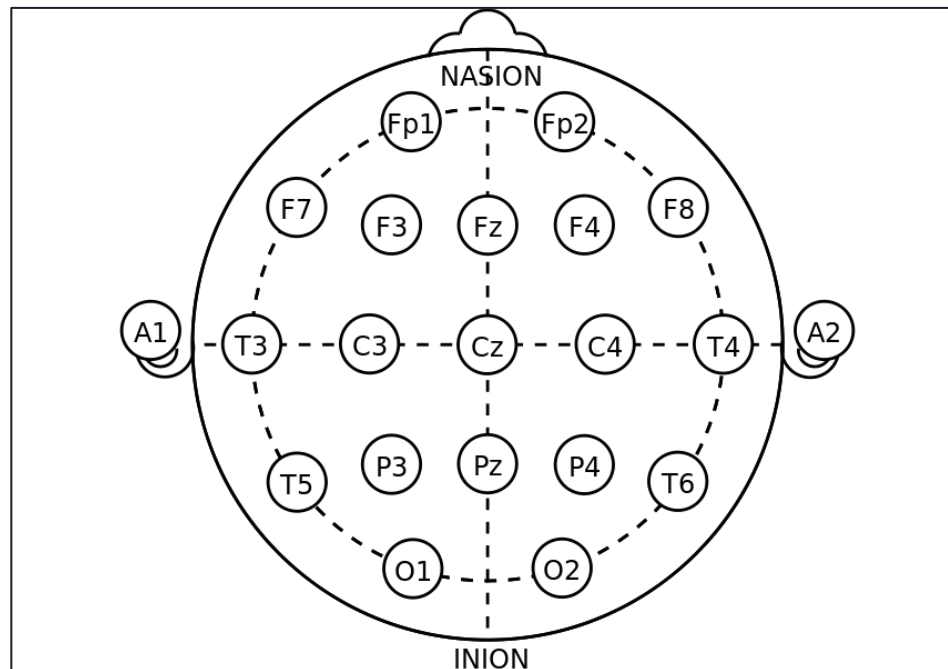
Ipnosi e Neuroscienze

Il Cervello in Ipnosi

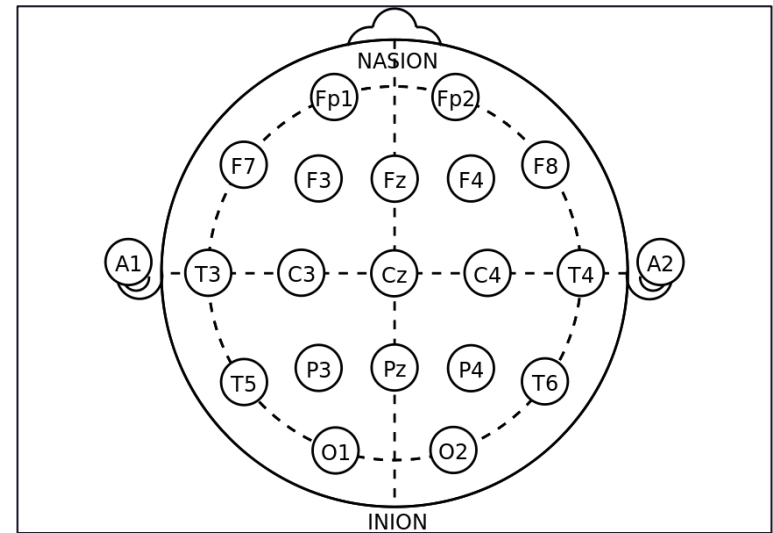
I risultati della ricerca

- Strutturale
- Funzionale

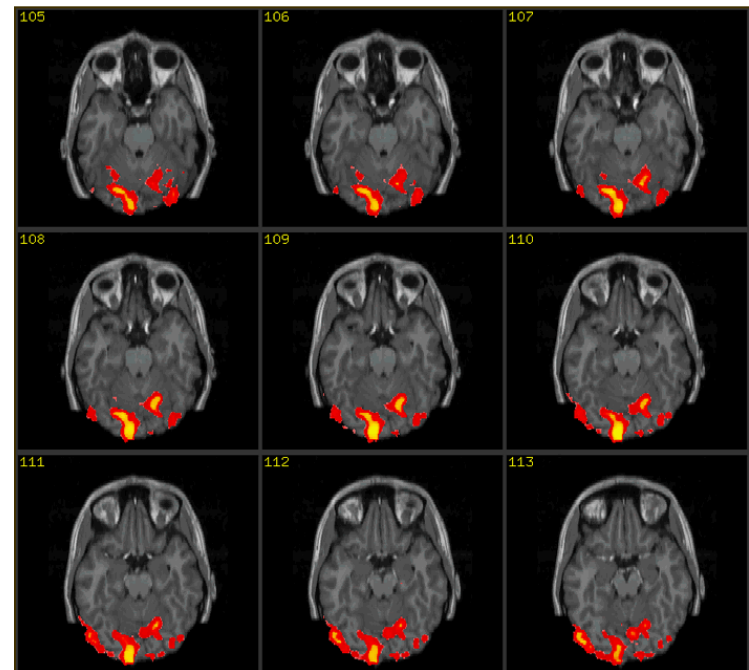
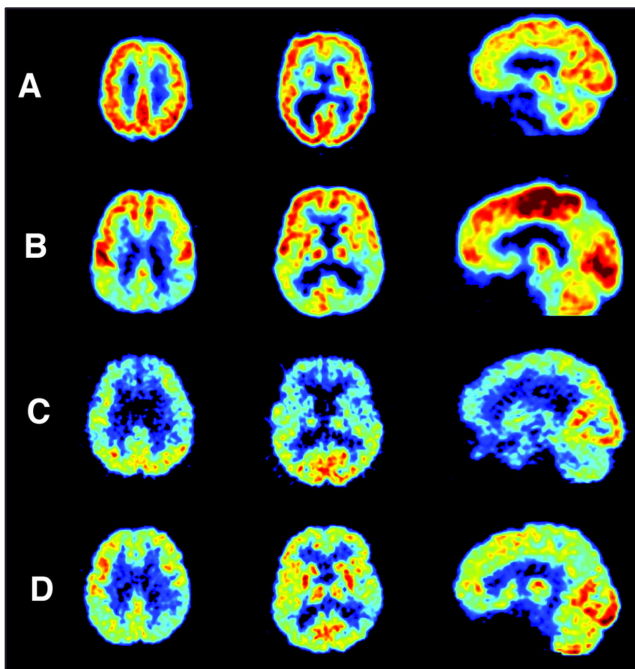
- EEG (1929)
 - Registrazione attività elettrica corteccia.



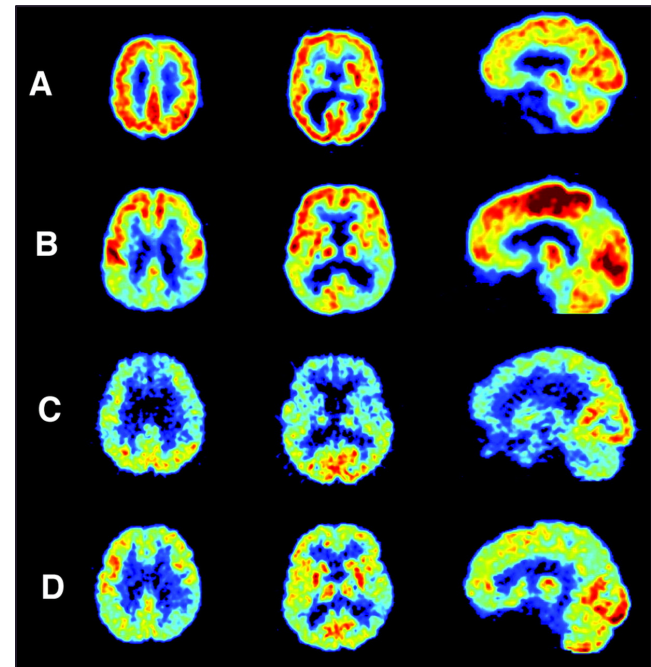
- EEG (1929)
 - Onde Cerebrali.
 - α : 8 – 12 Hz
 - β : 12 – 30 Hz
 - γ : 25 – 100 Hz
 - δ : 0 – 4 Hz
 - θ : 4 – 7 Hz



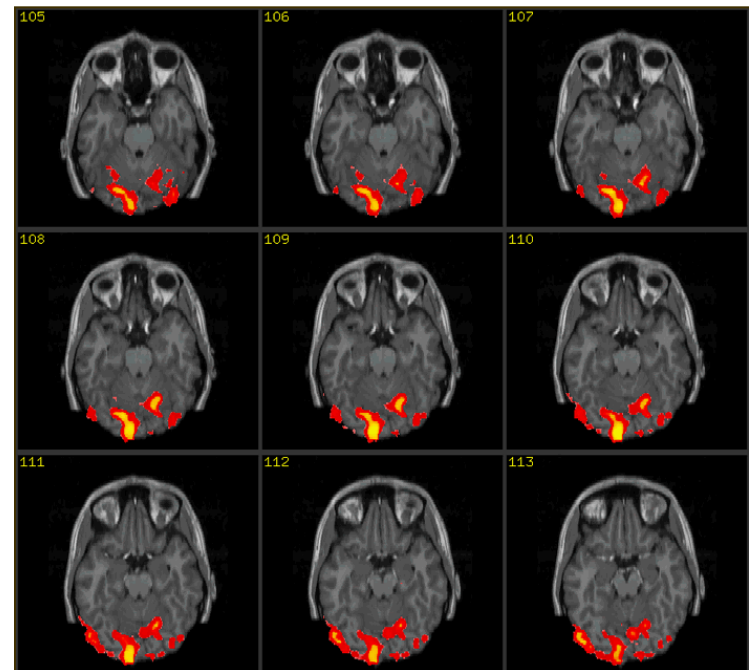
- Neuroimaging



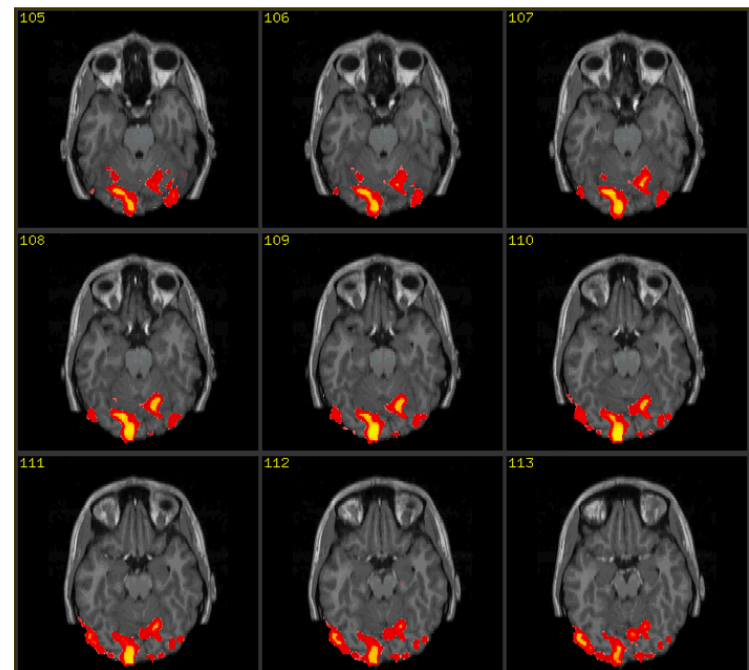
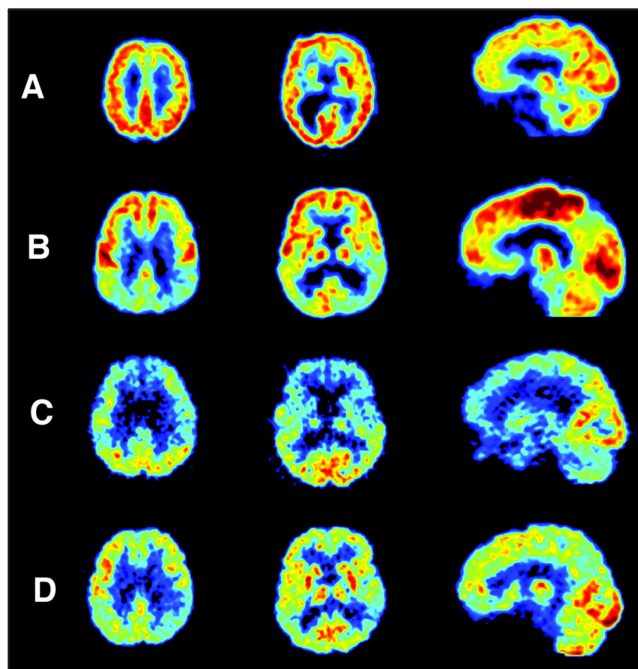
- PET
 - Registrazione attività metabolica cerebrale.
 - Consumo di glucosio



- PET
 - Registrazione attività metabolica cerebrale.
- fMRI – BOLD



- Neuroimaging



- Analisi EEG:

Fase	Alta suggestionabilità	Bassa suggestionabilità
Baseline	Maggiore ritmo θ	Minore ritmo θ
Pre-Induzione	Riduzione α	Riduzione α
Ipnosi	Aumento θ Mag. Aumento α	θ costante Aumento α
Post-Induzione	Riduzione α	Riduzione α

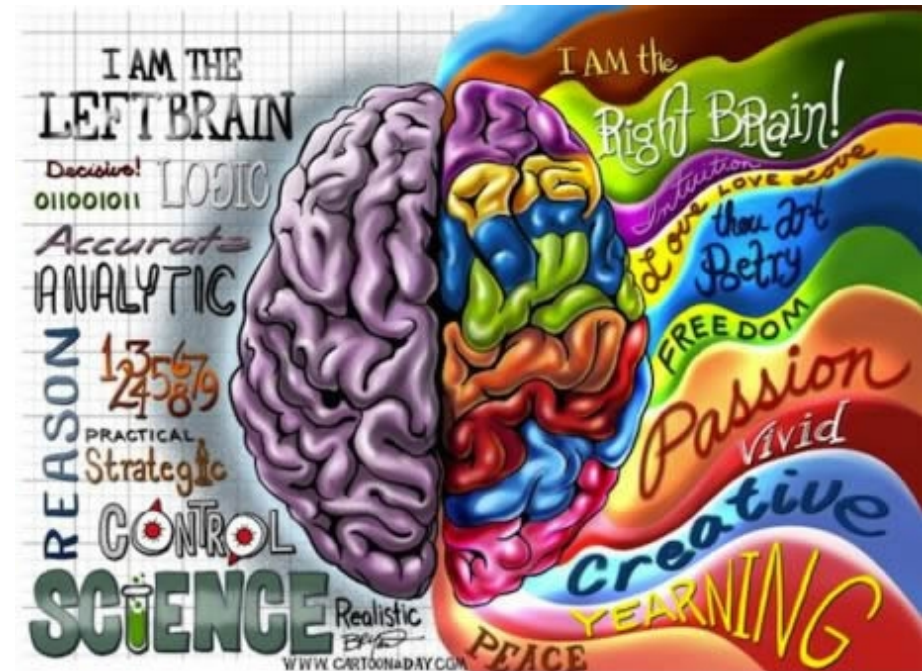
- Analisi EEG:
 - α marker di stato
 - θ marker di tratto

- Modello Biemisferico:

- Emisfero Destro:
- Intuitivo
- Olistico

- Emisfero Sinistro:

- Logico
- Seriale



Differenze emisferiche



Task dependence

Put another way, the hypnotizable brain, even when hypnotized, is just like any other brain, only better.

John F. Kihlstrom

Contenuto interno percepito come esterno

JOUR. PSYCH. SCI. 1998, 27(2), 195-204
Vol. 95, pp. 1956-1960, February 1998
Psychology

Where the imaginal appears real: A positron emission tomography study of auditory hallucinations

(reality monitoring/anterior cingulate/hypnosis/attention/affect)

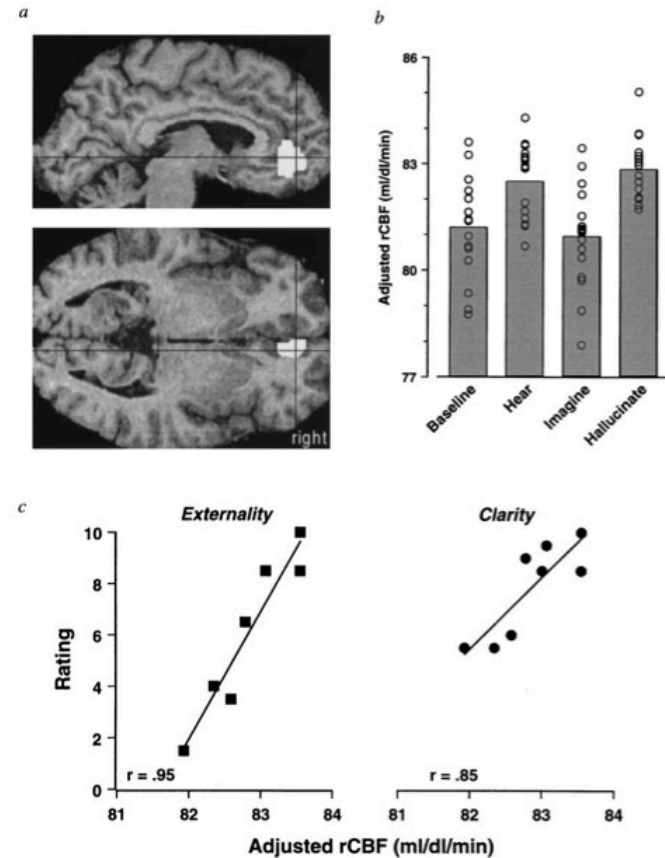
HENRY SZECHTMAN*[†], ERIK WOODY[‡], KENNETH S. BOWERS[‡], AND CLAUDE NAHMIAS[§]

Department of Biomedical Sciences, McMaster University, 1200 Main Street West, Hamilton, Ontario L8N 3Z5, Canada; [†]Department of Psychology, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada; and [§]Department of Nuclear Medicine, McMaster University Medical Centre, Hamilton, Ontario L8N 3Z5, Canada.

Contenuto interno percepito come esterno

4 condizioni:

- *Baseline*
- *Immaginazione*
- *Stimolazione*
- *Allucinazione*



Contenuto interno percepito come esterno

Riassumendo:

- Attivazione corteccia cingolata anteriore.
- Attivazione simile in allucinazione e stimolazione.

Contenuto interno percepito come esterno

Am J Psychiatry. 2000 Aug;157(8):1279-84.

Hypnotic visual illusion alters color processing in the brain.

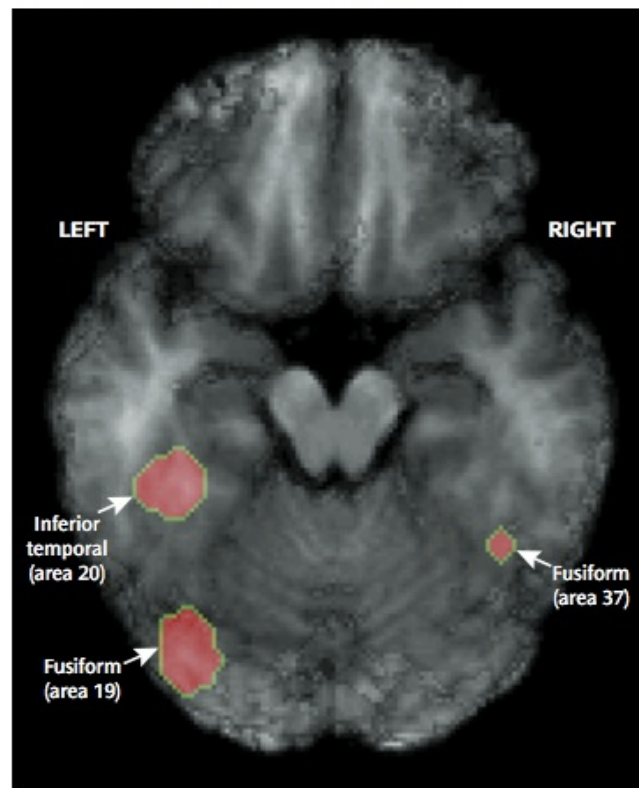
Kosslyn SM, Thompson WL, Costantini-Ferrando MF, Alpert NM, Spiegel D.

Department of Psychology, Harvard University, Cambridge, MA 02138, USA. smk@wjh.harvard.edu

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Contenuto interno percepito come esterno

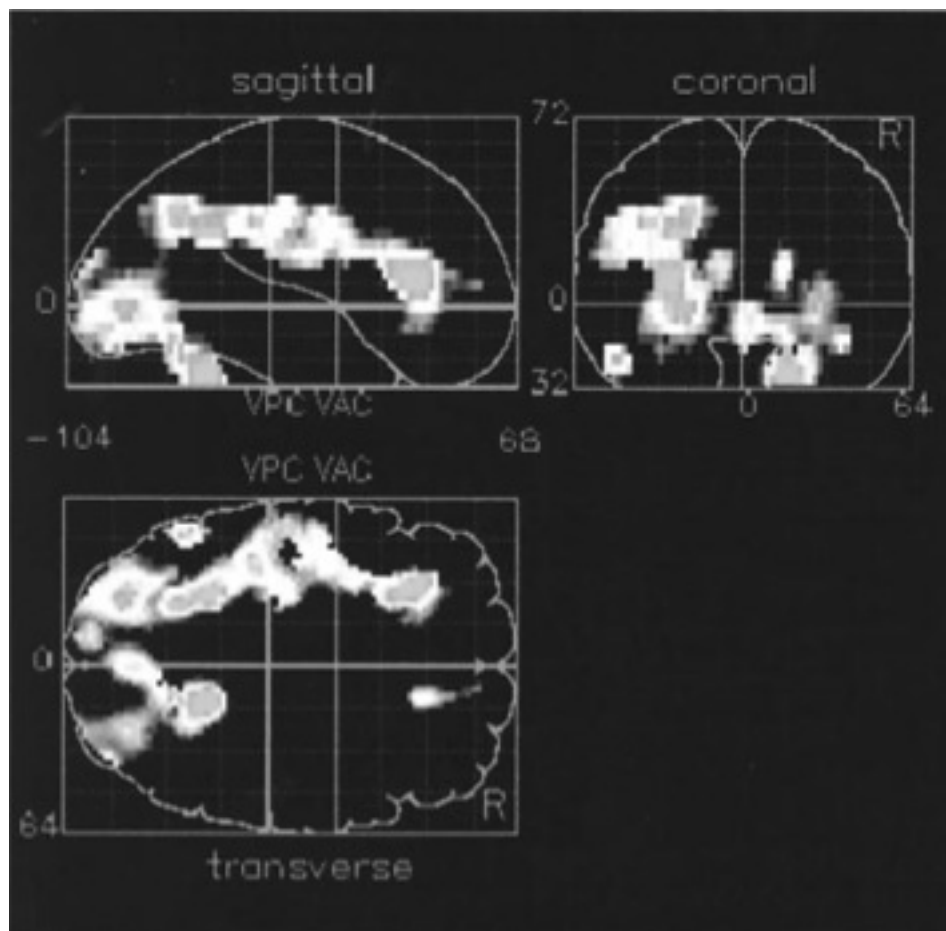
FIGURE 2. PET Image of Perceptually Driven Color Activation in Eight Highly Hypnotizable Subjects^a



Functional Neuroanatomy of Hypnotic State

Pierre Maquet, Marie Elisabeth Faymonville, Christian Degueldre, Guy Delfiore,
Georges Franck, André Luxen, and Maurice Lamy

TASK DEPENDENCE: MEMORIA AUTOBIOGRAFICA



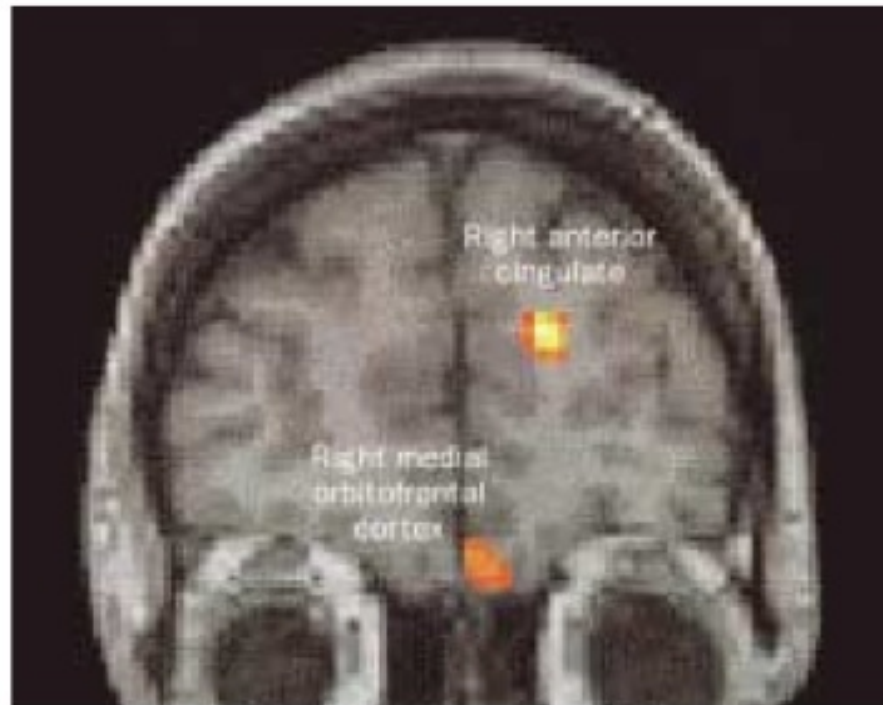
Induzione di paralisi motoria attraverso suggestione ipnotica

Imaging hypnotic paralysis: implications for conversion hysteria

*Peter W Halligan, Bal S Athwal, David A Oakley,
Richard S J Frackowiak*

In a single case study with positron emission tomography (PET) functional imaging, hypnotic paralysis activated similar brain areas to those in conversion hysteria, supporting the view that hypnosis and hysteria might share common neurophysiological mechanisms.

Induzione di paralisi motoria attraverso suggestione ipnotica



Relative changes in cerebral blood flow associated with attempted movement of the hypnotically paralysed left leg

Riduzione del dolore tramite induzione ipnotica.

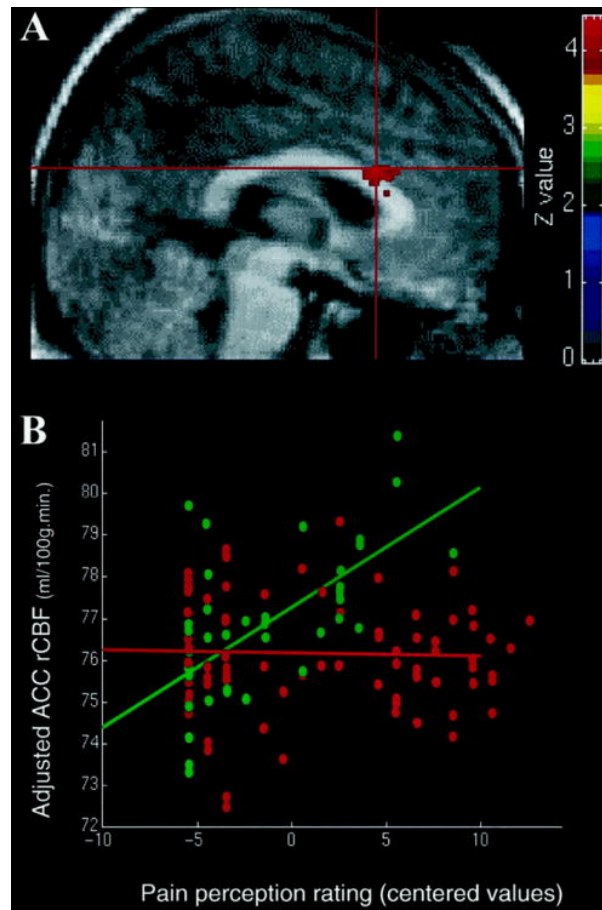
Neural Mechanisms of Antinociceptive Effects of Hypnosis

Faymonville, Marie Elisabeth M.D., Ph.D.*; Laureys, Steven M.D., Ph.D.†; Degueldre, Christian Ph.D.‡; DelFiore, Guy Ph.D.§; Luxen, André Ph.D.[//]; Franck, Georges M.D., Ph.D.#; Lamy, Maurice M.D., Ph.D.**; Maquet, Pierre M.D., Ph.D.††

Anesthesiology

Issue: Volume 92(5), May 2000, pp 1257-1267

Riduzione del dolore tramite induzione ipnotica.



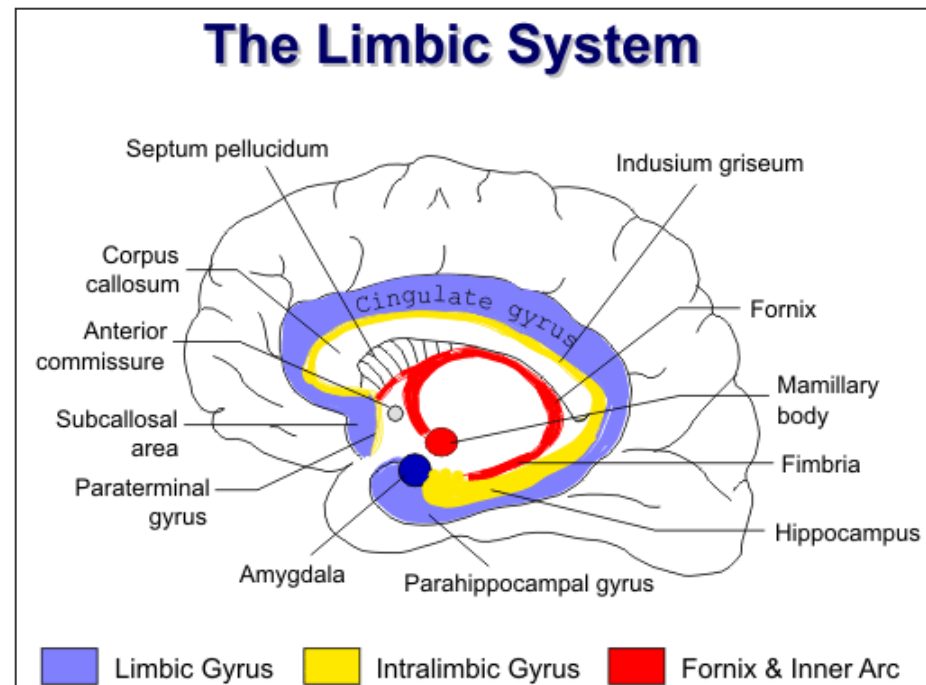
Differenze emisferiche



Task dependence

Interfaccia Corteccia – Aree Sottocorticali

- Anatomica
- Funzionale



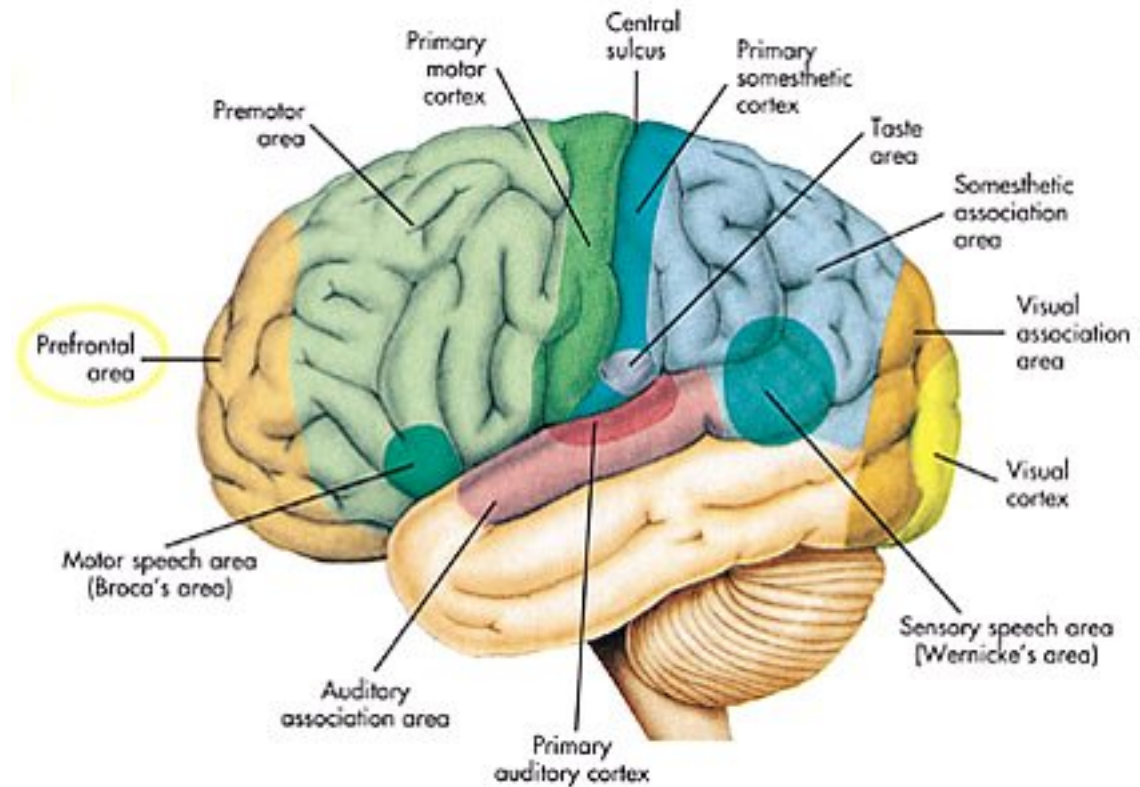
Interfaccia Corteccia – Aree Sottocorticali

- Anatomica
- Funzionale

Funzioni:

- Semplici
 - SNA
 - Endocrino
- Complesse
 - Reward/motivazione
 - Emozioni
 - Memoria/Apprendimento
 - Attenzione

Regione rostrale del cervello: funzioni evolute



Regione rostrale del cervello: funzioni evolute

- *Valutazione conseguenze azioni.*
- *Giudizio sulle azioni.*
- *Inibizione reazioni socialmente inaccettabili.*
- *Memoria semantica.*
- *Mantenimento dell'attenzione.*
- *Integrazione informazioni*
 - *Senso di realtà.*

giallo	blu	arancione
nero	rosso	verde
viola	giallo	rosso
arancione	verde	nero
blu	rosso	viola
verde	blu	arancione

giallo

nero

viola

arancione

blu

verde

blu

rosso

giallo

verde

rosso

blu

arancione

verde

rosso

nero

viola

arancione

Regione rostrale del cervello: funzioni evolute

Contemporary Hypnosis

Contemp. Hypnosis 23(1): 15–32 (2006)

Published online in Wiley InterScience

(www.interscience.wiley.com) DOI: 10.1002/ch.35



FRONTAL FUNCTIONS, CONNECTIVITY AND NEURAL EFFICIENCY UNDERPINNING HYPNOSIS AND HYPNOTIC SUSCEPTIBILITY

John H. Gruzelier