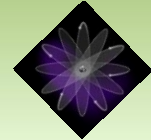
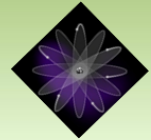


**VIII INTERNATIONAL SYMPOSIUM
"MODERN PROBLEMS OF
BIOPHYSICAL MEDICINE"
14-17 MAY 2014**

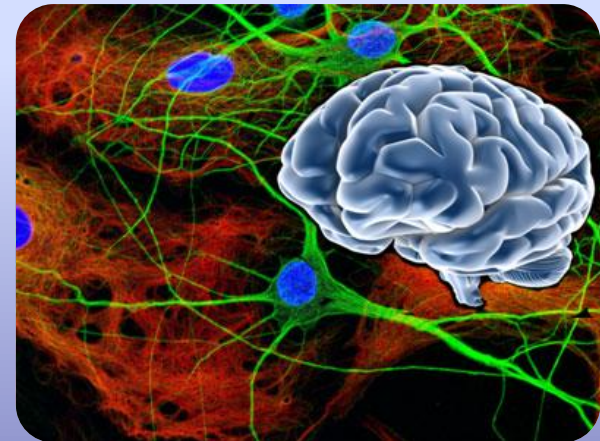


*MATHEMATICAL AND BIOPHYSICAL INFLUENCES ON
THE STATE OF NOOSPHERIC CONSCIOUSNESS AND
ON THE PSYCHONEUROANALITICAL THERAPY OF
MILD AND MODERATE DEMENTIA DISEASE*

Giuseppe Dore, M.D.

Marinella D'Onofrio, M.D.

Kiev 14-17 May 2014



EPIDEMIOLOGY OF DEMENTIA

Dementia → 5 - 7% of the world population over 60th.

Currently estimate that people affected by Dementia are about 35,6 millions in the World: we suppose they will increase up to 65,7 millions in the 2030 and 115,4 millions in the 2050.

In Italy they are over 1 million, 600.000 are Alzheimer disease (AD).

Among all the people affected by Dementia 50% are AD, 10% Vascular Dementia (VD), 10% mixed Dementia (AD+VD) and 15-20% are other forms of primary Dementia as Fronto-Temporal Dementia (FTD), Pick disease etc. 10-15% are secondary Dementia.

DIAGNOSTIC CRITERIA OF DEMENTIA

DSM IV TR

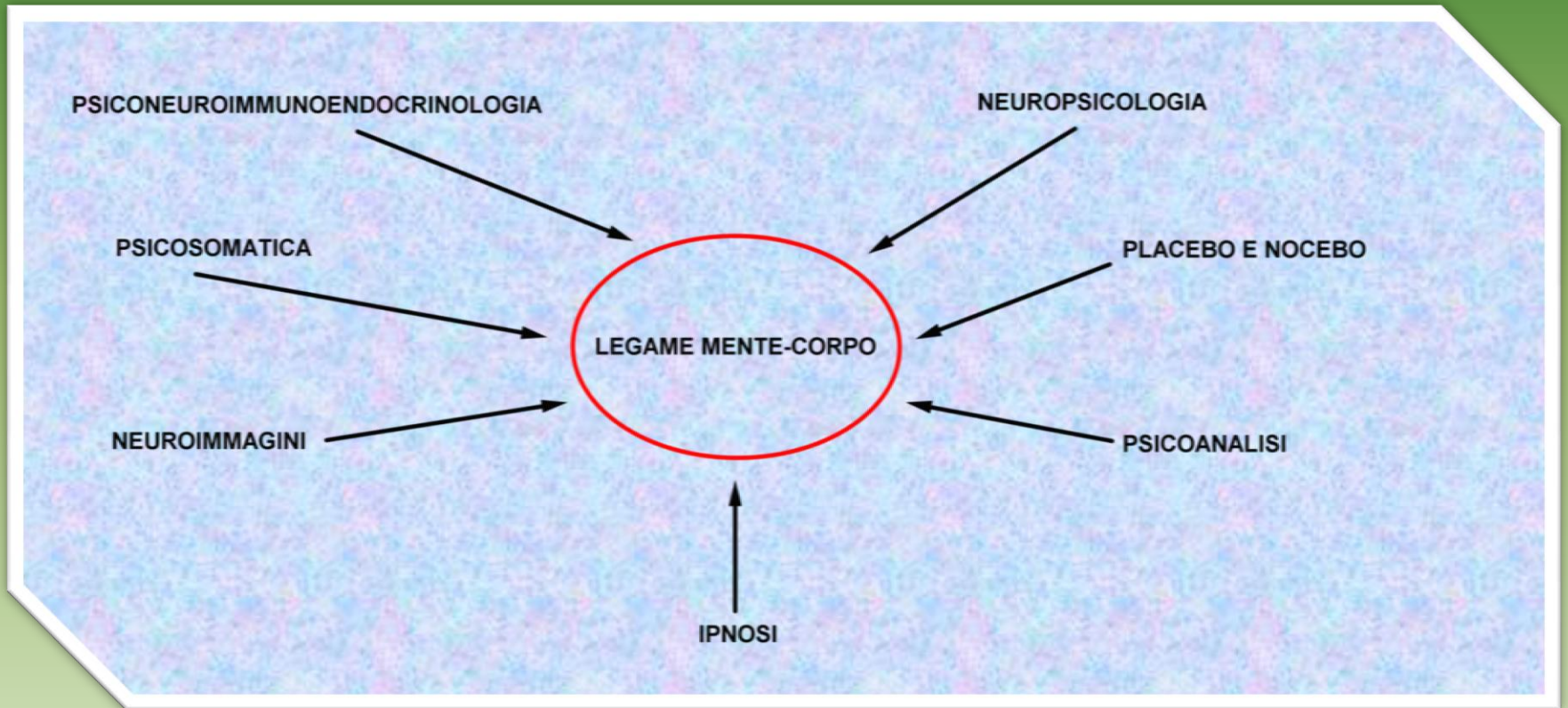
- **A1. Memory deficit that can be demonstrated objectively on cognitive testing.**
- **A2. At least one other cognitive deficit such as aphasia (abnormal speech), executive function impairment (difficulty with planning, judgment, mental flexibility, abstraction, problem-solving, etc), agnosia (impaired recognition of people or objects), or apraxia (impaired performance of learned motor skills).**
- **B. Together, these cognitive deficits must result in impairment in performance of daily activities.**
- **The course is characterized by gradual onset and continuing cognitive decline.**
- **These deficits must represent a decline from a previous higher level of functioning.**
- **C. There must not be any other neurological disease that accounts for them (i.d. Delirium).**

GENERAL TREND OF DEMENTIA

IN THE 2010 THE WORLD EXPENSE FOR DEMENTIA WAS ABOUT 604 BILLION DOLLARS, HIGHER THAN 1% GROSS NATIONAL PRODUCT (GNP) OF THE PLANET. IF DEMENTIA HAD BEEN A NATION IT WOULD HAVE BEEN THE 18th MONDIAL ECONOMY.

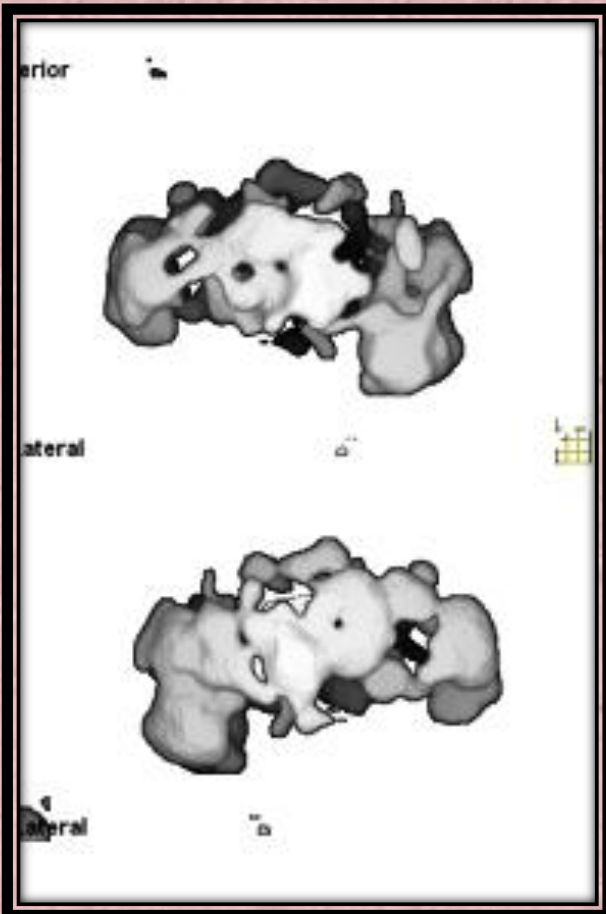
BECAUSE THE MONDIAL PEOPLE AGEING, DEMENTIA WILL BE AN INCREASINGLY HEALTHCARE, SOCIO-ECONOMIC AND CULTURAL PROBLEM.

IMPORTANT MULTIDISCIPLINARY CONTRIBUTIONS TO UNDERSTANDING THE BODY-MIND RELATION



WHAT BIOLOGICAL LESION IS AN INSURMOUNTABLE LIMIT FOR THE ACTION OF THE MIND OVER THE BRAIN?

SPECT Neuroimaging of vascular lesions



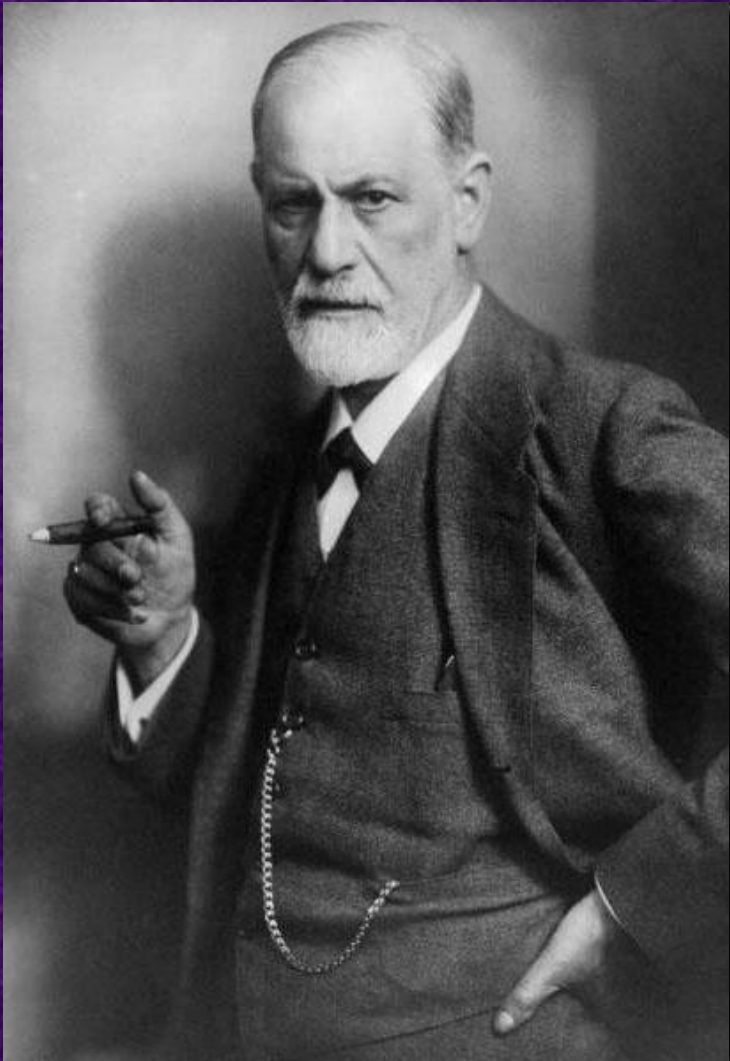
Up to now Neuroscience draw the line at the therapeutic action of the mind over the human brain, especially when Pathological and/or Imaging evidences **show a cerebral lesion**, especially, in neocortex of dementia people.

OVER THE LIMIT

A NEW THEORIC-THEREPEUTIC KNOWLEDGE, NAMED PSYCHONEUROANALYSIS, ASSOCIATED WITH AN UPDATE OF THE WELLKNOWN HYSTERIA ACHIEVED THE EVIDENCE HOW MIND, PARTICULARLY **CONSCIOUS MIND**, IT'S CAPABLE ITSELF TO OVERSHOOT THE BIOLOGICAL LESIONS AND IMPROVE THE CEREBRAL STATUS EVEN IF IN PRESENCE OF A SEVERE DEMENTIA.



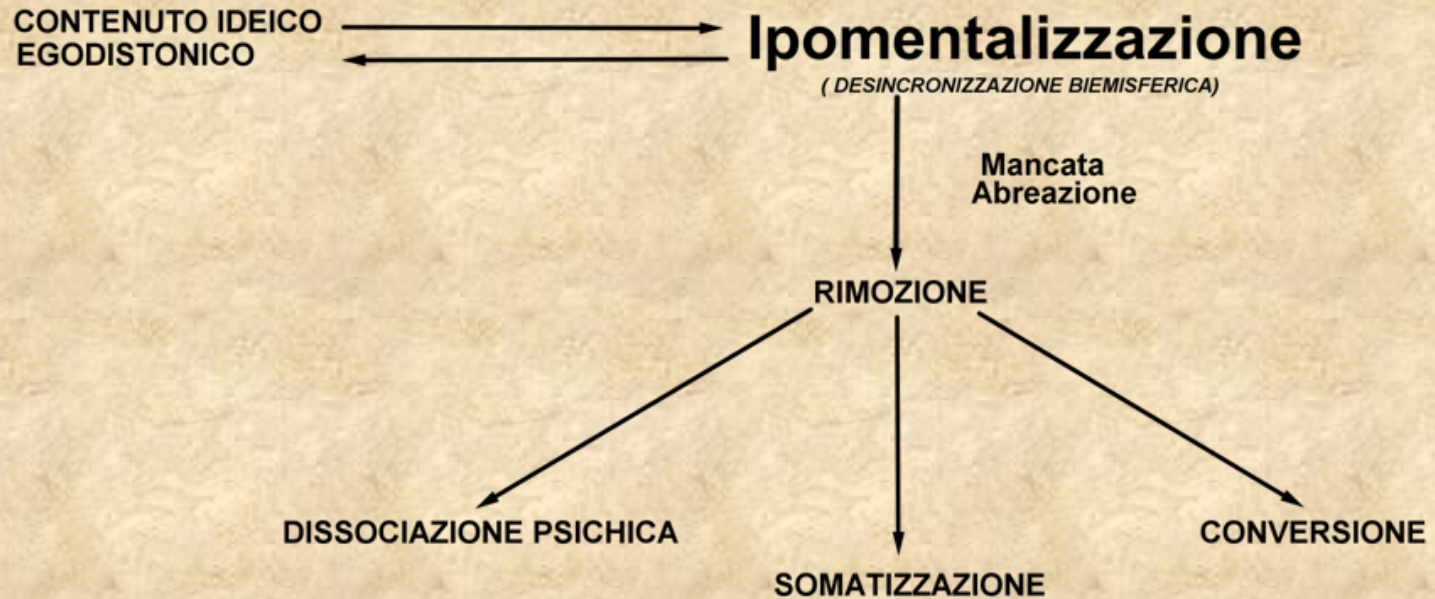
FREUD'S IDEA OF HYSTERIA



According to Psychoanalysis somatic symptoms are considered as the expression of incapability to realize, identify and/or express feelings, instincts or better needs and desires by means of more mature psychological systems, because of incompatibility between the Ego's requests and Es and SuperEgo.

In conversion disorders, in effect, the person acts out a mechanism of transfer in his body impulses or unacceptable desires: in such way the negative and unpleasant value of the conflict is removed and kept out the awareness, while the person directs his attention to the somatic symptom (**primary gain**). Thus the symptom is charged by a symbolic value and represents the ongoing conflict. Also, by means of symptoms, the person may escape from hard and demanding situations, or, in any case, may receive attention from other people (**secondary gain**).

FROM THE HYSTERIA OF FREUD'S PSYCHOANALYSIS TO THE PSYCHONEUROANALYSIS OF HYSTERO-DEMENTIA

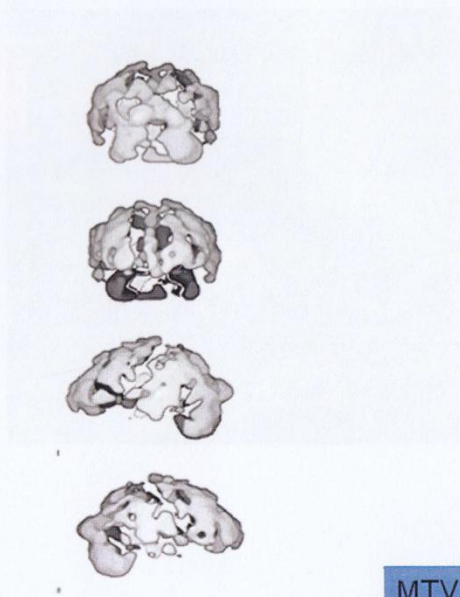


Instrumental evidences post- Psychoneuroanalytic treatment

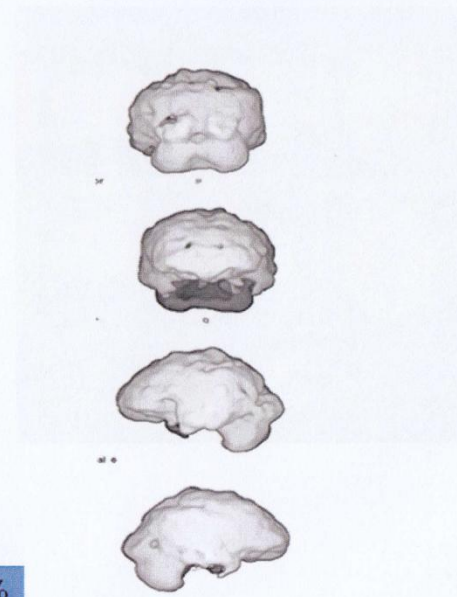
1° Case: HYSTERO-DEMENTIA

Università degli studi di Sassari: cattedra di Medicina Nucleare

Prima osservazione



Seconda osservazione

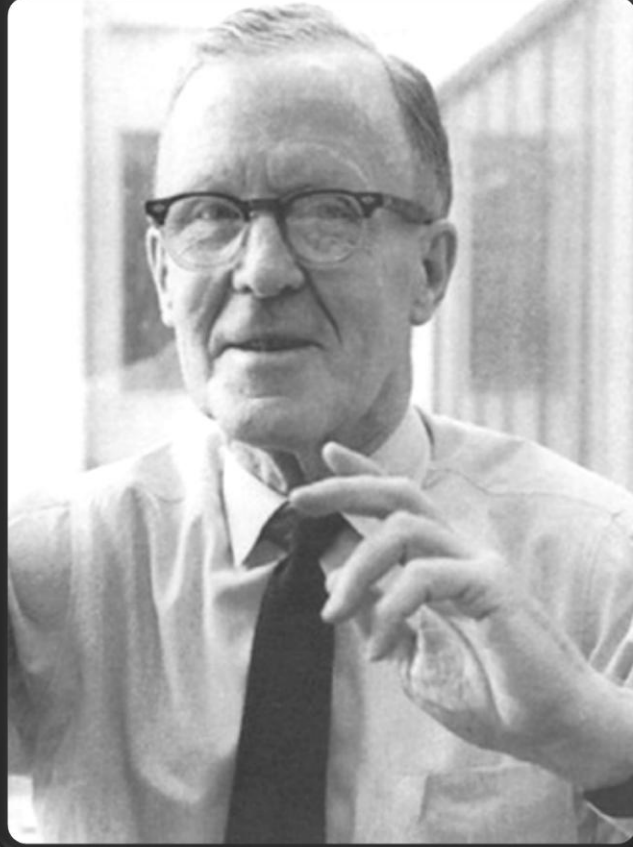


MTV: 67%

**NEUROCOGNITIVE EVALUATION PRE AND POST
PSYCHONEUROANALITIC TREATMENT**

MENTAL STATUS	March 2007	October 2007
VERBALE FLUENCY	14	26
COMPREHENSION	4	4
DENOMINATION AND WORD FINDING	5	5
ORIENTATION	2	4
NEW DATA LEARNING	5 min.= 3 10min.= 2	5 min.= 4 10min.= 3
IMMEDIATE RECALL OF A STORY	8	12
VISUAL MEMORY	5	5
LEARNING FROM ASSOCIATIVE COUPLING	6	8
CONSTRUCTIVE ABILITY	9	9
CALCULATION	3	4
PROVERB INTERPRETATION	1	8
SIMILARITY	1	10
DICTATION	DYSGRAPHIA - DYSORTHOGRAPHIA	NORMAL
FINAL SCORE	64/100	95/100

D. O. HEBB



Donald Olding Hebb was one of the first Neuroscientist that discovered the important relationship between nervous system and behaviour.

He gave his name to one of fundamental algorithms of learning in the field of neural network, the «Hebbian Learning rule».

HEBB'S RULE

THE FOUNDAMENTAL CONTRIBUTION OFFERED BY D.HEBB ABOUT THE KNOWLEDGE OF NERVOUS EVENTS IS IN NEUROSCIENCES THE HEBB'S RULE OR "ASSEMBLY THEORY".

IT IS OFTEN SUMMARIZED AS "**CELLS THAT FIRE TOGETHER WIRE TOGETHER**".

THE THEORY ATTEMPT TO EXPLAIN ASSOCIATIVE OR HEBBIAN LEARNING IN WHICH SIMULTANEOUS ACTIVATION OF CELL LEAD TO PRONOUNCED INCREASE IN SINAPTIC STRENGTH BETWEEN THOSE CELLS.

HEBBIAN THEORY HAS BEEN THE PRIMARY BASIS FOR THE CONVENTIONAL VIEW THAT WHEN ANALYZED FROM A HOLISTIC LEVEL, ENGRAMS ARE NEURONAL NETS OR NEURONAL NETWORKS.

E.KANDEL WORKED IN LABORATORY AND HE PROVIDED EVIDENCES FOR THE VALIDATION OF HEBB'S THEORY IN THE MARINE GASTROPOD APLISIA CALIFORNICA.

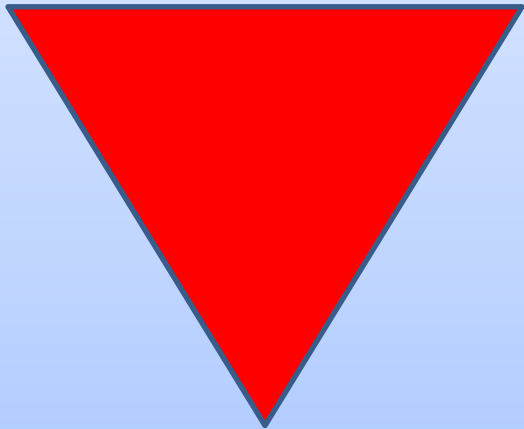
THE FOLLOWING IS A FORMULAIC DESCRIPTION OF HEBBIAN LEARNING:

$$\Delta W_{ij} = n \chi_i \chi_j$$

HEBB'S RULE and PSYCHONEUROANALYSIS

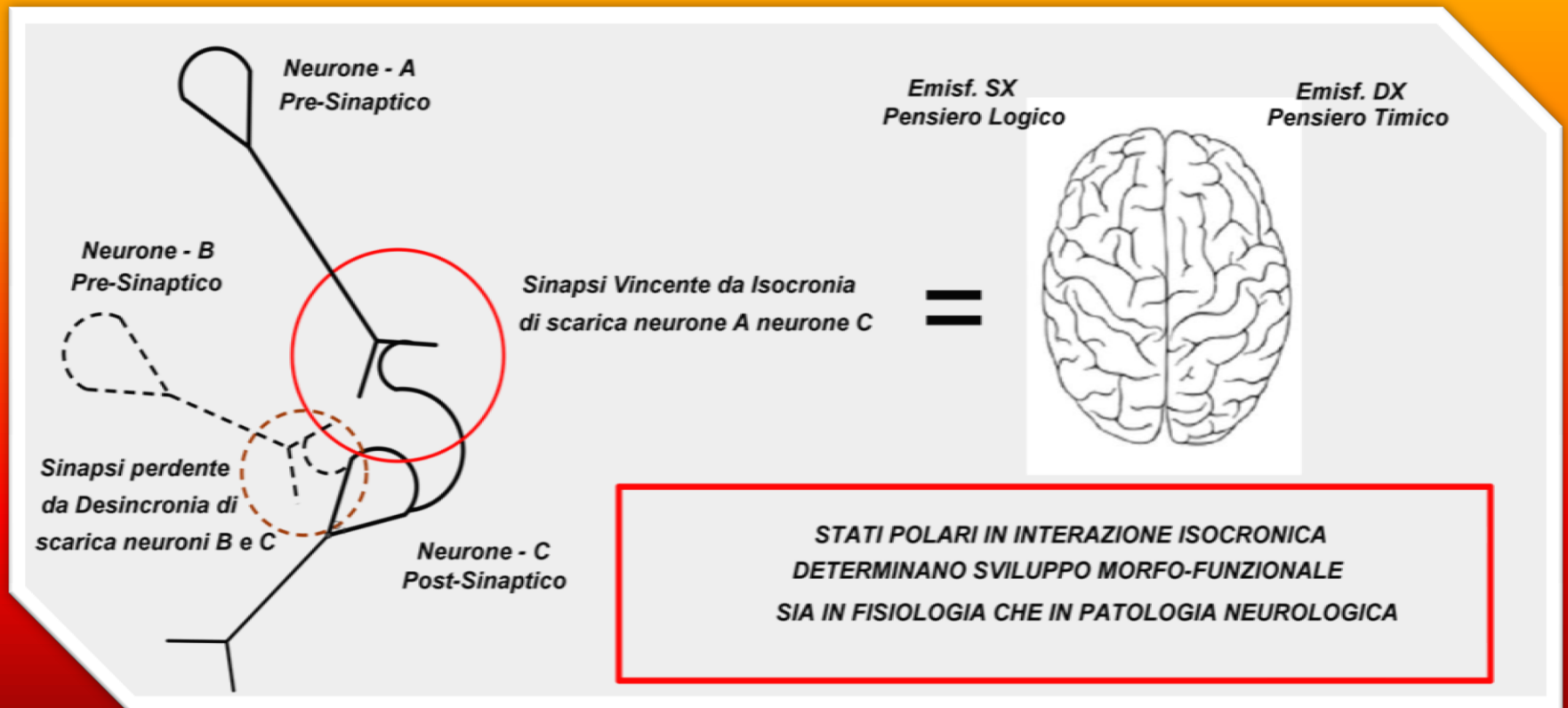
- PNA discovers that the Hebb's rule is valid even at cerebral bi-hemispheric level

2 hemispheres > (neuro-psyco-social level)



2 cells > (biological level)

Principle of Complementary-Polarity in the human CNS according to Psychoneuroanalysis



HEBB'S RULE and PSYCHONEUROANALYSIS

CONVERGENZA SINCRONICA

Dal modello base bi-neurale di Hebb

$$\Delta W_{ij} = \eta x_i x_j$$

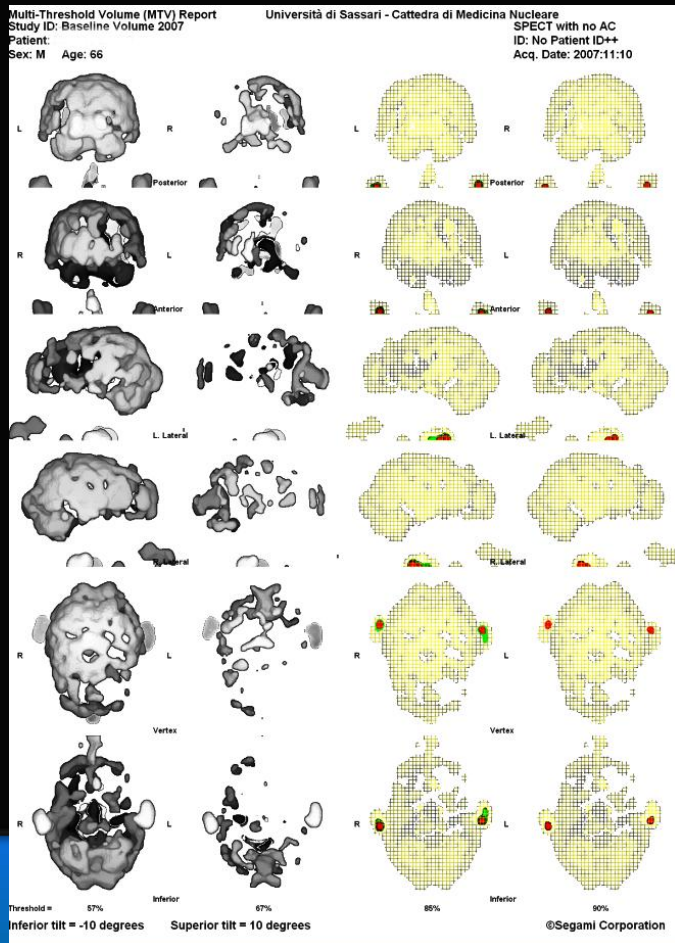
**Al modello integrale bi-emisferico della
Psiconeuroanalisi**

$$\Delta W_{EsEd} = \eta x_{Es} x_{Ed}$$

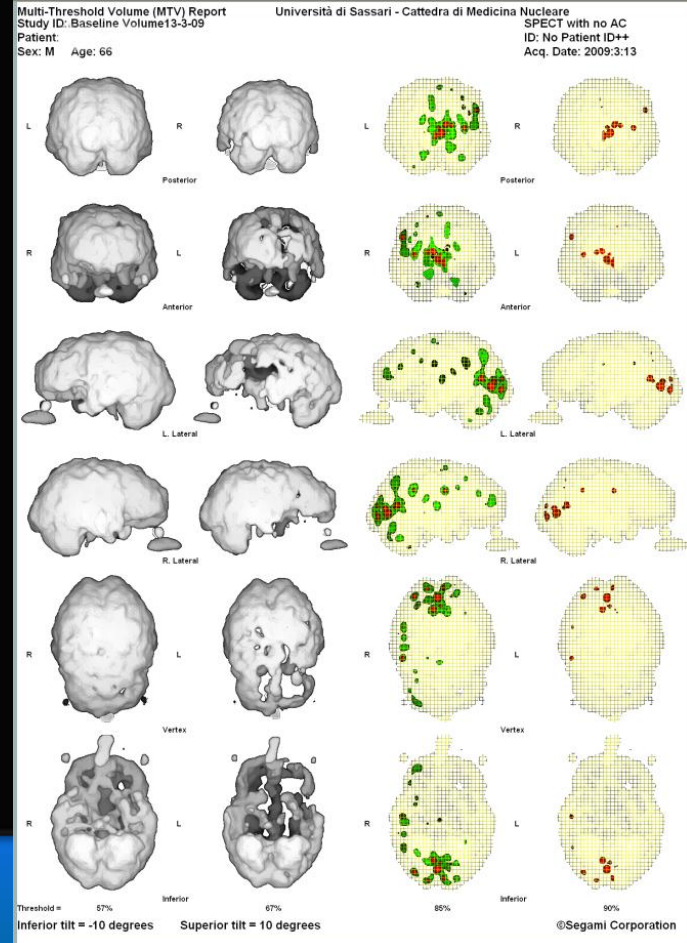
Strumental Evidences post Psychoneuroanalytic treatment

2° Case: MIXED DEMENTIA

2007 – FIRST OBSERVATION



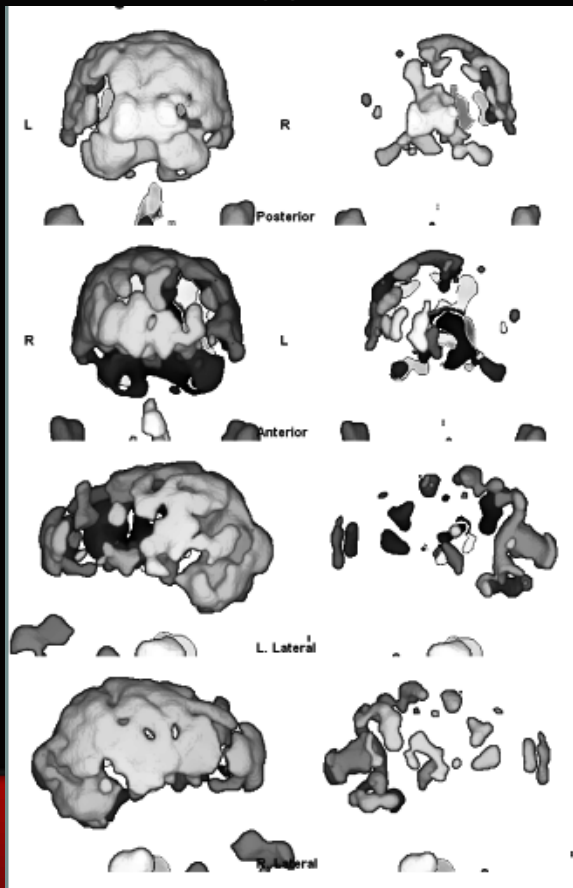
2009 – SECOND OBSERVATION



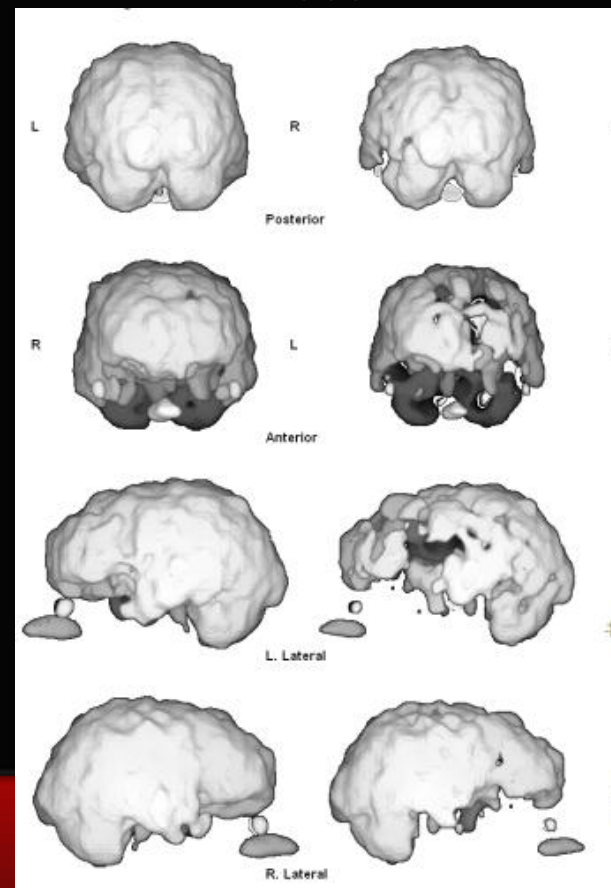
Strumental Evidences post Psychoneuroanalytic treatment

2° Case: Mixed Dementia – Details

2007



2009



NEUROCOGNITIVE EVALUATION PRE AND POST PSYCHONEUROANALITIC TREATMENT

PSYCHOMETRIC TEST	2007	2011
MMSE	17	27
STORY RECALL Test	7,5/16	10/16
VISUAL ATTENTION	35,25	47,75
DICTATION	DYSGRAPHIA	COMPLETE and READABLE
VERBAL MBT	3,25	4,18
VISUO-SPATIAL MBT	2	4,77
VISUO-SPATIAL MLT	NOT EVALUATED	18,61
CRITIQUE and JUDGMENT	44	53,50
CALCULATION	CAN'T IDENTIFY MATH. SIGNS	13/20
RAVEN'S MATRICES Score	27/36	32/36
CLOCK DRAWING test	1/4	4/4
CONSTRUCTIONAL APRAXIA	11,75	11,14
VOCABULARY test	SCARCE	DISCRETE

CONCLUSION

In our opinion the ancient dream of the Father of Psychoanalysis that Psychology lift up to a full science, by means of Neurology, is coming true.

Through the Psychoneuroanalytic treatment is now appreciable the profound therapeutic effect that the Word holds with regards to our Bio-Psychological Nature, consinstently with the theoretical ambition of the early Freud (Progetto di una Psicologia - 1895).

BIBLIOGRAFIA

- Freud S. , Breuer J. - *Studi sull' Isteria* - , 1892-1895. Trad. It. Torino Boringhieri; 1980.
- Freud S. , - *Nota sull' inconscio in Psicoanalisi* - (1912), in *Opere*, Boringhieri, Torino, 1974, Vol. VI.
- Freud S. , - *L' inconscio in Metapsicologia* - (1915), in *Opere*, cit. , 1976, Vol. VIII.
- Freud S. , *Progetto di una Psicologia* (1892-1899) , *Opere* Vol. II, Boringhieri, Torino, 1989 – Curatore Musatti C. L..
- Galimberti U. , *L' isteria e la presenza simulata, in Psichiatria e fenomenologia*, Feltrinelli, Milano, 1979.
- Hebb D. O. , *The organization of behavior*. New York: Sohn Wiley Inc., 1949.
- Fuster J. M. *Reti di Memoria – Investigacion y Ciencia* - Luglio 1997, traduzione a cura di Massimo Scaglione.
- Gustafsson B. and Wingstrom H. *Physiological Mechanism Underlying long-term potentiation*. Trends Neuroscience, Vol. 11, pp. 156-162, 1988.
- Edelman G. M. ; Tononi G. *Un universo di coscienza . Come la materia diventa immaginazione. Casa ed. Biblioteca Einaudi , Torino 2000.*
- Needham, Joseph. (1942). *“Evolution and Thermodynamics: a Paradox with Social Significance”* (abs), Science and Society, 352-75.
- Di Corpo, Ulisse. (2005). *“Syntopy: the Energy of Life”*, Syntopy, No. 1.
- Dore G. , *Psiconeuroanalisi dell' istero-demenza. Un viaggio straordinario tra la cortico-involuzione cerebrale e la mente cosciente. Casa ed. Saturno , Sorso, 2010.*
- Джузеппе Доре, Марина д'Онофрио: *Психонейроанализ истерического слабоумия* In press on Psicoterapy in russian .
- Dorbilla G. *Placebo e dintorni. «Breve viaggio tra realtà e illusione»* . Pensiero scientifico , Roma 2004.
- Bottacioli F., *Psiconeuroendocrinoimmunologia*, II ed. Milano 2005.
- Pancheri P., *Trattato di medicina Psicosomatica*, Firenze, USES, 1994.
- Wager T. D., Rilling J. K., Smith E.E. et al., *Placebo-induced changes in fMRI in the anticipation and experience of Pain*, «Science», 2004, 303, 5661 pp. 1162-67.
- Granone F., *Trattato di Ipnosi*, UTET – Torino 1989 (VI Ed.).
- TREVOR A. HURWITZ and YAMES W. PRICHARD *“Conversion disorder and fMRI”Neurology* , dicembre 12, 2006 Vol. 67 No. 11: 1914-1915.
- Trabucchi M. , *Le Demenze*, UTET, Torino 2000.

WEBGRAFIA

www.dii.unisi.it/.../paper_phdsc_ernandes_neuroscienze.pdf

<http://W3.UNIROMA1.it/psicobiologia/Alberto/cervello.htm/EMISFERI/emisferi.htm>

Dore, Giuseppe: Psiconeuroanalisi dell'Istero Demenza - Villaggio Globale <http://goo.gl/LgwAba>

WOODS B, AGUIRRE E, SPECTOR AE, ORRELL M. *Can cognitive stimulation benefit people with dementia?* Summaries. Published Online: February 15,2012. [http:// Summaries,cochranne-org/CDOO5562/can-cognitive-stimulation-benefit-people-with dementia.](http://Summaries.cochranne-org/CDOO5562/can-cognitive-stimulation-benefit-people-with-dementia)

Acknowledgements

A heartfelt thanks to Sassari Neurology's school and to the Director of the Clinic for many valuable advice and 30th years of uncompromising teaching and many thanks we shell give to all of our Masters which handed out to us faith in Science and support in Justice .

Marina e Giuseppe