

Governing conduct in the age of the brain

Nikolas Rose

Girona
October 2011

We should practice criticism “... as a historical investigation into the events that have led us to constitute ourselves and to recognize ourselves as subjects of what we are doing, thinking, saying ...”

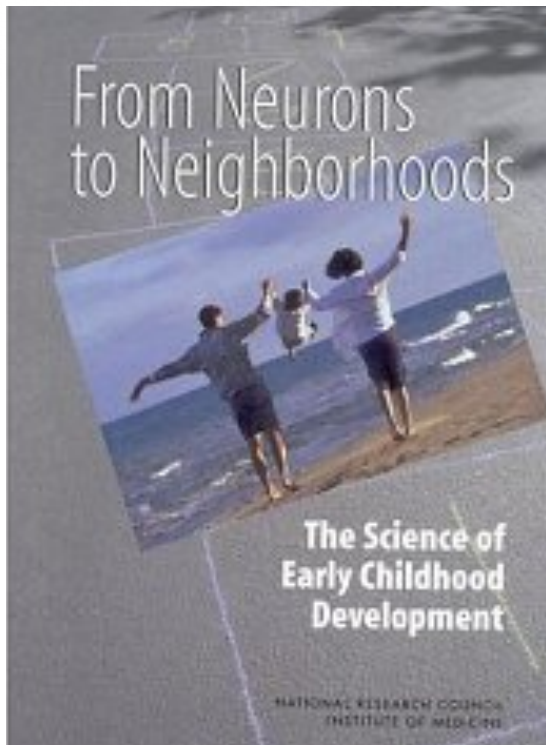
(Michel Foucault)

Neuron to Neighbourhood...

Translational Research: From Neurons to Neighborhoods

Boston University

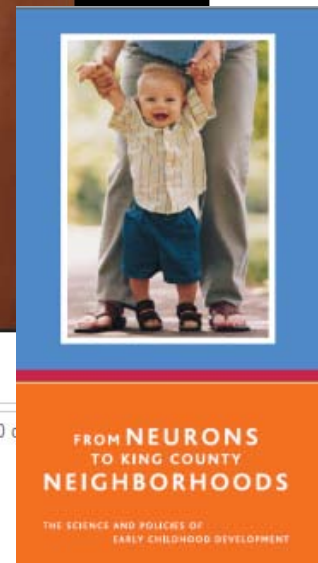
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Thomas R. Insel, director of the National Institute of Mental Health, outlines emerging paradigm shifts in the study, treatment, and perception of mental illnesses in the second President's Lecture on Neuroscience.

Hosted by Boston University Center for Neuroscience on April 28, 2008.



0 likes, 0 comments

Introduction

What kind of creatures do 'we' think we are, us human beings?

How have we come to think of ourselves in this way?

And with what consequences for the way we are 'governed' and the way we govern ourselves?

Governing subjects

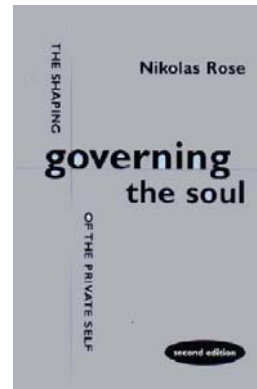
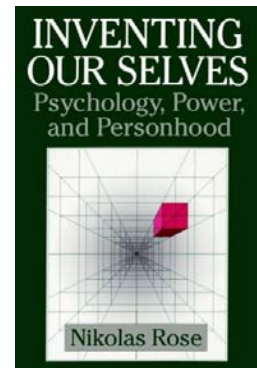
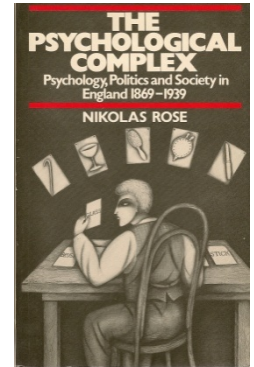
- Giambattista Vico (1725): “Government must conform to the nature of the men governed”
- Every strategy for governing conduct presupposes something about this ‘nature’
 - Members of a flock to be led
 - Children to be educated
 - Subjects whose character must be trained
 - Social citizens whose security is to be secured
 - Psychological persons whose mental state is to be moulded
- Will C21 be century of Neuro?
- If so with what consequences for how we are governed and how we govern ourselves?

Governing the Soul in C20

- In liberal welfare democracies of twentieth century
- Authorities began to take charge of health and illness
 - Physical state of population – deterioration, degeneration
 - Health of the population - fitness
- Mental health of population became problematized
- No longer merely division of sanity/madness, marked by walls of asylum
- Management of mental health in range of practices
 - Child guidance clinics, Mental hygiene, Social work, Psychotherapies....
- Psy disciplines take shape within this new network of practices for management and maintenance of mental health
- Disciplines of mental health

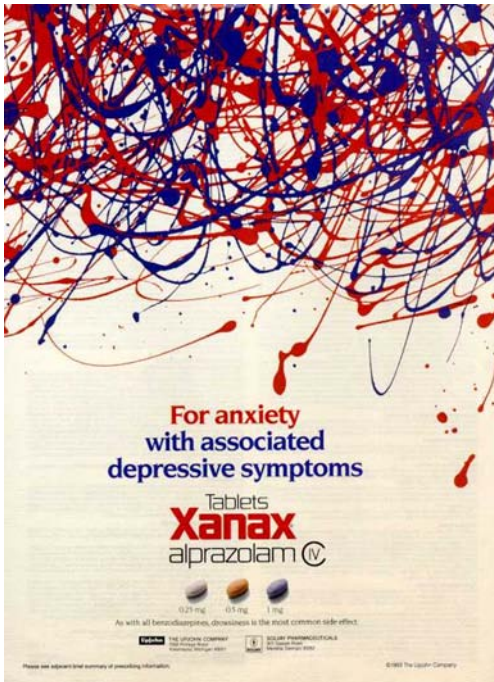
The Psy Complex in C20

- Selves inhabited by deep interior psychological space
 - Psy locus of personhood, personality, beliefs, affects...
- Psy space charted out by the disciplines
 - Intelligence, personality, trauma, repression, unconscious...
- Psy was generous discipline
 - gave itself away to others on condition that they speak and judge like little psychologists.
- **Psy experts as technicians of subjectivity**
 - Authority legitimate because based on objective knowledge.
 - Managing subjectivity, first in the name of the norm
 - Then in the name of the autonomous, authentic self, realizing potential in society

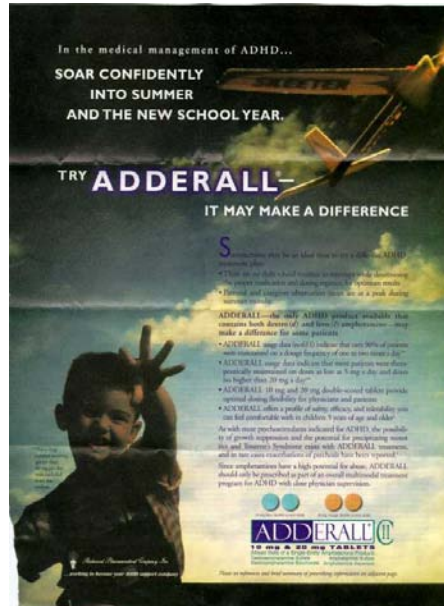


Neurochemical Selves in the late C20: marketing hope

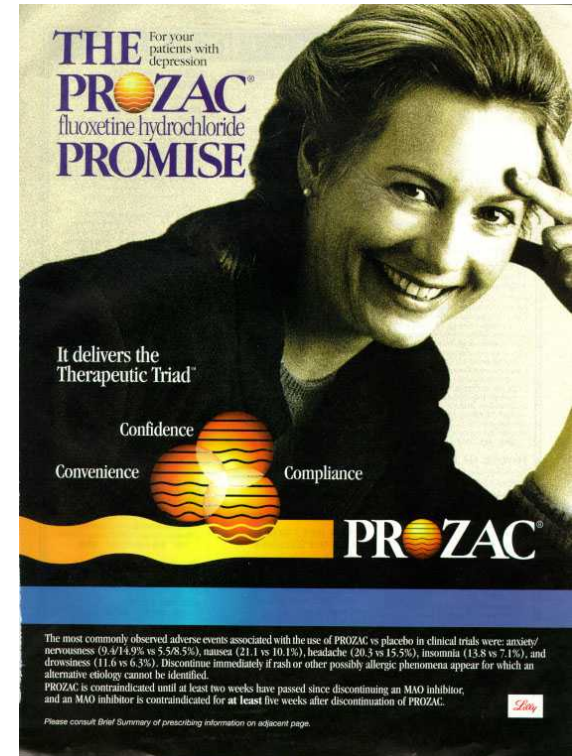
Source: American Gallery of Psychiatric Art <http://balder.prohosting.com/~agpa/mupsyeum.shtml>



Xanax
(alprazolam)
American Journal of Psychiatry,
1993

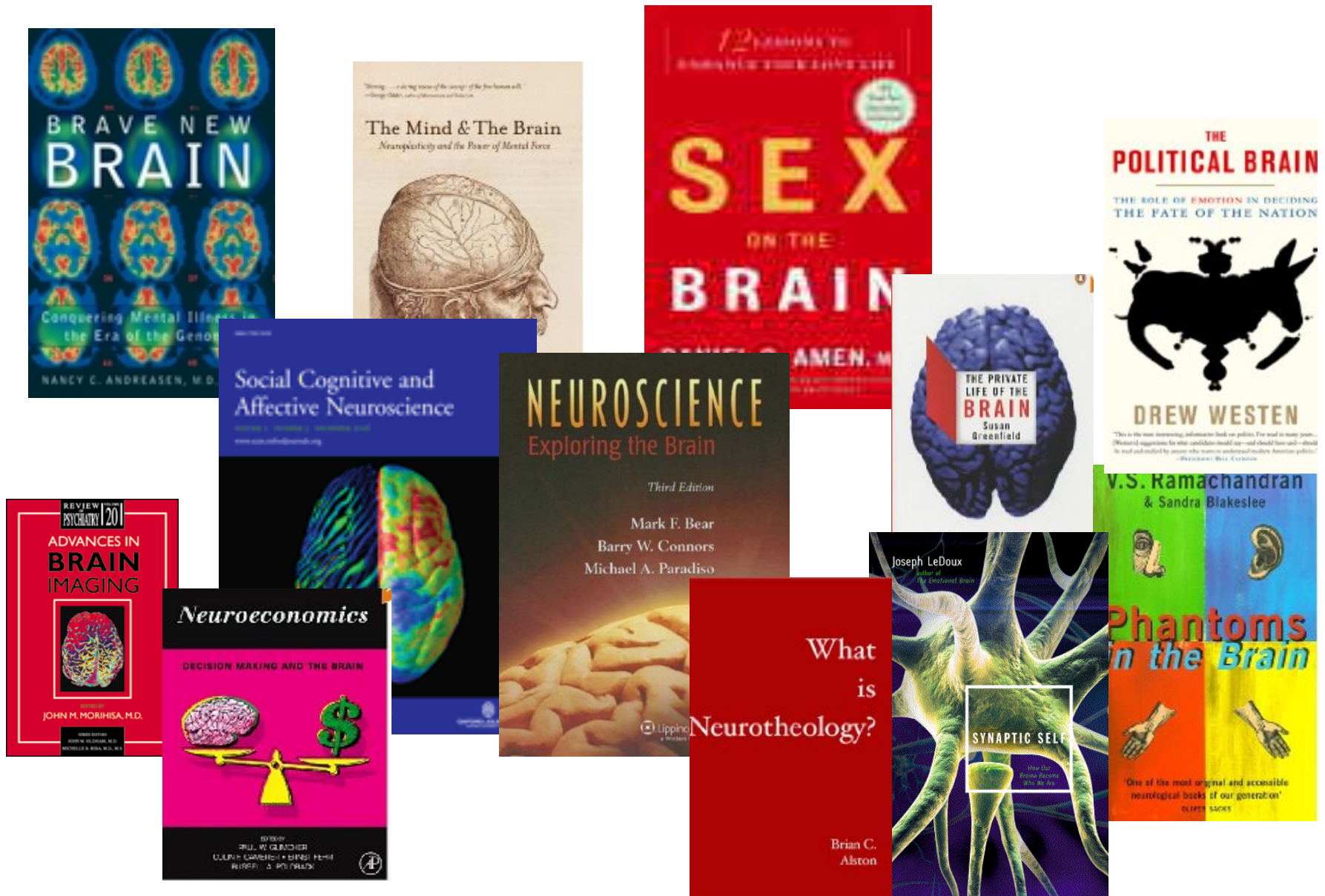


Adderall
(d and l
amphetamine)
(American Journal of
Psychiatry,
1997



Prozac (fluoxetine)
American Journal of Psychiatry,
1995

Neuro – a new figure of the human?



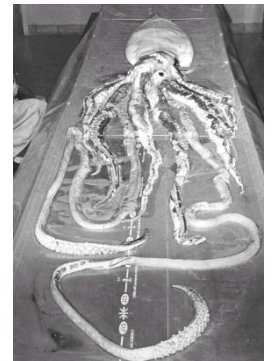
The birth of neuroscience (1962)

“There is urgency in effectuating [a] quantum step in an understanding of the mind; not only as an academic exercise of scientific research; not only to understand and alleviate mental disease, the most crippling and statistically significant of all diseases; not only to create an entirely new type of science through vastly improved intercommunication between minds and hence to survive this present world crisis and advance to a new quantum jump ... in human evolution; but perhaps through an understanding of the mind to learn more about the nature of our own being”

Francis O. Schmitt, speaking at the first anniversary of the Neuroscience Research Program in February 1963



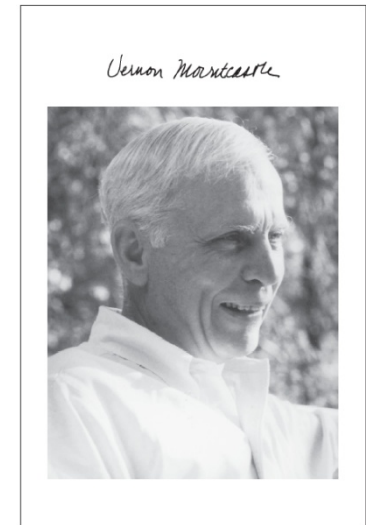
*F. O. Schmitt
his research on
the nervous
system used the
large nerve fibres
of the giant squid*



Mind as Property of Brain (1998)

“The half-century’s accumulation of knowledge of brain function has brought us face to face with the question of what it means to be human. We make no pretention that solutions are at hand, but assert that what makes man human is his brain.... Things mental, indeed minds, are emergent properties of brains.”

Vernon B. Mountcastle, ‘Brain Science at the Century’s Ebb’, 1998



Vernon Mountcastle discovered the columnar organization of cerebral cortex. He pioneered the neurophysiological study of primary sensory cortex with single-cell recordings in anesthetized and awake monkeys and inaugurated the neurophysiological study of attention and action in parietal cortex. (SfN)

C2I: From knowing the brain to governing (through) the brain?

■ Neuropsychiatry

- Beyond psychopharmacology – integration of neurobiology into clinical practice of psychiatry.

■ Social neuroscience

- Will uncover the neurobiological basis of sociality, bonding, maternity, affiliation, trust, empathy, love ... and make actionable

■ Neuropolicy

- Knowledge of brain will enable us to avert, predict, prevent psychopathology and problematic conduct, optimize human capacities

■ Neurolaw

- Neuroscientific discoveries will transform legal system, witness interrogation, deception detection, responsibility, reform and prevention.

■ Neuroeconomics

- Neurobiology will uncover bases of economic behaviour and decision making

■ Neuromarketing

- Neurobiology will reveal why individuals choose certain brands

■ Neuropolitics

- Neurobiology will reveal the neural roots of our political attitudes and affiliations

■ Neuroeducation

- Educational practices will become based on knowledge of the brain.

■ Military and security apparatus....

Biopolitics

‘Life itself’ (not just how it is lived) has entered politics

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Political contestations about the management of our very vitality as human living human beings, and the forms it could or should take.

-

A field of transactions between each and all,
Between the one and the many

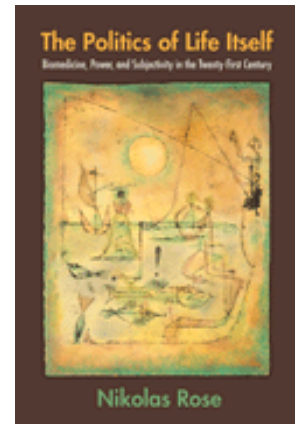
Biopower and Biopolitics

- The ways in which ‘vitality’ of human beings as living creatures, individually and collectively enters political calculation and contestation
- Three elements for an analysis
 - **Truth** – knowledge of life, in particular generated by biology, biomedicine and neuroscience
 - **Power** – authorities of life and vitality, who articulate the truths and advise us how to live
 - **Subjectivity** – reshaping ideas of who we are as human beings, personhood, identity, belonging, and our vital similarities and differences from others
- Neuropolitics
 - a particular configuration of truth, power and subjectivity
 - The brain itself becomes a target, a means, an opportunity for the government of each and of all.
 - Governing through and in the name of the brain

The (bio)politics of health

- C20: growth of apparatus for regulating individual and collective life in the name of health
 - (First) the prevention of illness
 - (Second) the production of health
 - (Third) the maximisation of well being
- Medical authorities, medical gaze and medical ethic spreads through society
 - By 1950s in Europe, maintenance of healthy 'body politic' as an obligation of State, of expertise, and of each individual: a 'somatocracy' (MF)
 - Management of life itself in the name of health: not just corporeality, but also subjectivity
 - Health as a subjective desire and an obligation of citizenship
 - Economisation of health – the macroeconomic and microeconomic consequences of (ill)health
- C21: Beyond state – multiple networks of corporeal and cerebral pedagogy
 - From economisation to capitalisation of health – new links of health and wealth.
 - Beyond health and illness - from normalisation to modulation?
 - Dispersed networks for continuous monitoring and modulation of human bodily and mental capacities.

Governing vitality today



■ The Politics of Life Itself

□ Molecularization

- Engineering life at the molecular scale

□ Optimization

- Maximising the potential of life

□ Subjectification

- Becoming somatic individuals

□ Expertise

- Biomedical experts managing life itself

□ Bioeconomics

- Rise of bioeconomy, intense capitalisation of biology, biomedicine and biotechnology
- New entanglements of health and wealth
- Translational imperative in a promissory culture

Molecular Biopolitics

Molar to Molecular

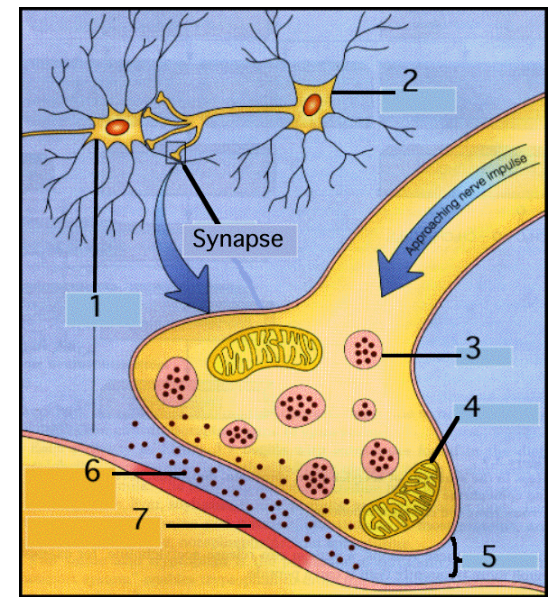
The neuromolecular gaze

The plastic brain

Imag(in)ing the mind

I. A neuromolecular gaze

- Brain construed as an organ like any other organ
 - Anatomised into neurons, synapses, receptor sites, ion channels, etc. explained in terms of specific properties.
- ‘Normal’ variations in perception, cognition and emotion envisaged at this level
 - blurs boundaries between states and traits, between psychology, psychiatry and neurology.
- Mental disorders and pathologies as anomalies within those molecular systems
 - blurs boundaries of organic vs. functional disorders.
- Manipulations of brain operate at this level
 - From molar (chemical cosh) to molecular (smart drug)
- Neuroreductionism
 - “one cell at a time” in simple animals
 - But how to get from cell to system?
 - How to get from simple to complex...



Nature Medicine 7, 541 - 547 (2001)
doi:10.1038/07865

The cellular neurobiology of depression

Husseini K. Manji, Wayne C. Drevets & Dennis S. Charney

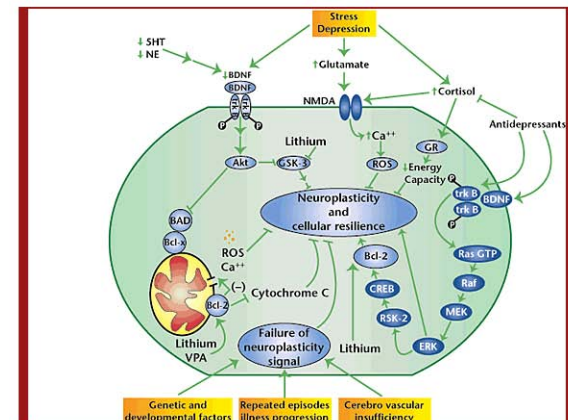


Figure 2. Neuroplasticity and cellular resilience in mood disorders. This figure depicts the multiple influences on neuroplasticity and cellular resilience in mood disorders. Genetic/neurodevelopmental factors, repeated affective episodes and illness progression might all contribute to the impairments of cellular resilience, volumetric reductions and cell death/atrophy observed in mood disorders. Stress

2. A visible mind

- Imaging structure and “function”
- New engines of visualization of living brain as it thinks, feels, desires...
 - responses to art and work of specific painters
 - to music and to specific composers or performers,
 - religious beliefs
 - grief, envy, love, hate, fear and other emotions
 - volition and acts of will
- Simulating mind in the brain
 - Gaze of the neuroscientist seems to walk among the mind itself
 - Inferring mental states from neuroimaging data
 - Despite multiple technical, epistemological questions!
- Who can doubt physical basis of mind?

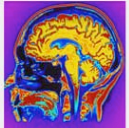
<http://www.guardian.co.uk/science/story/0,,2009217,00.html>

The brain scan that can read people's intentions

Call for ethical debate over possible use of new technology in interrogation

Ian Sample, science correspondent
Friday February 9, 2007
[The Guardian](#)

A team of world-leading neuroscientists has developed a powerful technique that allows them to look deep inside a person's brain and read their intentions before they act.



Using the technology is 'like shining a torch, looking for writing on a wall'. CT image: Charles QRagCorbis

The research breaks controversial new ground in scientists' ability to probe people's minds and eavesdrop on their thoughts, and raises serious ethical issues over how brain-reading technology may be used in the future.

The team used high-resolution brain scans to identify patterns of activity before translating them into meaningful thoughts, revealing what a person planned to do in the near future. It is the first time scientists have succeeded in reading intentions in this way.



NeuroImage

www.elsevier.com/locate/ynimg
NeuroImage 21 (2004) 1155–1166

The neural correlates of maternal and romantic love

Andreas Bartels* and Semir Zeki

Wellcome Department of Imaging Neuroscience, University College London, London, UK

Received 9 September 2003; revised 5 November 2003; accepted 13 November 2003

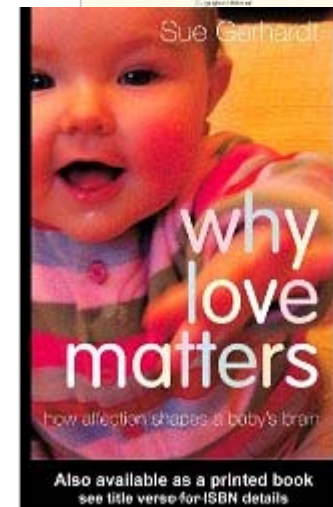
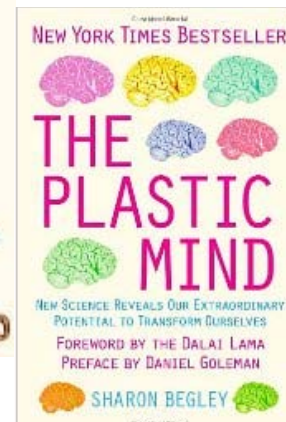
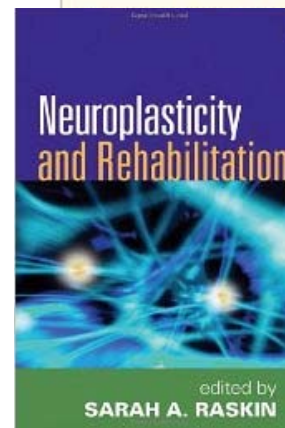
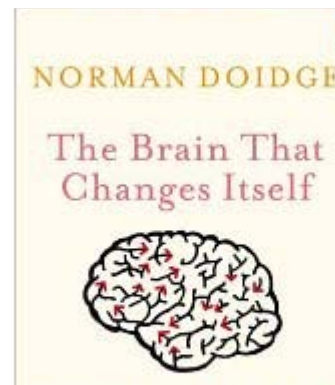
Does Rejection Hurt? An fMRI Study of Social Exclusion

Naomi I. Eisenberger,^{1*} Matthew D. Lieberman,¹
Kipling D. Williams²

A neuroimaging study examined the neural correlates of social exclusion and tested the hypothesis that the brain bases of social pain are similar to those of physical pain. Participants were scanned while playing a virtual ball-tossing game in which they were ultimately excluded. Paralleling results from physical pain studies, the anterior cingulate cortex (ACC) was more active during exclusion than during inclusion and correlated positively with self-reported distress. Right ventral prefrontal cortex (RV/PFC) was active during exclusion and correlated negatively with self-reported distress. ACC changes mediated the RV/PFC-distress correlation, suggesting that RV/PFC regulates the distress of social exclusion by disrupting ACC activity.

3. A plastic brain

- Brain changes by experience – of course!
- But in 1970s, researchers showed that **brain could ‘rewire’ itself** after injury in both animals and humans given proper stimulation
- In 1990s, researchers established reality of ‘**epigenetics**’
- In 1990s researchers discovered ‘**adult neurogenesis**’
- Brain now an open, dynamic system
 - Changed by, and changeable by, milieu
 - Experience gets under the skin...
- The premise of plasticity underpins new sociality of the brain and strategies for intervention via the brain



Translational Technologies

- **A molecular brain**
 - that can be engineered
- **A plastic brain**
 - that can be modulated
- **A physical visible basis for mind in brain**
 - that can be manipulated
- **Neuro can become technological**
- **Knowing and Intervening**
 - Each technology of investigation also the basis of technologies of intervention and for shaping or reshaping human conduct
- **New ‘engineers of the human soul’ ?**

Biopolitics today: The Shadow of the Future

governing the future in the face of both fear
and hope

-

maximising mental capital

-

precaution, pre-emption, preclusion

-

optimizing the brain

Mental Capital: Governing the future



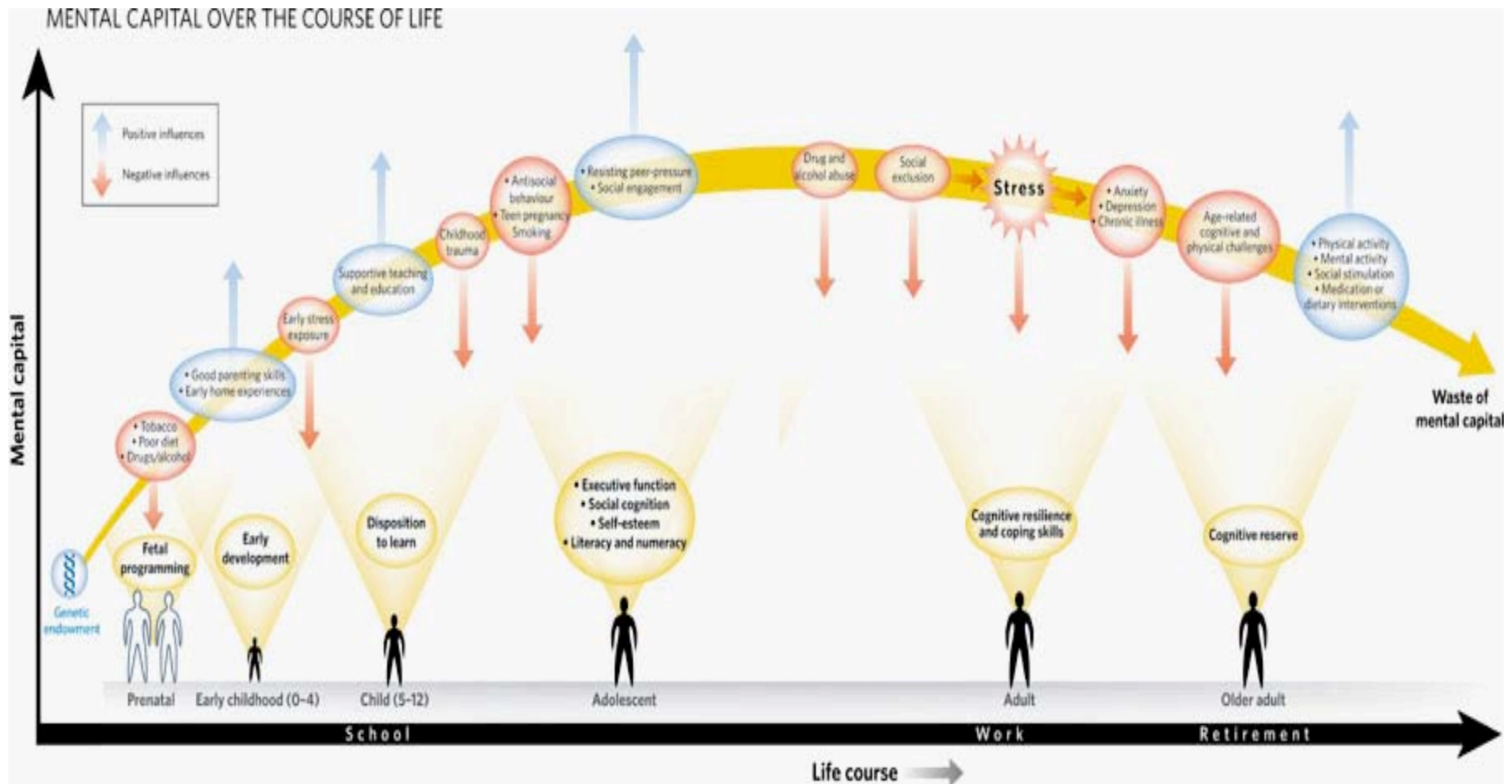
“Mental Capital,” encompasses both cognitive and emotional resources.

It includes people’s cognitive ability; their flexibility and efficiency at learning; and their ‘emotional intelligence’, or social skills and resilience in the face of stress.

The term therefore captures a key dimension of the elements that establish how well an individual is able to contribute to society and to experience a high quality of life ...

how a nation develops and uses its mental capital not only has a significant effect on economic competitiveness and prosperity, it is also important for mental health and well-being and social cohesion and inclusion”.

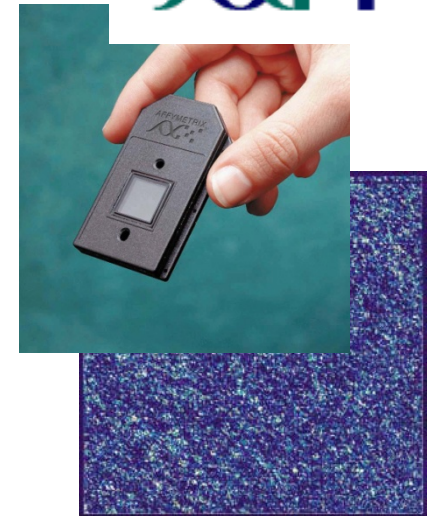
Governing the name of mental capital



Susceptibility

- Susceptibility as a form of life
- Genomics – from genetic fatalism to genomic susceptibilities
- Brain imaging – susceptibility and resilience written in the living, developing brain
- Premonitory knowledges and practices
 - From epidemiological to individualized (e.g. genetic testing, screening)
 - Bringing future(s) into present and making calculable
 - Hence obligation to act in the present in relation to potential futures
- Resilience – the other face of susceptibility

AFFYMETRIX®

Affymetrix GeneChip® probe array, and data from an experiment showing the expression of thousands of genes on a single GeneChip® probe array
Images courtesy of Affymetrix

Discovery of Susceptibility Genes for Human Behaviors and Mental Illnesses: Challenges of predictive genetic tests

Department of Psychiatry Grand Rounds
Elliot S. Gershon, M.D.
September 10, 2001

The economic burden of the pathological brain

World Health Organization (2001)
Mental Health: New Understanding, New Hope

“ By the year 2020, if current trends for demographic and epidemiological transition continue, the burden of depression will increase to 5.7% of the total burden of disease, becoming the second leading cause of DALYs (disability adjusted life years) lost. Worldwide it will be second only to ischemic heart disease for DALYs lost for both sexes. In the developed regions, depression will then be the highest ranking cause of burden of disease



Improving the Mental Health of the Population:

Towards a strategy on mental health for the European Union

ANNEX 2
 Estimated number of subjects in the general EU population (age 18-65) affected by mental disorders with past 12 months**

Diagnosis (DSM-IV)	12-month estimate (%)	12-month estimate (million)
Alcohol dependence	2.4	7.2
Illicit substance dependence	0.7	2.0
Psychotic disorders	1.2	3.7
Major depression	6.1	18.4
Bipolar disorder	0.8	2.4
Panic disorder	1.8	5.3
Agoraphobia	1.3	4.0
Social phobia	2.2	6.7
Generalized Anxiety Disorder (GAD)	2.0	5.9
Specific phobia	6.1	18.5
Obsessive-compulsive Disorder (OCD)	0.9	2.7
Somatiform disorders	6.3	18.9
Eating disorders	0.4	1.2
Any mental disorder	27.4	82.7



Source: Euro-Clutch-Witcher, Frank Jacobi (2003). Size and burden of mental disorders in Europe: a meta-analysis and appraisal of 27 studies. *European Neuropsychopharmacology*, Volume 14, Number 4, pp. 357-376. 12-month values provided by Commission. Percentage values based on Commission's 1999 calculations.

BRITISH JOURNAL OF PSYCHIATRY (2006), 188, 547-553

Economic cost of severe antisocial behaviour in children – and who pays it

RENEE ROMEO, MARTIN KNAPP and STEPHEN SCOTT

Conclusions The annual cost of severe antisocial behaviour in childhood in the UK is substantial and widespread, involving several agencies, but the burden falls most heavily on the family. Wider uptake of evidence-based interventions is likely to lead to considerable economic benefits in the short term, and probably even more in the long term.

Early intervention approaches to mental health services can save the UK up to £40 million per year

- Early Intervention in Psychosis (EIP) services in mental health are able to save up to £40 million a year.
- This 'invest to save' approach can begin to release savings even within the first year of service provision.
- Cost savings can be quantified within the health sector as well as across wider society.
- New research demonstrates the significant social and economic benefits of the EIP model in reducing unemployment and suicide.

Schizophrenia, Bipolar, ADHD, Autism... as developmental disorders?

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 (23:1; 79-105; DOI: 10.1177/0952695109352415)
<http://hhs.sagepub.com> pp. 79-105

‘Screen and intervene’:
governing risky brains

NIKOLAS ROSE

Screen and Intervene - early

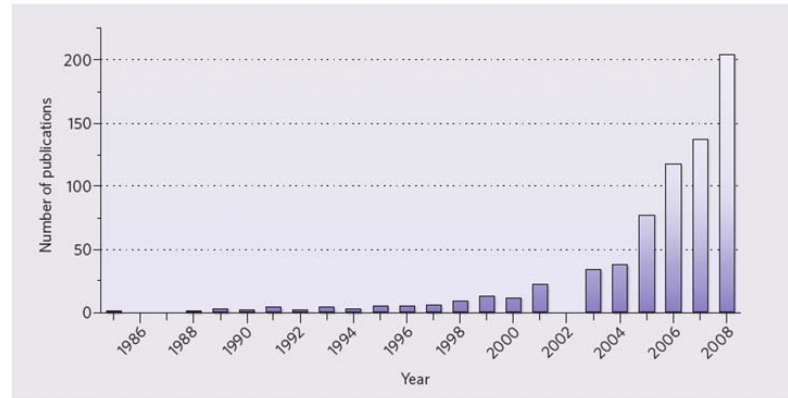
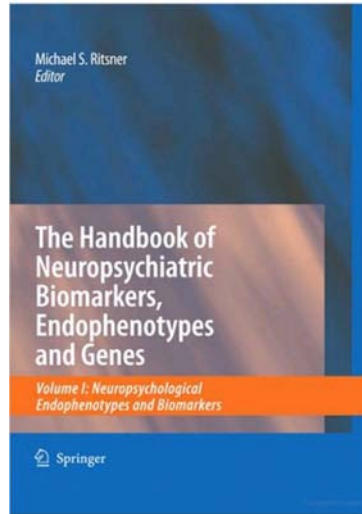
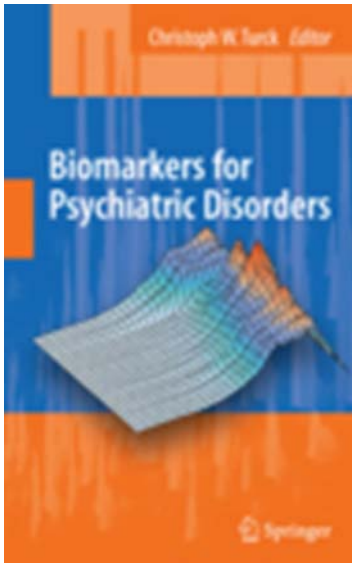


Figure 1 | Rising interest in biomarkers and psychiatry. In the past decade, psychiatric researchers, doctors and policymakers have become increasingly interested in finding objective biomarkers that will provide a more accurate and precise means of assessing actual and potential psychiatric conditions. This increased attention to biomarkers is reflected by the rise in the number of scientific articles on this topic. Data were obtained from a search of the ISI Web of Knowledge in May 2009 for articles with the term 'biomarker' and the word stem 'psy' in the topic field. No articles were indexed by ISI for the years 1986, 1987 and 2002. It should be noted that some early articles may have focused on non-psychiatric conditions and only tangentially addressed the psychiatric aspects. (Courtesy of J. Abi Rached, The London School of Economics and Political Science, UK.)

Bosl et al. *BMC Medicine* 2011, 9:18
<http://www.biomedcentral.com/1741-7015/9/18>

BMC Medicine **Open Access**

RESEARCH ARTICLE

EEG complexity as a biomarker for autism spectrum disorder risk

William Bosl^{1,2*}, Adrienne Tierney^{3,4}, Helen Tager-Flusberg⁵, Charles Nelson^{1,4}

Abstract

Background: Complex neurodevelopmental disorders may be characterized by subtle brain function signatures early in life before behavioral symptoms are apparent. Such endophenotypes may be measurable biomarkers for later cognitive impairments. The nonlinear complexity of electroencephalography (EEG) signals is believed to contain information about the architecture of the neural networks in the brain on many scales. Early detection of abnormalities in EEG signals may be an early biomarker for developmental cognitive disorders. The goal of this paper is to demonstrate that the modified multiscale entropy (mMSE) computed on the basis of resting state EEG data can be used as a biomarker of normal brain development and distinguish typically developing children from a group of infants at high risk for autism spectrum disorder (ASD), defined on the basis of an older sibling with ASD.



The Economic Promise of Biomarkers

2nd Annual Biomarkers Conference: Discovery, development, validation and advancement in biomarkers, London, March 2009

The biomarker market was worth \$5.5bn in 2007 and is forecast to grow at a CAGR of 17.6% to \$12.4b in 2012 - Business Insights, 2008. The development and application of biomarkers have become an increasingly important topic for the pharma/biotech companies.

Biomarkers are not only used as the valuable tools in the early development stages in the lifecycle of a new drug but they also play a significant role after the drug is introduced in the market.

Our 2nd Annual Biomarkers Conference will provide an ideal platform for the attendees to get an overview of the biomarkers. This conference will enable you to identify and overcome the challenges in the specific therapeutic areas and understand the new developments and recent advancements in the field of biomarkers.

Reasons for attending the Conference:

- Share and discuss the growth trends in the biomarkers
- Get timely answers to the key questions about the role of biomarkers in drug development and clinical use
- Identify the challenges in the specific therapeutic areas
- Examine the biomarker data management and analysis
- Understand the recent advancement in imaging modalities as biomarkers
- Hear about the effective biomarker out- and in-licensing
- Gain an insight into the commercial aspects in biomarkers
- Discuss the latest biomarker assay developments and methods of clinical validation

Biomarkers



Biomarkers in psychiatry

Hira Singh and Hitesha Riva

The use of biomarkers to predict human behaviour and psychiatric disorders raises social and ethical issues, which must be resolved by collaborative efforts.

Psychiatry has long been a controversial field, with its practitioners often viewed as charlatans or quacks. However, the use of biomarkers in psychiatry is a relatively new phenomenon. Biomarkers are defined as measurable indicators of certain biological states or conditions. In the context of psychiatry, biomarkers can be used to identify individuals at risk of developing a psychiatric disorder, to monitor the progression of a disorder, or to evaluate the effectiveness of a treatment. The use of biomarkers in psychiatry is a complex issue, involving a range of social and ethical considerations. This article discusses the current state of biomarker research in psychiatry, the challenges associated with its use, and the potential for biomarkers to improve the diagnosis and treatment of psychiatric disorders.

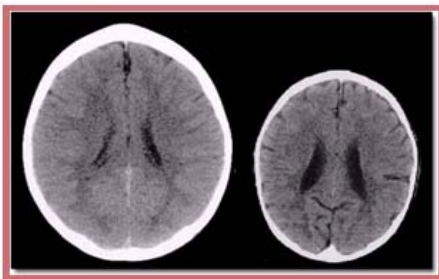
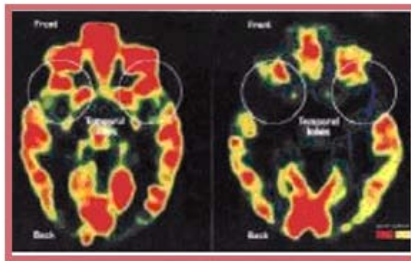
A new 'cycle of deprivation' – via the brain?



Romania's Orphan Story 1966-2006

SUNDAY, MARCH 15, 2009

Dr. Bruce Perry - our society



Psychopathology, 12 (2000), 695–712
 Cambridge University Press
 Printed in the United States of America

The role of early experience in shaping behavioral and brain development and its implications for social policy

GERALDINE DAWSON, SHARON B. ASHMAN, AND LESLIE J. CARVER
University of Washington

Sensitive Periods in Brain Development – Implications for Education Policy

Michael SC Thomas and Victoria CP Knowland

Developmental Neurocognition Laboratory, School of Psychology, Birkbeck College University of London

Abstract

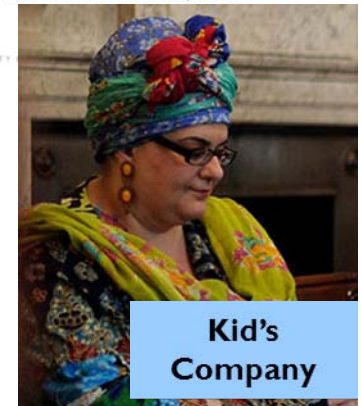
Functional plasticity is the ability to change behaviour based on experience. Structural changes in the brain occurring with increasing age are sometimes associated with a reduction in functional plasticity, leading to the idea of sensitive periods in development. In this article we assess the implications of recent findings on sensitive periods in brain development for educational policy. We address three points. Can the educational curriculum be optimised by teaching particular subjects at a point of maximum plasticity for the brain systems involved? Do some skills need to be acquired later so that acquisition is optimised only after children reach a certain age? How should educational practice be adjusted to optimise learning for individuals who have passed the age of maximum plasticity?

Keywords

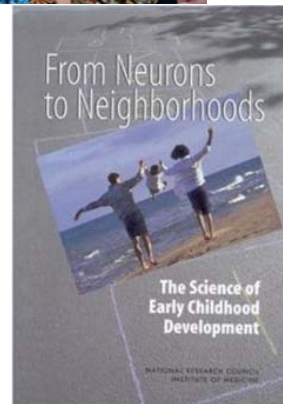
Brain plasticity, cognitive development, education, sensitive periods



Edward F. Zigler, Matia Finn-Stevenson, and Nancy W. Hall



Kid's Company



Screen and Intervene - late

THE LANCET Neurology

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Review

The Lancet Neurology, Volume 7, Issue 8, Pages 704 - 714, August 2008
doi:10.1016/S1474-4422(08)70162-5 [Cite or Link Using DOI](#)

Biomarkers for cognitive impairment and dementia in elderly people

Joshua A Sonnen MD a, Kathleen S Montine PhD a, Joseph F Quinn MD b, Jeffrey A Kaye MD b, John CS Breitner MD S, Thomas J Montine MD a b [Epub](#)

Summary

The threat of a looming pandemic of dementia in elderly people highlights the compelling need for the development and validation of biomarkers that can be used to identify pre-clinical and prodromal stages of disease in addition to fully symptomatic dementia. Although predictive risk factors and correlative neuroimaging measures will have important roles in these efforts, this Review describes recent progress in the discovery, validation, and standardisation of molecular biomarkers—small molecules and

Monday 29 November 2010

The Telegraph

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Health News

Scientists developing 30-second Alzheimer's screening test

Scientists are developing a 30-second test to spot the signs of Alzheimer's which could allow doctors to identify sufferers decades before they show symptoms.



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Screening for Dementia in Primary Care
Summary of the Evidence

Marka Boustan, M.D., M.P.H., Britt Peterson, M.D., M.P.H., Laura Hanson, M.D., M.P.H., Russell Harris, M.D., M.P.H., Kathleen N. Lohr, Ph.D.

Downloaded from aemj.com on 25 October 2008

70 **DemTect effective in screening for mild cognitive impairment and mild dementia** DIAGNOSIS

Katie S. Kester, J. Coombs P, et al. *DemTect*, a new, sensitive cognitive screening test to support the diagnosis of mild cognitive impairment and early dementia. *Alz Dis Assoc* 2008; 21: 103-10.

Q Does the DemTect reliably detect mild dementia and mild cognitive impairment in older adults?

METHODS

Design: Prospective cohort study.

Setting: Three sites in the US, including one rural.

Subjects: 117 cognitively normal (CN) and 102 cognitively impaired (CI) subjects were recruited from the Alzheimer's Disease 2002-2003 Epidemiologic Catchment Area Study (ECA) in the cognitive impairment domain. The CI group was further divided into mild cognitive impairment (MCI) and mild dementia (MD) based on the Diagnostic and Statistical Manual of Mental Disorders (4th edn) criteria.

Measures and Main Results: The test had a sensitivity of 88% for MCI and 82% for MD. The test had a specificity of 88% for MCI and 82% for MD. The test had a positive predictive value of 88% for MCI and 82% for MD. The test had a negative predictive value of 88% for MCI and 82% for MD.

CONCLUSIONS

The results of a single test for identifying mild cognitive impairment and early dementia in older adults is able to distinguish and categorize well by participants.

KEYWORDS

Screening, cognitive impairment, dementia, mild cognitive impairment, mild dementia, DemTect, cognitive screening test.

INTRODUCTION

Cognition is a complex function of the brain that is essential for the ability to perform everyday activities. The ability to perform these activities is essential for the ability to live independently. The ability to perform these activities is essential for the ability to live independently. The ability to perform these activities is essential for the ability to live independently.

MAIN RESULTS

The test had a sensitivity of 88% for MCI and 82% for MD. The test had a specificity of 88% for MCI and 82% for MD. The test had a positive predictive value of 88% for MCI and 82% for MD. The test had a negative predictive value of 88% for MCI and 82% for MD.

	MCI		MD	
	TP	FP	FN	SN
% of cases with positive result	88	12	12	88
% of cases with negative result	12	88	88	12

Table. Sensitivity and specificity of DemTect and AMES compared with full clinical assessment

Department of Psychiatry, Harvard Medical School, Massachusetts General Hospital, Boston, MA, USA.

Treatment for MCI: Is the evidence sufficient?

Neurology - Volume 70, Issue 22 (May 2008) - Copyright © 2008 American Academy of Neurology - [About This Journal](#)

Editorials Treatment for MCI: Is the evidence sufficient?

Paul S. Aisen, MD [✉](#)

Self-Administered Screening for Mild Cognitive Impairment: Initial Validation of a Computerized Test Battery

Jane B. Tortore, Ph.D.
Emory Hill, Ph.D.
Jo Anne Laboff, M.S.W.
Mary E. McGann, M.P.H., M.S.W.



Screen's Test Battery meets high statistical standards and is extremely valuable in both pre-diagnostic and post-diagnostic procedures.


SCREEN'S TEST BATTERY

The CANS-MCI
Screen's test battery is named the "Computer-Administered Neuropsychological Screen for Mild Cognitive Impairments"—or CANS-MCI for short.

Important Safety Information | Educational Information | Healthcare Professionals

ARICEPT
Donepezil HCl

GET ANSWERS | About Alzheimer's and ARICEPT



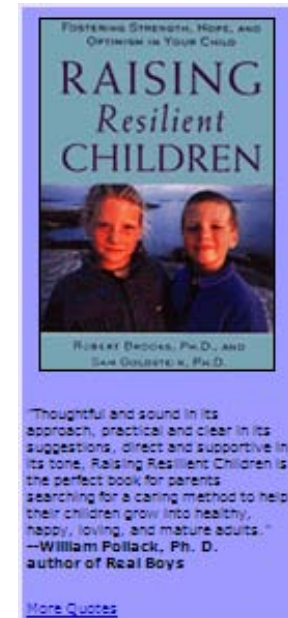
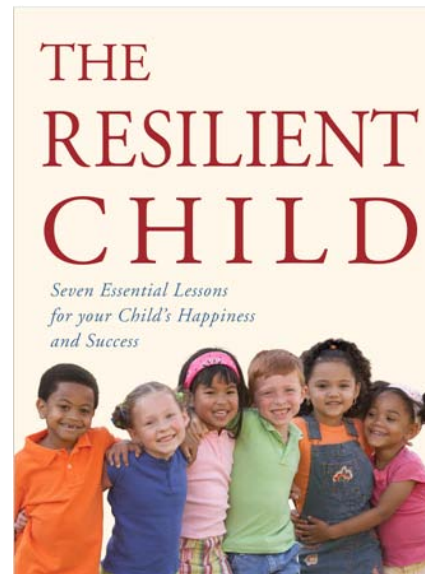
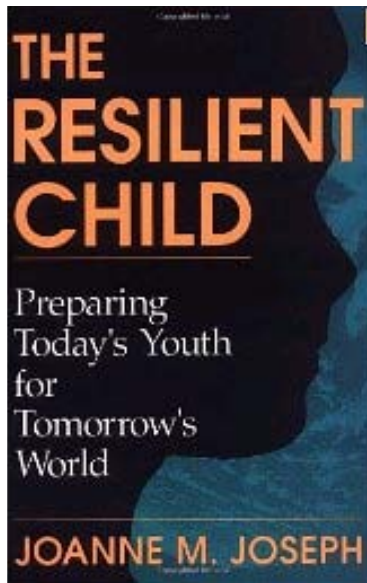
What are the signs of Alzheimer's?

Signs to Look For

- Changes in mood or behavior
- Problems finding the right words
- Trouble knowing the time, date, or place
- Losing things more than usual
- Trouble solving problems
- Problems doing simple tasks
- Repeating the same things over and over

[Tell Us the Symptom Screener](#)

Build resilience via the brain

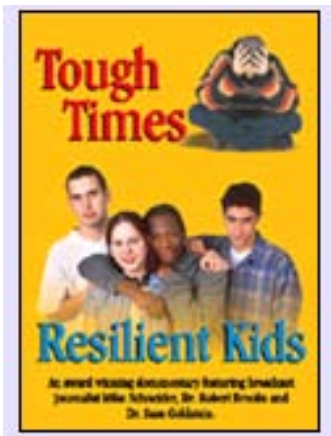


Science News

New Brain Nerve Cells Key to Stress Resilience

ScienceDaily (Apr. 1, 2010) — UT Southwestern Medical Center researchers have found new clues that might help explain why some people are more susceptible to stress than others.

In a study of mice, the researchers



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Psychiatric News February 2, 2007
Volume 42 Number 3 Page 28
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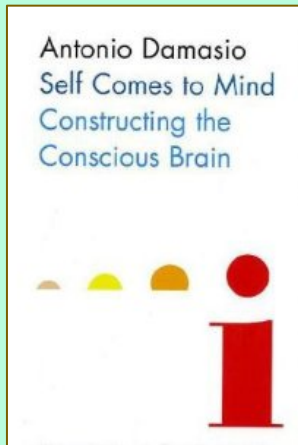
CLINICAL & RESEARCH NEWS

Roots of Resilience Located In Specific Brain Regions

Joan Arehart-Treichel

Neurotechnologies

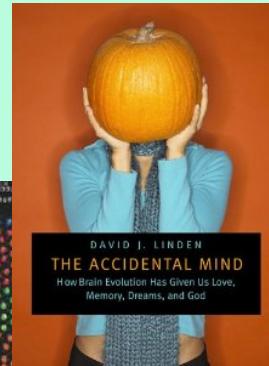
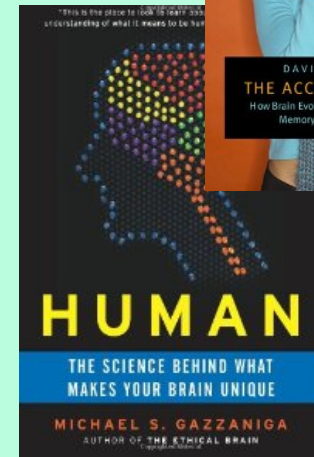
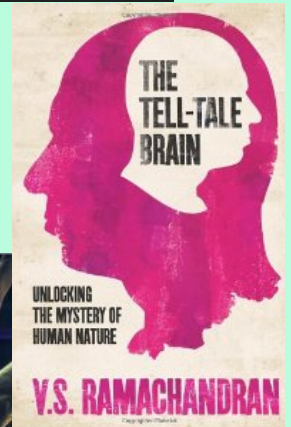
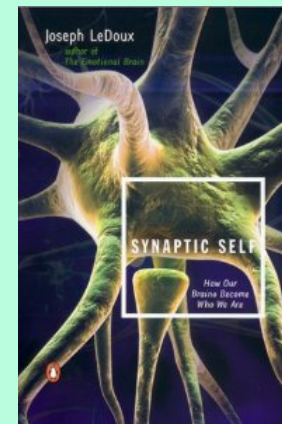
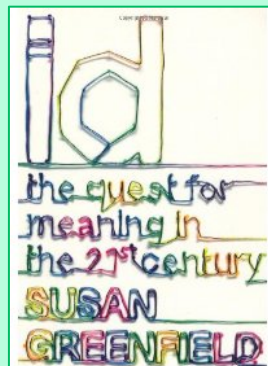
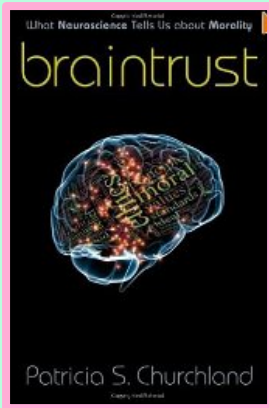
- Psychopharmaceuticals
 - Yes, but ...
- Cognitive and behavioural therapies
 - Train individuals to recognise and modulate their own pathologies
- Intensive behavioural intervention on parents and children
 - Those incredible years
- Build resilience
 - By parenting



Personhood

An ontological change?

A new figure of the human?



A mutation in personhood?

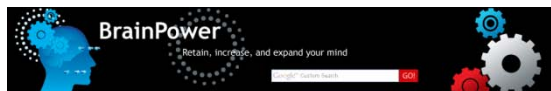
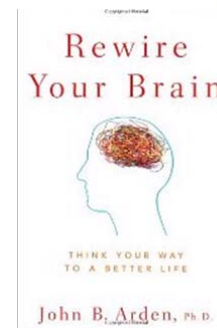
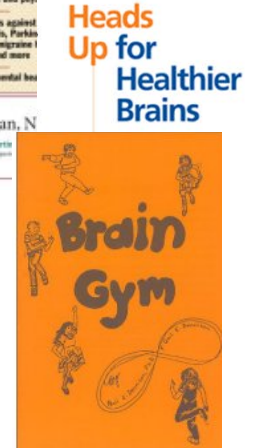
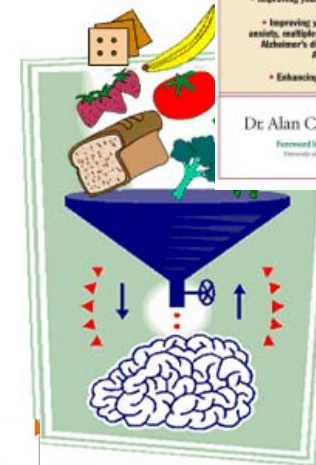
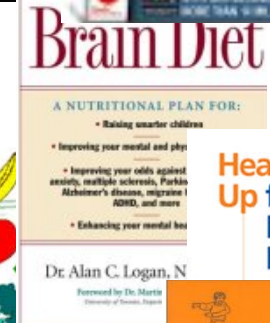
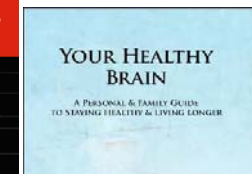
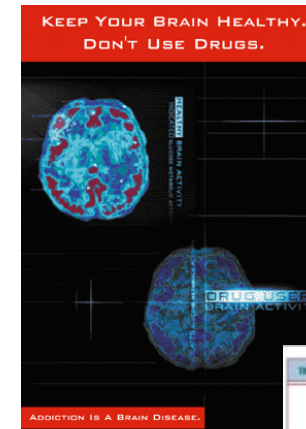
- Historical Ontology?
 - What kinds of persons do we take ourselves to be
 - Or others take us to be
 - authorities who seek to shape and mould our conduct
 - How have we come to think of ourselves in these ways?
 - And with what consequences?
- Person = Brain?
 - Cerebral subject (Ehrenberg)
 - Brainhood (Vidal)
 - Neuroreductionism (Martin)
- No – persons with brains, not persons AS brains!

A neural mutation in somatic ethics

- A somatic ethic
 - Somatic individuality
- Kant's questions:
 - what can I know? What must I do? What may I hope?
- Now posed in 'somatic' terms:
 - 'Soma' – our 'biology' - given salience
 - Somatic experts articulate rules for living
 - We understand ourselves partly in 'biological' terms
 - Expectations, hopes shaped in terms of maintenance of health and prolongation of earthly existence.
- Salience of 'brain'
 - Not so much 'brainhood' etc
 - But this somatic ethic, now extended to brain
 - Hence ethic of health gives special salience to neurobiomedicine, and practice of working on brain in name of health.
 - Neurobiological prudence

Governing myself through my brain

- Brain becomes a rich source of narratives/techniques for self-making
 - ❑ Becoming familiar with one's brain
 - ❑ Drugs, DBS, neurofeedback etc
 - ❑ Managers of our own neural states
- Brain as flexible, malleable...
 - ❑ Neurosociality – the neural, the psychological and the social
- Technologies of neurobiological self
 - ❑ Taking care of ones brain
 - ❑ for the good of each (brain gyms)
 - ❑ And of all (burden of brain disorders)
 - ❑ Managing one's own neuro-subjectivity
 - ❑ A responsible person with a brain



Conclusion

A Neurobiological Complex?

complex, n.

a. A whole comprehending in its compass a number of parts, esp. (in later use) of interconnected parts or involved particulars; a complex or complicated whole.

†2. An interweaving, contexture. *Obs.*

3. *Psychol.* A group of emotionally charged ideas or mental factors, unconsciously associated by the individual with a particular subject, arising from repressed instincts, fears, or desires and often resulting in mental abnormality; freq. with defining word prefixed, as *inferiority*, *Œdipus complex*, etc.; hence *colloq.*, in vague use, a fixed mental tendency or obsession.

Oxford English Dictionary Online

Governing through the brain?

■ Neuropsychiatry

- Failure to transform psychiatry into neuropsychiatry – it's not 'all in the brain'

■ Neurolaw

- neuroscientific discoveries over 'free will' not having impact in CJS, but in programmes of reform and prevention.

■ Neuroeconomics

- Neurobiology reframing notions of economic rationality, but whoever thought economic decision making was rational!

■ Social neuroscience

- Humans evolved to be social – but sociality recast as dyadic relations between individuals made possible by evolved neural capacities for empathy, theory of mind, mirror neurons etc.

■ Neuroeducation

- educational practices must be based on knowledge of the brain but its not clear what impact this is having.

■ Neuropolicy

- Rise of policies of 'screen and intervene', governing the child through the family, optimisation via nudge and steer, a familiar mode of governing

■ Military and security apparatus

Remaking the human?

■ Neuroscience

- Not a 'revolution' in what it is to be human – humans remain persons with minds, intentions, mental states etc.
- But those now premised on new forms of knowledge
- And emergence of new forms of expertise
- But new possibilities in understanding and governing ourselves

■ Governing through the brain (and in the name of the brain)

- Not biological reductionism but multiple biological possibilities
- A 'political economy of hope' (Novas)
- Not a matter of 'normalisation', therapy or 'enhancement'
- But calculated modulation of capacities in the name of sociality

■ A neurobiological complex

- A difference that makes a difference?

Thank you for your attention !

Gracias por su atención!

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