IL CERVELLO CHE CAMBIA 9

RECENTI AVANZAMENTI E FRONTIERE DI RICERCA:

VALUTAZIONE COGNITIVA

UNIVERSITÀ DEGLI STUDI DI GENOVA

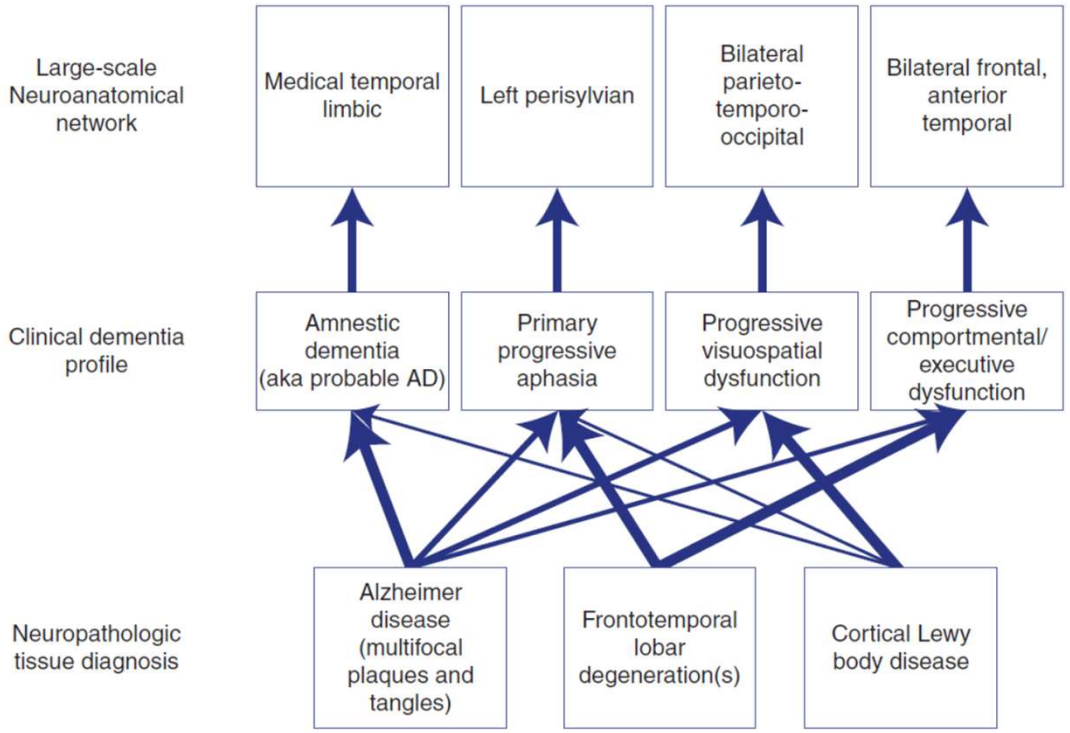
OSPEDALE POLICLINICO SAN MARTINO
Sistema Sanitario Regione Liguria

OUTLINE

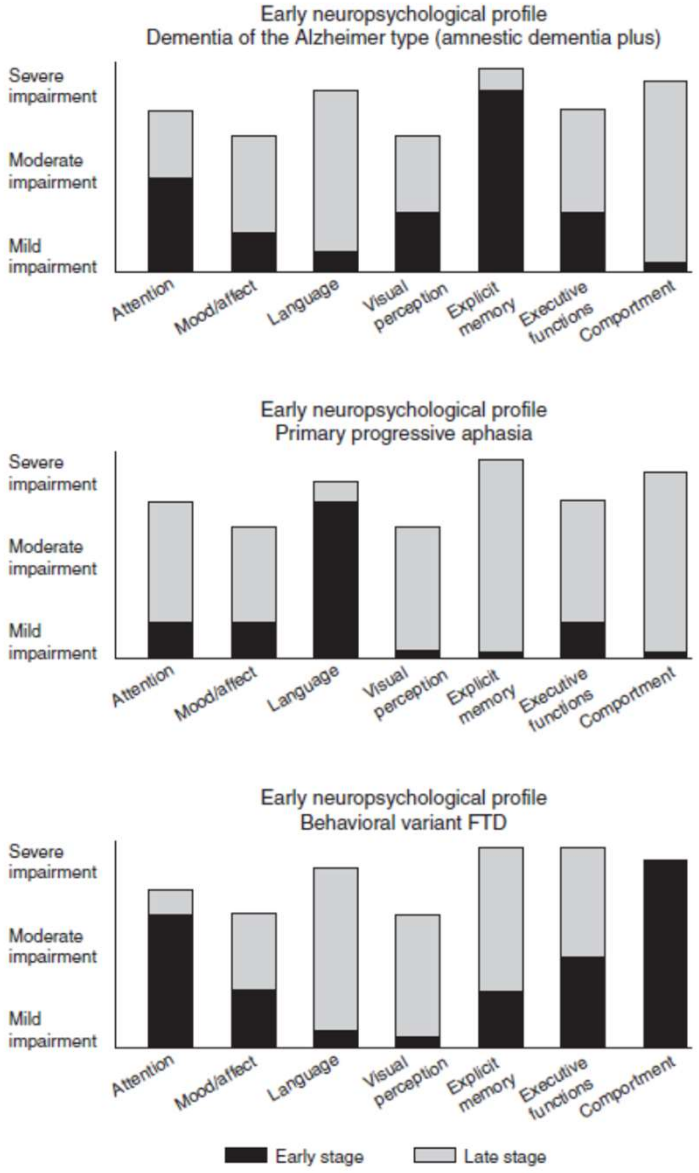
- FREE AND CUED SELECTIVE REMINDING TEST
  - FCSRT Figure vs Parole
  - SOMI Staging Objective Memory Impairment
- SCALE PER LA DIAGNOSI DIFFERENZIALE che cosa ci ha insegnato la neuropatologia
  - Sindrome temporo-mesiale nella bv-FTD
  - SET uno strumento utile nella valutazione della Variante comportamentale della FTD
  - Le APP, Strumento il SAND
- VALIDAZIONE DEI TEST NEUROPSICOLOGICI
  - Il modello dell'Oncologia applicato alla validazione dei test
  - Armonizzazione dei metodi di raccolta dati
- NUOVE PROSPETTIVE
  - Four Montain Test
  - Eye Tracking
  - Analisi del segnale vocale
  - AI-MEMO

The Neuropsychological Profile of Alzheimer Disease

Sandra Weintraub[1], Alissa H. Wicklund[1], and David P. Salmon[2]



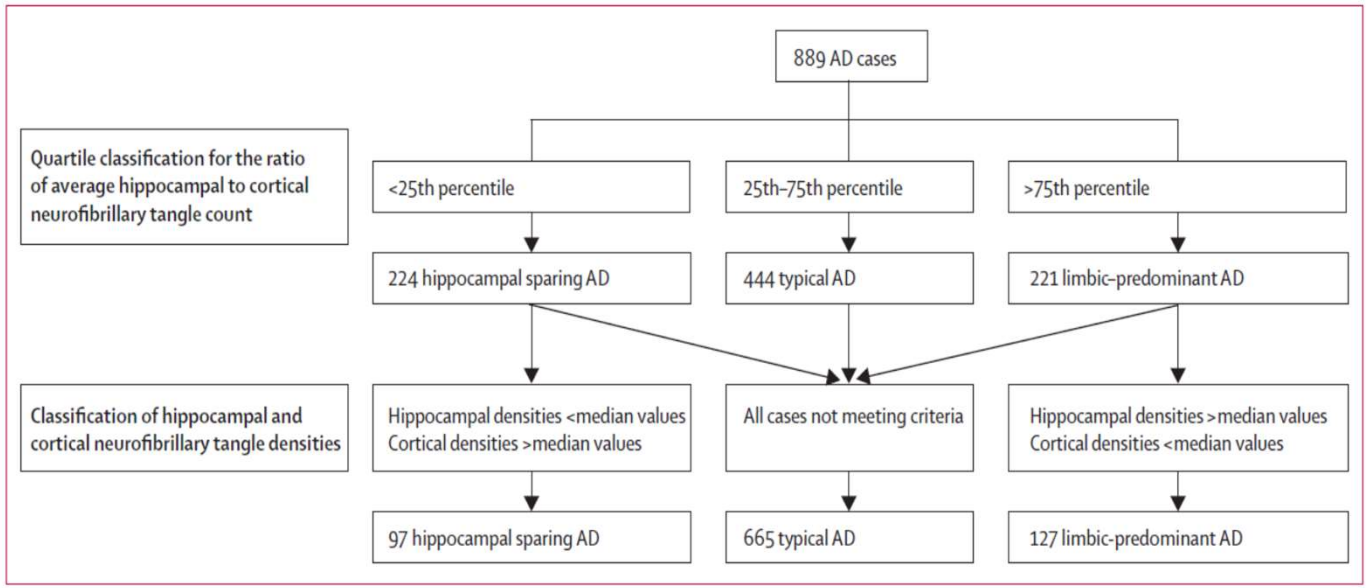
Cold Spring Harb Perspect Med 2012;2:a006171



Neuropathologically defined subtypes of Alzheimer's disease with distinct clinical characteristics: a retrospective study

Melissa E Murray, Neill R Graff-Radford, Owen A Ross, Ronald C Petersen, Ranjan Duara, Dennis W Dickson

www.thelancet.com/neurology Vol 10 September 2011



Il 25% dei soggetti con una diagnosi neuropatologica di AD non ha una distribuzione tipica degli aggregati neurofibrillari . L' Hippocampal sparing ha un relativo risparmio delle aree ippocampali ed un maggiore coinvolgimento delle aree corticali (superior temporal, inferior parietal, middle frontal). Il 75% dei casi ha una distribuzione tipica. Un terzo gruppo ha un maggiore carico di placche neurofibrillari nelle zone ippocampali rispetto a quelle corticali.

I casi con risparmio ippocompale evevano anche una minore atrofia ippocampale rispetto alla variante limbica. I pazienti con risparmio ippocampale erano più giovani al momento della morte (72 ± 10) con una maggiore percentuale di uomini (61 [63%]), mentre quelli "Limbici" erano più anziani con una maggiore percentuale di donne (87 [69%]).

FCSRT

(Free and Cued Selective Reminding Test)

Test di Grober-Buschke

Perchè il Test di Grober-Buschke?

Permette di identificare i soggetti con deficit lieve di memoria che svillupperanno un AD

1) Un profilo di memoria episodica caratterizzato da un ***basso punteggio al richiamo libero che si normalizza o migliora significativamente col suggerimento semantico che identifica I soggetti con MCI due to AD***

2) La ***presenza di biomarker*** che supportano l'ipotesi di AD

Lancet Neurol 2007; 6:734–46

Research criteria for the diagnosis of Alzheimer's disease: revising the NINCDS–ADRDA criteria

Bruno Dubois*, Howard H Feldman*, Claudia Jacova, Steven T DeKosky, Pascale Barberger-Gateau, Jeffrey Cummings, André Delacourte, Douglas Galasko, Serge Gauthier, Gregory Jicha, Kenichi Meguro, John O'Brien, Florence Pasquier, Philippe Robert, Martin Rossor, Steven Salloway, Yaakov Stern, Pieter J Visser, Philip Scheltens

Advancing research diagnostic criteria for Alzheimer's disease: the IWG-2 criteria

Bruno Dubois, Howard H Feldman, Claudia Jacova, Harald Hampel, José Luis Molinuevo, Kaj Blennow, Steven T DeKosky, Serge Gauthier, Dennis Selkoe, Randall Bateman, Stefano Cappa, Sebastian Crutch, Sebastiaan Engelborghs, Giovanni B Frisoni, Nick C Fox, Douglas Galasko, Marie-Odile Habert, Gregory A Jicha, Agneta Nordberg, Florence Pasquier, Philippa Robert, Christopher Rowe, Stephen Salloway, Marie Sarazin, Stéphane Epelbaum, Leonardo C de Souza, Bruno Vellas, Pi
Jeffrey L Cummings

Lancet Neurol 2014; 13: 614–29

same semantic cues).[31] There is evidence to support the choice of the FCSRT as a valid clinical marker of typical AD. On one version of the test applied in patients referred to a specialised memory clinic, a low total recall performance, despite retrieval facilitation with cueing, had an excellent specificity for AD,[32] whereas a low free recall had a specificity of 92% for identification of people with amnestic MCI who would progress to AD dementia.[33] The FCSRT had better reported

REVIEW

Early neuropsychological detection of Alzheimer's disease

C Bastin[1,2] and E Salmon[1,3]

Lifestyle modification offers a promising way of preventing or delaying Alzheimer's disease (AD). In particular, nutritional interventions can contribute to decrease the risk of dementia. The efficacy of such interventions should be assessed in individuals thought to be prone to AD. It is therefore necessary to identify markers that may help detecting AD as early as possible. This review will focus on subtle neuropsychological changes that may already exist in the predementia phase, and that could point to individuals at risk of dementia. Episodic memory decline appears consistently as the earliest sign of incipient typical AD. An episodic memory test that ensures deep encoding of information and assesses retrieval with free as well as cued recall appears as a useful tool to detect patients at an early stage of AD. Beyond the memory domain, category verbal fluency has been shown to decline early and to predict progression to AD. Moreover, in line with current diagnosis criteria for prodromal AD, combining neuropsychological scores and neuroimaging data allows a better discrimination of future AD patients than neuroimaging or neuropsychological data alone. Altogether, the detection of cognitive changes that are predictive of the typical form of probable AD already in the predementia stage points to at risk people who are the best target for therapeutic interventions, such as nutrition or physical exercise counseling or dietary interventions.

European Journal of Clinical Nutrition (2014) **68,** 1192–1199; doi:10.1038/ejcn.2014.176; published online 3 September 2014

Alzheimer's & Dementia ■ (2014) 1-18

Review Article

Innovative diagnostic tools for early detection of Alzheimer's disease

Christoph Laske[a,b,*], Hamid R. Sohrabi[c,d], Shaun M. Frost[e,f], Karmele López-de-Ipiña[g], Peter Garrard[h], Massimo Buscema[i,j], Justin Dauwels[k], Surjo R. Soekadar[l], Stephan Mueller[l], Christoph Linnemann[l], Stephanie A. Bridenbaugh[m], Yogesan Kanagasingam[e,f], Ralph N. Martins[c,d], Sid E. O'Bryant[n]

ical diagnosis [26]. Thus, use of an episodic memory test such as the Wechsler Logical Memory test or the FCSRT allows early detection of subtle cognitive deficits in both, familial AD and sporadic AD, favoring inclusion of one of these tests in a screening battery for detection of preclinical and early symptomatic AD.

Amnestic syndrome of the medial temporal type identifies prodromal AD

A longitudinal study

M. Sarazin, PhD*
C. Berr, PhD*
J. De Rotrou, PhD
C. Fabrigoule, PhD
F. Pasquier, PhD
S. Legrain, MD
B. Michel, MD
M. Puel, MD
M. Volteau, PhD
J. Touchon, MD
M. Verny, PhD
B. Dubois, MD

Conclusions: The amnestic syndrome of the medial temporal type, defined by the Free and Cued Selective Recall Reminding Test, is able to distinguish patients at an early stage of Alzheimer disease from mild cognitive impairment non-converters. *Neurology*® 2007;69:1859-1867

A normative study of the Italian printed word version of the free and cued selective reminding test

Neurol Sci (2015) 36:1127–1134
DOI 10.1007/s10072-015-2237-7

N. Girtler[1,2] · F. De Carli[3] · M. Amore[4] · D. Arnaldi[1] · L. E. Bosia[5] · C. Bruzzaniti[1] · S. F. Cappa[6] · L. Cocito[1] · G. Colazzo[7] · L. Ghio[4] · E. Magi[4] · G. L. Mancardi[1] · F. Nobili[1] · M. Pardini[1] · A. Picco[1] · R. Rissotto[5] · C. Serrati[5] · A. Brugnolo[1]

sciarpa *narciso*

scacchi *orata*

Nome:			Data: Sesso:							Data di Nascita: Scolarità:		
			RGIM		Richiamo 1		Richiamo 2		Richiamo 3		Ric. Imm	Rich. Diff
Categorie	Item		IR	IR 2	RL1	RG1	RL2	RG2	RL3	RG3	RIC	RLD	RGD
pesce	orata												
indumento	sciarpa												
gioco	scacchi												
fiore	narciso												
professione	idraulico												
frutto	amarena												
metallo	rame												
strum.mus.	arpa												
uccello	corvo												
albero	tiglio												
sport	ciclismo												
verdura	sedano												
ballo	tango												
malattia	morbillo												
mobile	sgabello												
materia sc.	geografia												
	TOTALI												
	TOT RL+RG												
	Intrusioni												
	Doppie												
	Falsi ric.												
	TOT RL (1+2+3) =				TOT Intrus. =			TOT Doppie =			TOT Falsi Ric =		

CONTA ALL'INDIETRO: 374 → 329 → 267 → 188 →

Memory impairment on free and cued selective reminding predicts dementia

Ellen Grober, PhD; Richard B. Lipton, MD; Charles Hall, PhD; and Howard Crystal, MD

NEUROLOGY 2000;54:827–832

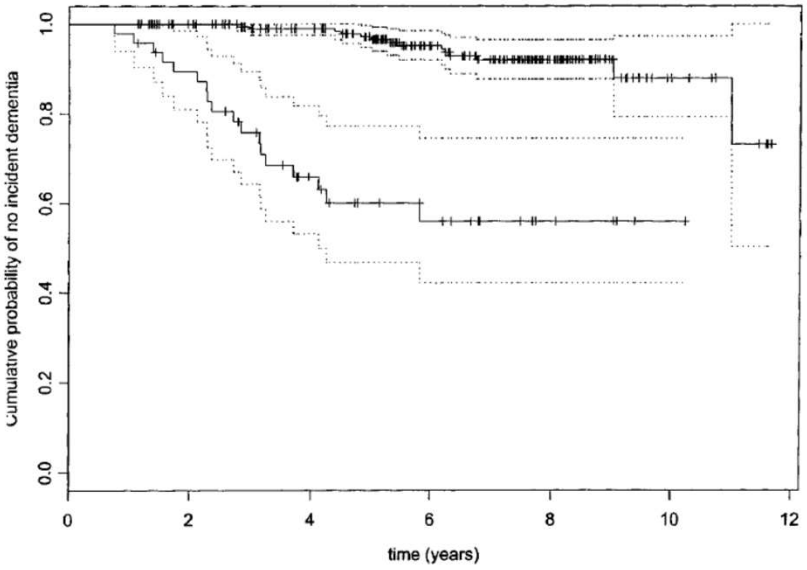


Figure. Kaplan–Meier survival curves for the development of dementia for subjects with memory impairment (free recall ≤24) and without (free recall >24).

Table 1 *Baseline characteristics of the nondemented elderly subjects grouped by memory impairment defined by the sum of free recall over three test trials on FCSR*

Characteristic	No memory impairment (>24)	Memory impairment (≤24)	*t* Value, *p* value
n	196	68	—
Sex, % F	65	49	2.39, $p = 0.018$
Baseline age, y	76.6 (0.44)	79.4 (0.78)	3.15, $p = 0.002$
Education, y	12.4 (0.23)	11.3 (0.31)	2.42, $p = 0.016$
BIMC	1.29 (0.12)	2.94 (0.28)	6.2, $p < 0.001$

Standard errors are in parentheses.

FCSR = Free and Cued Selective Reminding; BIMC = Blessed Information Memory and Concentration.

Valutazione longitudinale di 264 soggetti inizialmente non dementi arruolati nell' Einstein Aging Study con una valutazione clinica e psicometrica ogni 12-18 mesi sino a 10 anni.

Le curve Kaplan Maier indicano che i soggetti con alterazione della rievocazione libera al baseline (<24) ha un rischio relativo maggiore di conversione nei 5 anni sucessivi rispetto ai soggetti con rievocazione libera intatta (> 24) corretta per età genere ed educazione.

Cognitive & Behavioral Assessment

Temporal unfolding of declining episodic memory on the Free and Cued Selective Reminding Test in the predementia phase of Alzheimer's disease: Implications for clinical trials

Ellen Grober[a,*], Amy E. Veroff[b], Richard B. Lipton[a]
[a]Department of Neurology, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY, USA
[b]Bethesda, MD, USA

I valori di TOTAL RECALL e FREE RECALL sono stati ricavata di due precedenti studi rispettivamente il Baltimore Longitudinal Study of Aging e l' Anti-Amyloid Treatment in Asymptomatic AD ("A4") study .

SOMI stages and memory impairment defined by pFCSRT + IR performance with respect to time to diagnosis

SOMI	Free recall scores Maximum score 48	Total recall scores Maximum score 48	Years to diagnosis Mean (SD)
0 No memory impairment None detected by pFCSRT + IR	>30	>46	6.90 (2.62)
1 Subtle retrieval impairment Free recall declines as patients experience increasing difficulty carrying out internally driven cognitive processes needed to effectively search memory. Storage is preserved as reflected by normal performance on cued recall.	25–30	>46	4.89 (2.48)
2a Moderate retrieval impairment Rate of free recall decline doubles, and the rate of executive dysfunction accelerates. Storage is preserved.	20–24	>46	4.03 (2.62)
2b Moderate retrieval impairment and subtle storage impairment Cuing fails to normalize total recall.	20–24	45–46	2.35 (2.04)
3 Significant storage impairment compatible with dementia For persons with dementia, intellectual decline accelerates heralding IADL impairment.	Any	33–44	0.98 (1.35)

Abbreviations: AD, Alzheimer's disease; FR, free recall; pFCSRT + IR, picture version of the Free and Cued Selective Reminding Test with immediate recall; SOMI, stages of objective memory impairment severity.

E. Grober et al. / Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring 10 (2018) 161-171

Temporal unfolding of declining episodic memory on the Free and Cued Selective Reminding Test in the predementia phase of Alzheimer's disease: Implications for clinical trials

Ellen Grober[a,*], Amy E. Veroff[b], Richard B. Lipton[a]

[a]Department of Neurology, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY, USA
[b]Bethesda, MD, USA

Table 1
SOMI stages and expected associations with Aβ biomarkers (A), tau pathology biomarkers (T), and markers of neurodegeneration or neuronal injury (N) compared to the National Institute of Aging and Alzheimer's Association and the international working group preclinical staging systems

SOMI	Expected biomarker associations with SOMI	Sperling et al, 2011 Preclinical stages		Dubois et al, 2016 Stages	
0 No memory impairment	Aβ? Tau− ND−			Clinically normal	Aβ− Tau−
1 Subtle retrieval impairment	Aβ+ Tau− ND−	1 Asymptomatic cerebral amyloidosis, No evidence of subtle cognitive change.	Aβ+ Tau− ND−	AR-AD	Aβ+ Tau−
2a Moderate retrieval impairment	Aβ+ Tau? ND−	2 Asymptomatic amyloidosis + neurodegeneration, no cognitive change.	Aβ+ and markers of neuronal injury (Tau, FDG, fMRI)	Preclinical Before onset of phenotype	Aβ+ Tau+
2b Moderate retrieval and subtle storage impairment	Aβ+ Tau+ ND?	3 Asymptomatic amyloidosis + neurodegeneration + cognitive change		Clinical Clinical phenotype of AD including prodromal and dementia stages	
3 Significant storage impairment compatible with dementia	Aβ+ Tau+ ND+				

Abbreviations: Aβ, amyloid β; AD, Alzheimer's disease; SOMI, Stages of Objective Memory Impairment; FDG PET, [18F]-fluorodeoxyglucose positron-emission tomography; AR-AD, asymptomatic at risk for clinical AD; fMRI, functional magnetic resonance imaging; ND, neurodegeneration.

Cognitive & Behavioral Assessment

Temporal unfolding of declining episodic memory on the Free and Cued Selective Reminding Test in the predementia phase of Alzheimer's disease: Implications for clinical trials

Ellen Grober[a,*], Amy E. Veroff[b], Richard B. Lipton[a]

[a]Department of Neurology, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY, USA
[b]Bethesda, MD, USA

E. Grober et al. / Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring 10 (2018) 161-171

Il modello SOMI applicato ai soggetti Einstein Aging Study evidenzia buoni livelli accuratezza nell'identificare soggetti MCIAD o AD nelle prime fasi di alterazioni con una sensibilità e specificità del 93%

SOMI 2b FR 20-24 TR 45-46
SOMI 3 FR qualsiasi TR 33-44

Table 5
Distribution of assessments classified into SOMI stages at the diagnostic wave of 118 AD cases and last follow-up for 1263 robust controls from the EAS*

SOMI stage	AD cases (n = 118) at diagnosis	Robust normals (n = 1263) at last follow-up
Intact total recall SOMI 0–2a	9	1179
Impaired total recall SOMI 2b, 3	109	84
Total assessments	118	1263

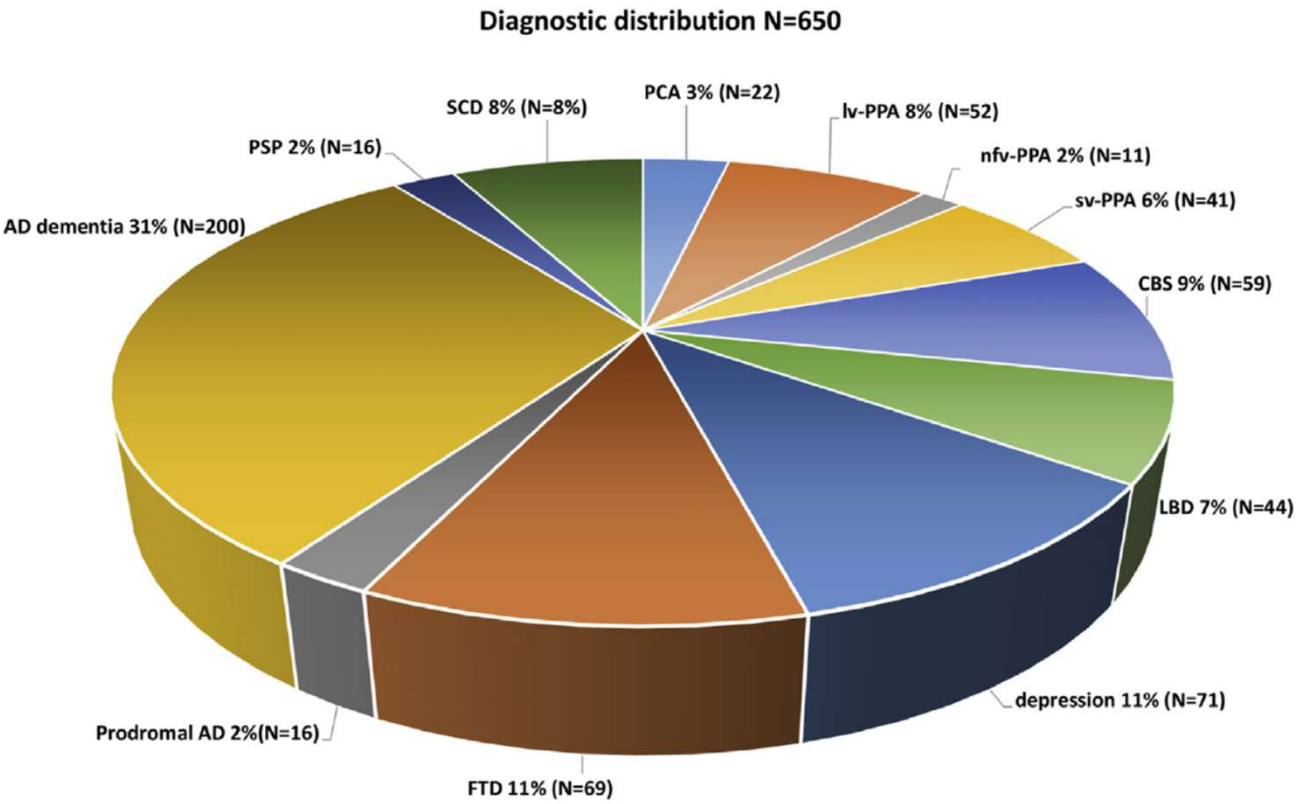
Abbreviations: AD, Alzheimer's disease; EAS, Einstein Aging Study; SOMI, stages of objective memory impairment.

NOTE. Sensitivity: 109/118 = 93%; specificity: 1179/1263 = 93%.

*Nine percent of the assessments were unclassified. Including them as errors reduces sensitivity to 81% and specificity to 86%.

Free and Cued Selective Reminding Test – accuracy for the differential diagnosis of Alzheimer's and neurodegenerative diseases: a large-scale biomarker-characterized monocenter cohort study (ClinAD)

Marc Teichmann[a,b,*,1], Stéphane Epelbaum[a,c,1], Dalila Samri[a,1], Marcel Levy Nogueira[a,d], Agnès Michon[a], Harald Hampel[a,e], Foudil Lamari[f], Bruno Dubois[a,b]



Abnormal FCSRT scores, that is, free recall less than 17/48 or total recall less than 40 /48, had by definition a sensitivity of 100%, but a lower specificity of 74.8%, to identify typical AD, at dementia and prodromal stages, among all other degenerative diseases.

More specifically, FCSRT scores indicative of an amnesic syndrome of the hippocampal type were found in patients with LBD (40.9%), PSP (37.5%), bv-FTD (31.9%), nfv-PPA (27.3%), PCA(22.7%), sv-PPA (22%), CBS (22%), and lv-PPA (5.8%).

PRIORITY COMMUNICATION

Two Distinct Amnesic Profiles in Behavioral Variant Frontotemporal Dementia

Maxime Bertoux, Leonardo Cruz de Souza, Fabian Corlier, Foudil Lamari, Michel Bottlaender, Bruno Dubois, and Marie Sarazin

Background: Whether or not episodic memory deficit is a characteristic of behavioral variant frontotemporal dementia (bvFTD) is a crucial question for its diagnosis and management.

Methods: We compared the episodic memory performance profile of bvFTD patients with healthy control subjects and patients with Alzheimer's disease (AD) as defined by clinical and biological criteria. Episodic memory was assessed with the Free and Cued Selective Reminding Test, which controls for effective encoding and identifies memory storage ability resulting from consolidation processing. One hundred thirty-four participants were evaluated: 56 patients with typical clinical presentation of AD and pathophysiological evidence as defined by cerebrospinal fluid AD biomarker profile and/or significant amyloid retention on Pittsburgh Compound B positron emission tomography; 56 patients diagnosed with bvFTD with no evidence of AD-cerebrospinal fluid biomarkers when a profile was available (28/56), including 44 progressive (bvFTD) and 12 nonprogressive (phenocopies) patients; and 22 control subjects with negative amyloid imaging.

Results: Memory scores could not differentiate bvFTD from AD patients (sensitivity and specificity $<50\%$). Taking into account the individual distribution of Free and Cued Selective Reminding Test scores, half of bvFTD patients had a deficit of free recall, total (free + cued) recall, and delayed recall as severe as AD patients. The other half had subnormal scores similar to phenocopies and a delayed recall score similar to control subjects.

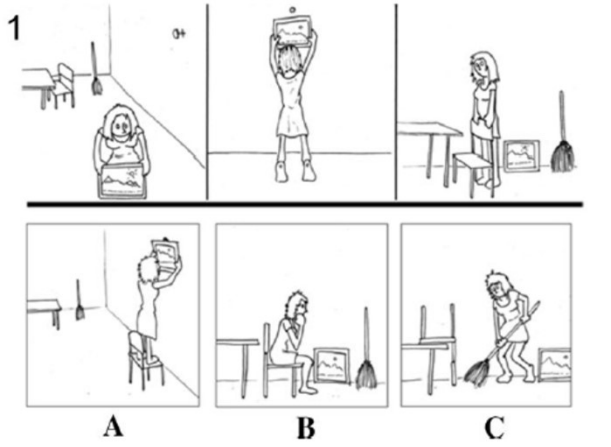
Conclusions: We observed two distinct amnesic profiles in bvFTD patients that could reflect two types of hippocampal structure and Papez circuit involvement. These findings on episodic memory profiles could contribute to discussions on the recent international consensus criteria for bvFTD.

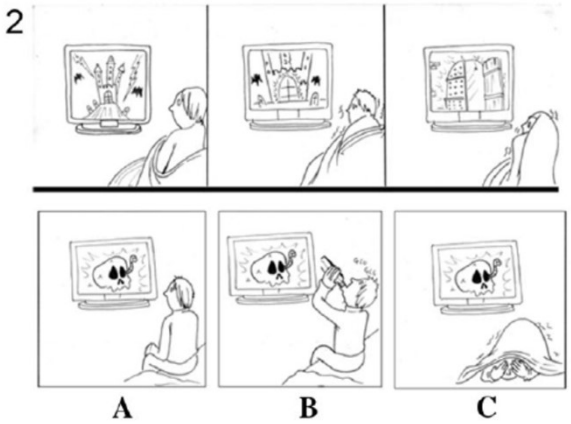
A novel task assessing intention and emotion attribution: Italian standardization and normative data of the Story-based Empathy Task

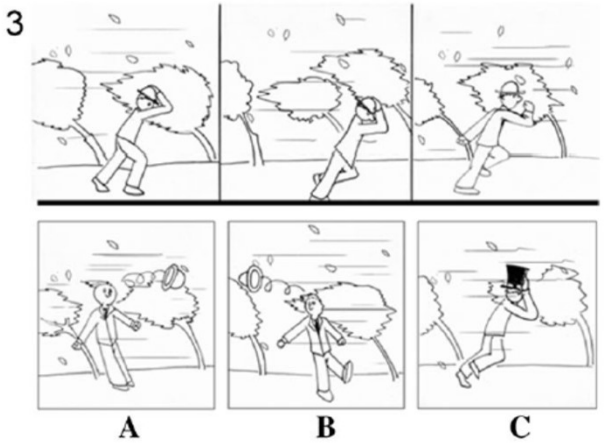
Article *in* Neurological Sciences · June 2015

Alessandra Dodich[1,2] · Chiara Cerami[1,2,3] · Nicola Canessa[2,4] · Chiara Crespi[1,2] · Sandro Iannaccone[3] · Alessandra Marcone[3] · Sabrina Realmuto[5] · Giada Lettieri[1] · Daniela Perani[1,2,6] · Stefano F. Cappa[2,4]

La teoria della mente Theory of Mind (ToM), è un insieme di processi mediante i quali un individuo attribuisce stati mentali a se stesso e ad altri è considerato un costrutto multidominio con due aspetti pricipali cognitivo (attribuzione di intenzioni) e affettivo (attribuzione di emozioni).







Questo test potrebbe essere utile nella valutazione degli aspetti cognitivi ed affettivi della ToM nelle alterazioni comportamentali

SAND: a Screening for Aphasia in NeuroDegeneration. Development and normative data

Eleonora Catricalà[1] · Elena Gobbi[2] · Petronilla Battista[1,3,4] · Antonio Miozzo[5] · Cristina Polito[6] · Veronica Boschi[1] · Valentina Esposito[2] · Sofia Cuoco[7] · Paolo Barone[7] · Sandro Sorbi[4] · Stefano F. Cappa[1,8] · Peter Garrard[9]

Neurol Sci (2017) 38:1469–1483

Abstract Language assessment has a critical role in the clinical diagnosis of neurodegenerative diseases, in particular, in the case of Primary Progressive Aphasia (PPA). The current diagnostic criteria (Gorno-Tempini et al., 2011) identify three main variants on the basis of clinical features and patterns of brain atrophy. Widely accepted tools to diagnose, clinically classify, and follow up the heterogeneous language profiles of PPA are still lacking. In this study, we develop a screening battery, composed of nine tests (picture naming, word and sentence comprehension, word and sentence repetition, reading, semantic association, writing and picture description), following the recommendations of current diagnostic guidelines and taking into account recent research on the topic. All tasks were developed with consideration of the psycholinguistic factors that can affect performance, with the aim of achieving sensitivity to the language deficit to which each task was relevant, and to allow identification of the selective characteristic impairments of each PPA variant. Normative data on 134 Italian subjects pooled across homogeneous subgroups for age, sex, and education are reported. Although further work is still needed, this battery represents a first step towards a concise multilingual standard language examination, a fast and simple tool to help clinicians and researchers in the diagnosis of PPA.

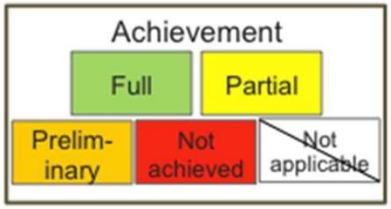
Neurobiology of Aging 52 (2017) 153–166

Clinical validity of delayed recall tests as a gateway biomarker for Alzheimer's disease in the context of a structured 5-phase development framework

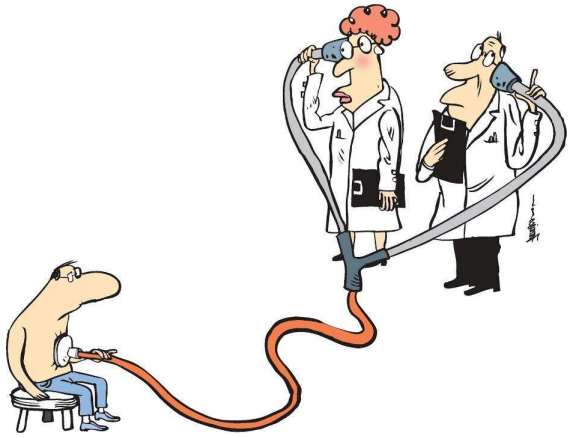
Chiara Cerami [a,b,c,*], Bruno Dubois [d], Marina Boccardi [e,f], Andreas U. Monsch [g], Jean Francois Demonet [h], Stefano F. Cappa [b,i], for the Geneva Task Force for the Roadmap of Alzheimer's Biomarkers

Development of AD biomarkers adapted from the framework of Pepe et al. 2001

Phase 1: Rational for the use of the biomarker	Phase 2: Discrimination ability of the biomarker		Phase 3: Detection ability in early phase		Phase 4: Biomarker accuracy in representative MCI patients		Phase 5: Quantify impact of biomarker-based diagnosis on relevant outcomes	
Primary aim	Primary aim	Secondary aims	Primary aims	Secondary aims	Primary aim	Secondary ais	Primary aim	Secondary aims
Potential leads	Identify discrim-ination accuracy AD/HC	Assay definition	Assess capacity of earliest (MCI) detection	Impact of covariates	Assess true/false referral rate in the biomarker-diagnosed patients	Detect predictive features	Estimate impact on morbidity & disability	Cost/ benefit quantifi-cation
		Ante mortem/ autopsy		Compare markers		Practical feasibility		Compliance in different settings
		Covariates in HC	Criteria for positivity	Combine markers		Estimate impact & costs		Compare different protocols
		Covariates in AD		Determine testing Interval		Monitor false negatives		



ARMONIZZAZIONE DELL ASSESSMENT NEI DISTURBI COGNITIVI



Precedenti iniziative di armonizzazione

- US Uniform DataSet 3 (UDS-3) (Weintraub et al., 2018)
- Iniziativa europea del Joint Program for Neurodegenerative Disorders (JPND) (Costa et al., 2017)
- Australian Dementia Outcome Measure Suite - DOMS (Bentvenzen et al., 2017)
- Armonizzazione post-hoc di database (EMIF, AD-UK; IRT)
- Indipendenti iniziative di armonizzazione locali in EU (Svizzera, Francia, Olanda, Spagna, Svezia, ...)

Workshop a Ginevra

Metodi

Harmonizing Neuropsychological Assessment for Dementia in Europe

May 9-11, 2018 CIGEV - Centre Interfacultaire de Gérontologie et d'Etudes des Vulnérabilités, Boulevard du Pont d'Arve, 28, 1205, Genève

Workshop by invitation only

Organized by LANVIE – Laboratoire de Neuroimagerie du Vieillissement, Dept. de Psychiatrie, Faculté de Médecine (M Boccardi, GB Frisoni) & Laboratoire du Vieillissement Cognitif, Faculté de Psychologie et Science de l'Education (M Kliegel), Université de Genève.

Sponsors

Swiss National Science Foundation; Alzheimer Forum Switzerland; Mindmaze.

Stakeholders

Swiss Memory Clinics; Alzheimer's Europe; Italian NIH; Alzheimer Forum Switzerland; Age-NT.

Hosting institutions

University of Geneva; CIGEV - Centre Interfacultaire de Gérontologie et d'Etudes des Vulnérabilités; Centre de la Memoire HUG; EADC - European Alzheimer's Disease Consortium.

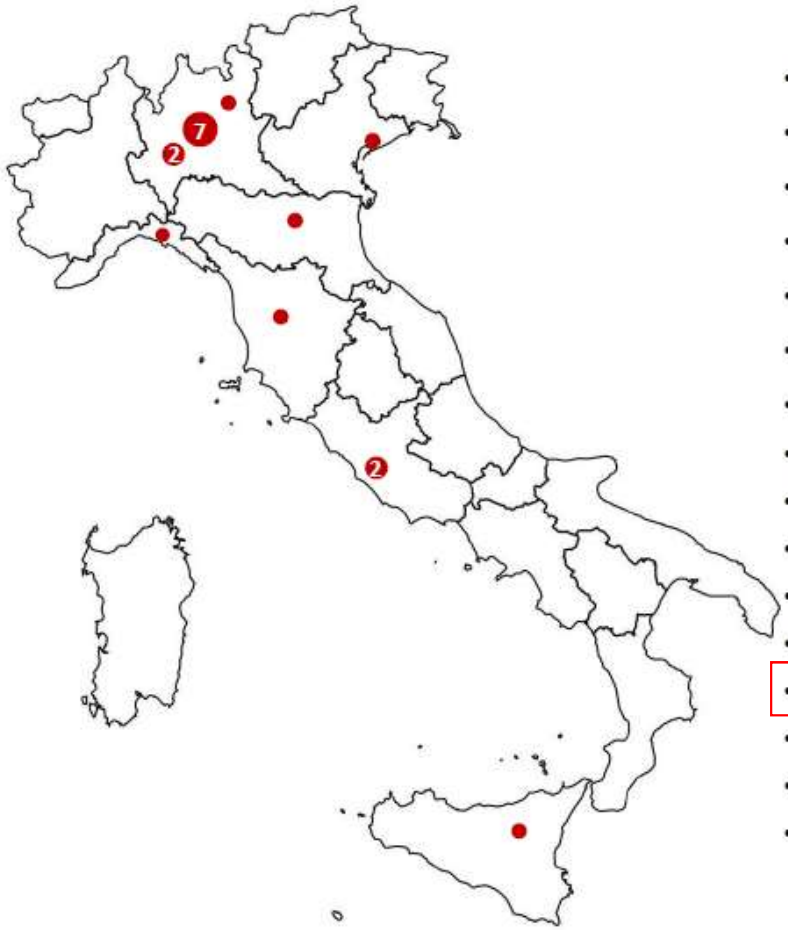
FACULTÉ DE MÉDECINE
CENTRE FOR THE INTERDISCIPLINARY STUDY OF GERONTOLOGY AND VULNERABILITY

HUG Hôpitaux Universitaires Genève

UNIVERSITÉ DE GENÈVE

Istituto Virtuale Nazionale Demenze

16 IRCCS hanno aderito

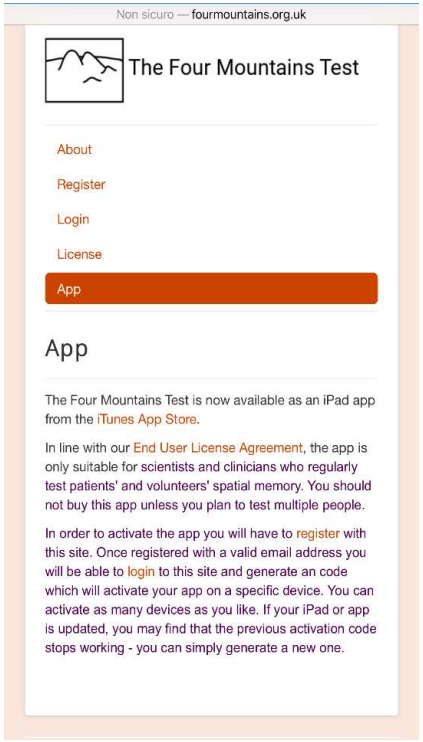


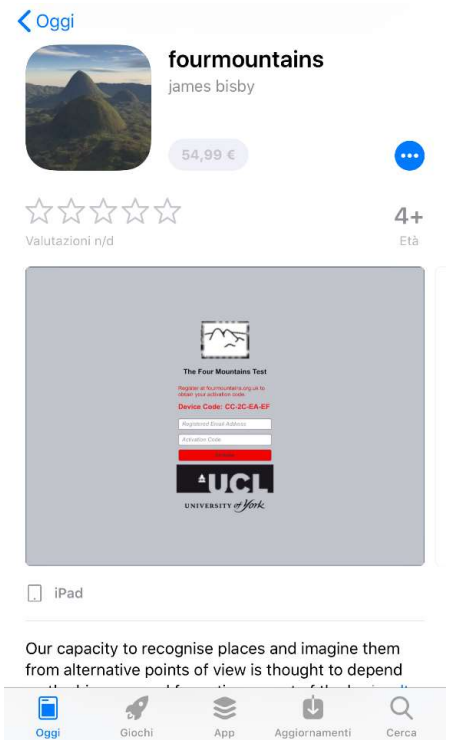
- Fondazione Istituto Neurologico Carlo Besta - MI
- Fondazione Ca' Granda Ospedale Maggiore Policlinico - MI
- Ospedale San Raffaele - MI
- Fondazione Don Carlo Gnocchi Onlus MI-FI
- Istituto Auxologico Italiano - MI
- Istituto Clinico Humanitas - Rozzano (MI)
- Istituto Di Ricerche Farmacologiche Mario Negri -MI
- Istituti Clinici Scientifici Maugeri - PV
- Istituto Neurologico Casimiro Mondino - PV
- Centro San Giovanni Di Dio Fatebenefratelli - BS
- Istituto delle Scienze Neurologiche di Bologna - BO
- Fondazione Ospedale San Camillo - VE
- Ospedale Policlinico San Martino - GE
- Fondazione Santa Lucia – Roma
- Fondazione Policlinco Gemelli - Roma
- Oasi Maria SS - Troina (EN)

Risultati

Ordine somm.	*Uniform DataSet per la clinica (cUDS)*
1	MoCA
2	Digit span forward
3	Digit span backward
4	FCSRT (versione verbale): richiamo immediato
5	Trail Making Test - A
6	Trail Making Test - B
7	Story-based Empathy Task (SET)
8	*FCSRT (versione verbale): richiamo differito*
9	Figura di Rey: copia
10,11	Fluenze verbali fonemiche e semantiche
12	Boston Naming Test
13	*Figura di Rey (recall)*

Solo carta e matita?



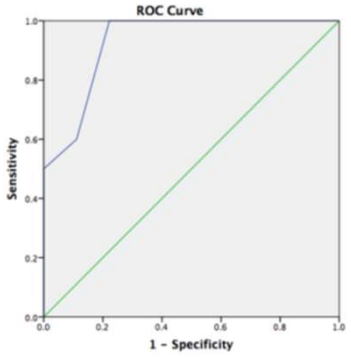


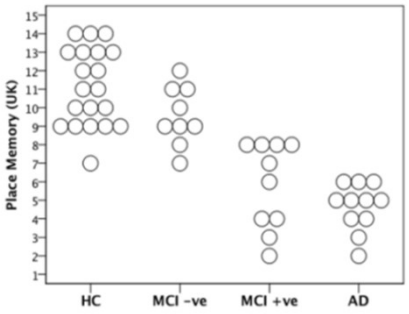
jove Journal of Visualized Experiments www.jove.com

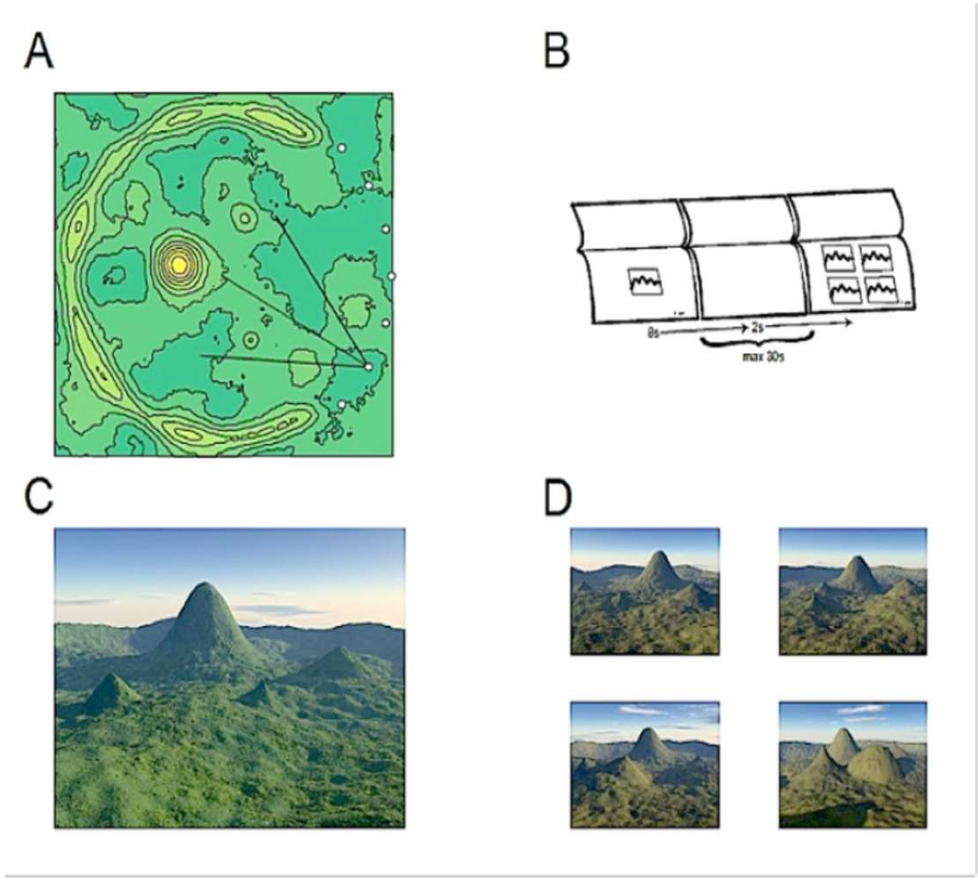
Video Article

The 4 Mountains Test: A Short Test of Spatial Memory with High Sensitivity for the Diagnosis of Pre-dementia Alzheimer's Disease

Dennis Chan[1], Laura Marie Gallaher[2], Kuven Moodley[2], Ludovico Minati[3], Neil Burgess[4], Tom Hartley[5]







A behavioral task predicts conversion to mild cognitive impairment and Alzheimer's disease

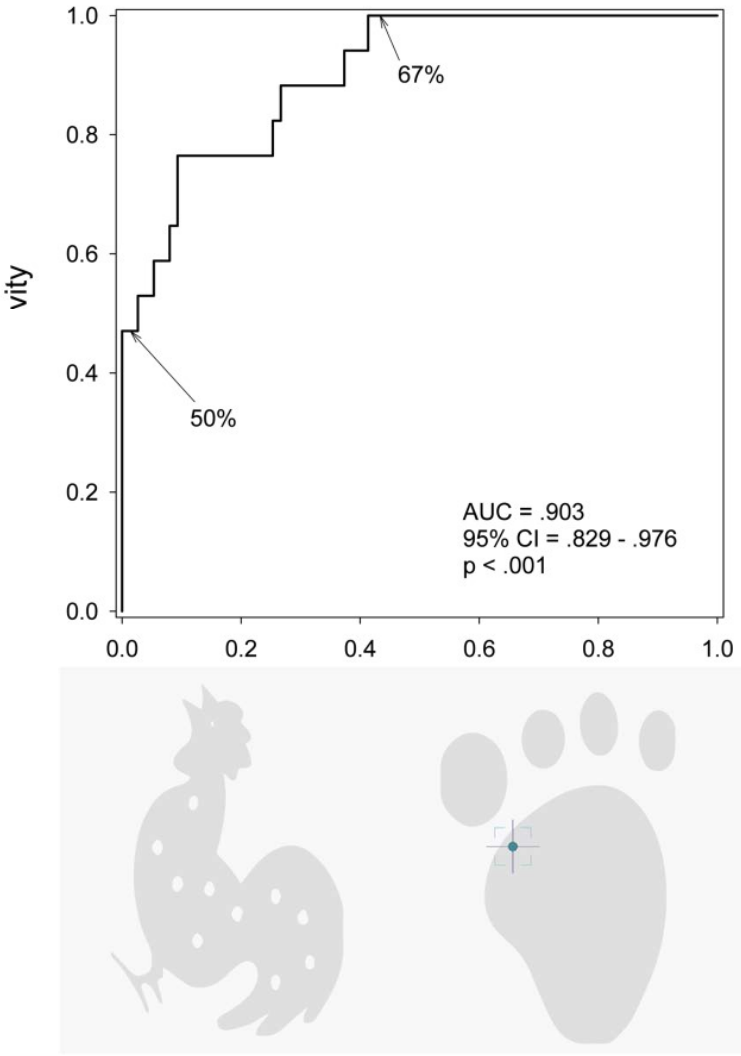
Zola SM[1], Manzanares CM, Clopton P, Lah JJ, Levey AI.

Background/Rationale—Currently, we cannot reliably differentiate individuals at risk of cognitive decline, e.g., Mild Cognitive Impairment (MCI), Alzheimer's disease (AD) from those individuals who are not at risk.

Methods—Thirty-two subjects with MCI and 60 control (CON) subjects were tested on an innovative, sensitive behavioral assay, the Visual Paired Comparison (VPC) task using infrared eyetracking. Subjects were followed for three years after testing.

Results—Scores on the VPC task predicted, *up to three years prior to a change in clinical diagnosis*, those MCI patients who would and those who would not progress to AD, and CON subjects who would and would not progress to MCI.

Conclusions—The present findings show that the VPC task can predict impending cognitive decline. To our knowledge, this is the first behavioral task that can identify CON subjects who will develop MCI or MCI subjects who will develop AD within the next few years.



Am J Alzheimers Dis Other Demen. 2013 March ; 28(2): 179–184. doi:10.1177/1533317512470484.

Tecnologia al servizio dell'analisi del linguaggio

Acoustic Markers Associated with Impairment in Language Processing in Alzheimer's Disease

The Spanish Journal of Psychology
2012, Vol. 15, No. 2, 487-494
http://dx.doi.org/10.5209/rev_SJOP.2012.v15.n2.38859

Journal of Alzheimer's Disease 49 (2016) 407–422
DOI 10.3233/JAD-150520
IOS Press

Linguistic Features Identify Alzheimer's Disease in Narrative Speech

Feature selection for spontaneous speech analysis to aid in Alzheimer's disease diagnosis: A fractal dimension approach

Computer Speech and Language 30 (2015) 43–60

INTERSPEECH 2013

Evaluation of Speech-Based Protocol for Detection of Early-Stage Dementia

Aharon Satt [1], *Alexander Sorin* [1], *Orith Toledo-Ronen* [1], *Oren Barkan* [1,2], *Ioannis Kompatsiaris* [3], *Athina Kokonozi* [3], *Magda Tsolaki* [4]

Una piattaforma di **monitoraggio e di stimolazione cognitiva** su smart phone.

Un’unica applicazione permette di raccogliere alcune misure sulla **mobilità** e la **stimolazione cognitiva**

Tutte le informazioni del progetto sono trattate con particolare attenzione alla sicurezza del dato e al rispetto delle normative vigenti sulla protezione dei dati personali.

Saranno arruolati soggetti di controllo e soggetti con patologia neurodegenerativa diagnosticata secondo gli attuali criteri.

Mediante tecniche di Intelligenza Artificiale si cercherà di identificare gli indicatori capaci di identificare situazioni meritevoli approfondimento diagnostico.

TAKE HOME MASSAGES

- Disponiamo di Test utili per identificare alterazioni di network specifici caratteristici di determinate condizioni neurodegnerative.

- L'armonizzazione dei test consentirà di costruire dataset numerosi per l'aggiornamento delle normative e la validazione clinica di specifici test e batterie di test.

- L'utilizzo di nuove tecnologie potrebbe offrire nuove prospettive nella diagnosi e nella raccolta dati.