

LA TERAPIA DEI DISTURBI COGNITIVI NELL'ADULTO CON EPILESSIA

**PARENTE ANNALISA
GIOVAGNOLI ANNA RITA**

TRAINING E RIABILITAZIONE COGNITIVA

- Le **terapie non farmacologiche di tipo cognitivo**, come altri tipi di trattamento, fondano i loro presupposti teorici sulla plasticità cerebrale.
- La maggior parte degli interventi si basa su ipotesi di riorganizzazione funzionale e apprendimento.

Il termine **plasticità** è usato sia in ambito biomedico che nelle neuroscienze comportamentali per indicare:

...modificazioni funzionali e anatomiche del sistema nervoso che si osservano in risposta a una varietà di sollecitazioni ambientali e cambiamenti fisiologici,
...e consentono al cervello di superare restrizioni imposte dal proprio patrimonio genetico (Mangina et al., 2006).

PLASTICITÀ NEURALE

Per tutta la durata dello sviluppo, l'organizzazione anatomica e funzionale del sistema nervoso centrale è fortemente influenzata dall'ambiente.

Fino a tutta la prima metà del secolo scorso si era creduto che il processo di plasticità riguardasse solo l'infanzia e l'adolescenza (periodi critici).

Tuttavia, la corteccia dell'adulto possiede un significativo potenziale di riorganizzazione plastica e le esperienze post-lesionali costituiscono un importante fattore critico modulante le modificazioni strutturali e funzionali osservabili dopo una lesione cerebrale (Mazzucchi, 2008).

La letteratura attuale ribadisce il concetto di neuroplasticità nell'adulto:

- Modello di modularità dell'organizzazione funzionale: è possibile osservare una riorganizzazione strutturale, accompagnata da mutamenti prestazionali, nella corteccia sensoriale e motoria.
- Superamento della concezione di periodo critico come unico momento possibile per riorganizzare le mappe neuronali (Belagaje, 2017).

UN ESEMPIO DI PLASTICITÀ CEREBRALE DOPO LESIONE ACUTA

Infarto ischemico

I deficit funzionali sono attribuibili non solo alla perdita di neuroni nell'area ischemica ma anche ad alterazioni funzionali delle regioni circostanti:

- Penombra ischemica: area con ridotta perfusione vascolare, con neuroni vitali ma funzionalmente inefficaci
- Regioni perinfartuali non ischemiche
- Territori cerebrali distanti, anatomicamente e funzionalmente connessi all'area lesionata
- Diaschisi: Ipometabolismo e alterata neurotrasmissione di regioni strutturalmente integre che smettono di funzionare perché prive di input critici provenienti da neuroni dell'area lesionata.

Negli animali il recupero dopo lesione acuta è evidente dopo 30 giorni ma continua per almeno 6 mesi:

- Prima fase: risolversi della diaschisi e attivazione dei processi di riparazione.
- Seconda fase: modificazioni delle proprietà funzionali delle sinapsi di circuiti neuronali esistenti (plasticità funzionale).
- Terza fase: crescita e retrazione di ramificazioni delle proprietà assonali, formazione ed eliminazione di contatti sinaptici, proliferazione e differenziazione di nuove cellule (plasticità anatomica o strutturale) (Mazzucchi, 2008).

PLASTICITÀ SINAPTICA

La plasticità neurale è stata descritta a livello genetico, molecolare e neuronale e nell'ambito di mappe e circuiti neurali o comportamentali (Mangina et al., 2006).

I processi di recupero funzionale coinvolgono soprattutto regioni cerebrali ipsilaterali. In caso di lesioni estese, l'emisfero controlaterale sembra entrare in causa e svolgere un'importante ruolo di recupero funzionale.

La forma più conosciuta di plasticità neuronale è **la plasticità sinaptica** che riguarda i cambiamenti a breve, medio e lungo termine che si esprimono attraverso la riduzione o l'aumento dell'efficienza sinaptica.

Si possono distinguere due forme principali di plasticità sinaptica:

- ✓ “Homosynaptic plasticity” : legata alla stessa sinapsi, si verifica dopo la perdita dei dendriti.
- ✓ “Heterosynaptic plasticity”: si riferisce a sinapsi intaccate indirettamente tramite l'attività di sinapsi alterate. (Chistiakova et al., 2014)

LA RIABILITAZIONE

È stato dimostrato come un trattamento riabilitativo stimoli l'espansione della rappresentazione mentale e cerebrale della funzione colpita da una lesione. Le modificazioni plastiche indotte dai trattamenti di riabilitazione si sovrappongono alle strategie di compensazione che il soggetto apprende spontaneamente. L'efficacia dell'intervento dipende in larga misura da un'accurata fase di valutazione preliminare orientata alla persona ed all'ambiente in cui vive, nella sua globalità e complessità.



— Un dolore acuto e pungente... hmmm...
acuto e pungente...

LA RIABILITAZIONE NEUROPSICOLOGICA

“La riabilitazione neuropsicologica è lo studio delle opportunità riorganizzative assunte dal cervello che è stato leso;

parte dal presupposto che le capacità neuroplastiche del nostro cervello, presenti dopo la lesione, siano guidabili per ottimizzare il trattamento riabilitativo orientato al raggiungimento del massimo grado possibile di autonomia e di indipendenza attraverso il recupero e/o la compensazione delle abilità cognitive e comportamentali compromesse;

tale provvedimento risulta essere finalizzato, pertanto al miglioramento della qualità della vita del paziente ed al reinserimento dell'individuo nel proprio ambiente familiare e sociale”

Mazzucchi, 1999

PRAGMATIC APPROACHES

There are two main basic pragmatic approaches in cognitive rehabilitation:

- The restorative approach involves increasing an individual's awareness of cognitive deficits, and tries to “retrain” the impaired cognitive function. This consists of repetitive practice of memory tasks based on the hypothesis that this will improve memory capacity (the “memory as a mental muscle” approach).
- The compensatory approach is more widely used today. Patients are taught strategies such as using external memory storage systems like agendas or diaries or rearranging the environment such that do not have to rely so much on memory to perform everyday activities.

(Rohling et al. 2009)

REHABILITATION, TRAINING, STIMULATION

Cognitive rehabilitation is defined as “any intervention strategy or technique which intends to enable clients or patients, and their families, to live with, manage, by-pass, reduce or come to terms with cognitive deficits precipitated by injury to the brain”.

The goal of cognitive rehabilitation is to restore patients' ability to deal with routine activities of daily lives. (Wilson, 1989)

Cognitive Training is a guided practice that uses standardized tasks involving memory, attention or problem-solving, aiming to improve, maintain or restore the impaired functions. (Bahar-Fuchs et al, 2013)

Cognitive stimulation and reality orientation therapy have a general influence on cognitive functions and quality of life. (Woods et al., 2012)

OBIETTIVI E FATTORI PROGNOSTICI

OBIETTIVI

- Riapprendere le informazioni decadute in toto o parzialmente.
- Facilitare l'accesso all'informazione conservata, ma al momento irraggiungibile.
- Favorire l'acquisizione di strategie compensatorie dei deficit.
- Rafforzare l'autostima del soggetto e favorire la generalizzazione delle nuove strategie nel contesto di vita.

FATTORI PROGNOSTICI

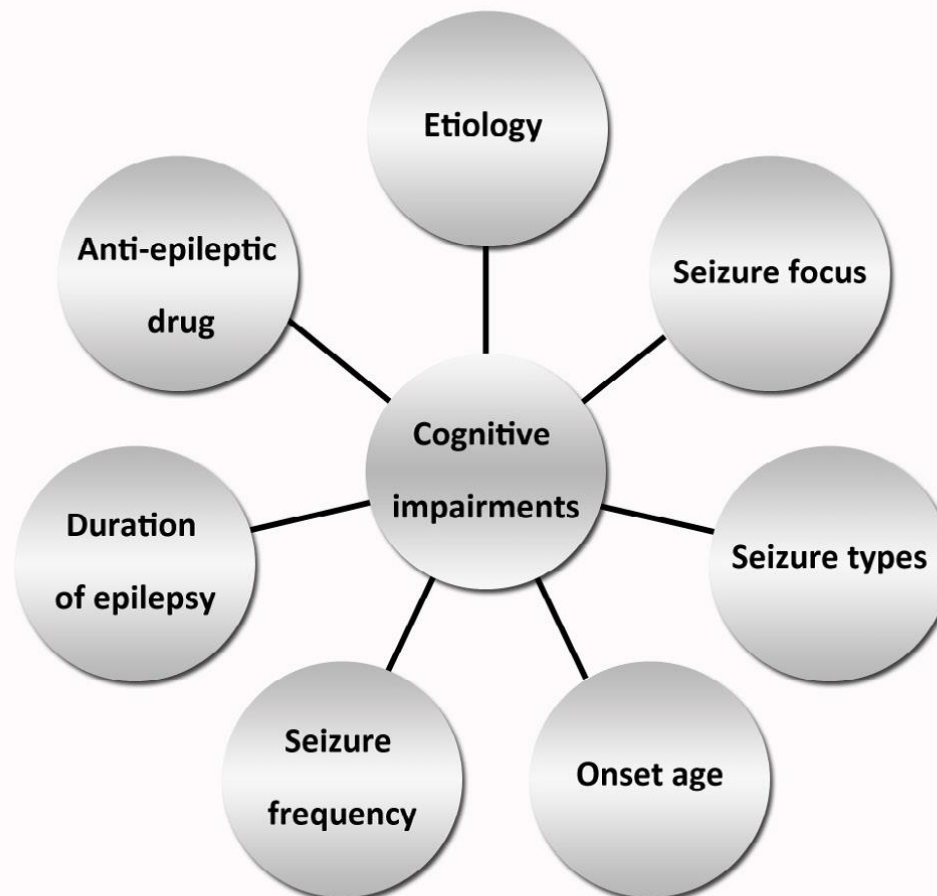
- Età
- Eziologia
- Sede ed estensione della lesione cerebrale
- Gravità del quadro clinico, comorbidità
- Sesso
- Scolarità/bagaglio culturale
-

ESERCIZI ADATTABILI E GRADUALI ALLEANZA TERAPEUTICA E MONITORAGGIO

- Da numerosi lavori si evince che i trattamenti cognitivi sono più efficaci quando il progetto di intervento è adattato al profilo cognitivo del paziente.
- Gli strumenti e gli esercizi a disposizione degli operatori devono possedere le caratteristiche che consentono sia di potersi adattare al livello di gravità iniziale sia di modificare a piccoli passi il grado di difficoltà, per mantenere la loro efficacia anche quando il paziente successivamente migliora.
- Nell'ambito della riabilitazione, il funzionamento cognitivo è influenzato anche da fattori interpersonali: l'intervento cerca di sfruttare in senso positivo e vantaggioso l'alleanza terapeutica.
- Paziente e terapeuta sono uniti da obiettivi comuni e l'interazione diventa un fattore di progresso.
- Le aspettative devono essere controllate periodicamente ed equilibrate.
- Le fasi di controllo e monitoraggio intermedio e finale devono essere programmate e coinvolgere il paziente in modo attivo.

TERAPIE COGNITIVE ED EPILESSIA

Fattori di rischio per deficit cognitivi



PREDICTORS OF COGNITIVE DECLINE IN ADULTS WITH EPILEPSY

- Strauss et al. (1995) stated that seizure focus and age at the onset of seizures are the best indicators of cognitive decline.
- Seidenberg et al. (2007) claimed that the duration of epilepsy is a reliable predictor of decline.
- Wang et al. (2011) discovered that seizure frequency is a primary predictor of memory and of language function decline.

These different results may be due to the variability of outcome measures and inclusion criteria.

Etiology, seizure types, seizure frequency, duration of epilepsy, age at onset, and antiepileptic drug use may all contribute to cognitive decline.

COGNITIVE DEFICITS IN EPILEPSY

Most of the studies regarding cognition and epilepsy deal with patients with focal epilepsy. Temporal lobe epilepsy (TLE) is the most common focal epilepsy syndrome.

- Helmstaedter et al. (2003) found that as time went by, 50% of the medically treated patients with TLE show significant memory declines but had relatively non-significant changes in non-memory functions.
- Exner et al. (2002) showed that patients with frontal lobe epilepsy have a reduced attention span and psychomotor speed, but patients with TLE tend to have impaired memory.
- McDonald et al. (2008) stated that, although the majority of patients with epilepsy seem to be impaired in more than one cognitive domain (language, psychomotor speed, verbal episodic memory, executive functions), memory and attention are the two that most frequently decline.



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Mini Review

The Potential Role of Neurocognitive Rehabilitation in Epilepsy

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Studies	Design	Inclusion criteria	Neurocognitive intervention	Outcome Measures	Results
Engelberts et al, 2002	RCT (retraining method, compensatory method & wait-list control) Pre-, post- & 6-month follow-up testing	50 pts with focal seizures and attention impairments	- Retraining: rehearse and response - Compensatory: compensatory strategies - Individual, 1-h session, weekly for total 6 sessions	1. Computerized TAP Divided Attention Task 2. Auditory Verbal Memory Test (AVMT) 3. Stroop Color-Word Test (SCWT) Card III 4. Cognitive Failure Questionnaire (CFQ) 5. ShortForm Health Survey (SF-36)-mental compound score	Both retraining and compensatory groups show improvements in neuropsychological outcomes. The compensatory method is more effective.
Ponds et al, 2006	Cohort study	Pts with memory complaints from an Epilepsy Center	- Memory rehabilitation using compensatory strategy - Individual, every 2 week for total 6-8 sessions - One group session every 3 individual sessions	Neuropsychological evaluation, not-specified	Learning mnemonics would help patients to solve common memory problems in everyday life.
Helmstaedter et al, 2008	Non-randomized, controlled, two-center study	112 epileptic pts who had temporal lobe surgery, from 2 epilepsy centers	- Metacognitive neuropsychological group therapy, 1-h session, weekly for total 5 sessions - Cognitive exercise, average 4-5 sessions per week - Occupational therapy, 3-4 sessions per week	1. Verbal learning test (VLMT) 2. German figural design list-learning test 3. Letter cancellation test (psychomotor speed/attention)	Rehabilitation has a positive effect on verbal memory, especially those underwent right side surgery.
Radford et al, 2011	Pseudo-randomly assigned, early and late training group Pre-, 12-week & 24-week Pre-, post-, & 12 weeks	31 pts with seizure	Group-based memory intervention, 2-h session, weekly for total 6 sessions	1. Rey Auditory Verbal Learning Test (RAVLT) 2. Royal Prince Alfred Prospective Memory Test (RPA-ProMem) 3. Appointment Memory 4. Everyday Memory Questionnaire (EMQ) 5. Comprehensive Assessment of Prospective Memory (CAPM)	The objective and subjective memory outcome measures all show improvements in both early and late training group.
Koorenhof et al, 2012	pre-, 1 month later	42 subjects, 22 healthy controls, 20 LTLE pts - In 10/20 LTLE pts: memory training pre-operatively - In 10/20 LTLE pts: memory training post-operatively	Maximum 4-h rehabilitation over up to 3 sessions, using compensatory strategy	1. Story Recall task 2. List Learning test 3. Everyday Memory Failures Questionnaire (EMQ)	Improvements in verbal memory were observed in both groups receiving memory training pre- or post-operatively.

Engelberts et al. (2002) published the first randomized-controlled trial investigating the efficacy of cognitive rehabilitation in patients with focal epilepsy.

Fifty patients with focal epilepsy being treated with carbamazepine were randomly divided into 3 groups: Retraining, Compensatory, and Control. The Retraining group had better performance compared with the control group in long-term memory test ($p = 0.004$). The Compensatory group also showed improvements in several memory tests ($p = 0.004$). In addition, in self-reported neuropsychological outcomes, patients in the Retraining group and Compensatory group had fewer cognitive complaints on the CFQ (CFQ score change between pre-training and follow-up: Retraining group = -2.2; Compensatory group = -3.1; control group = -0.4, $p < 0.05$ respectively), compared to the control group. Moreover, attention is also improved in both retraining method group and compensatory method group.



Cognitive rehabilitation of memory problems in patients with epilepsy

Rudolf W.H.M. Ponds^{a,*}, Mark Hendriks^b

Ponds et al. (2006) reviewed the compensatory strategy used to manage memory impairments in patients with epilepsy. They averred that the compensation strategy of learning mnemonics clearly helped solve some common everyday memory problems. In 6-8 sessions scheduled every 2 weeks, patients learn to use compensatory strategies for their personally formulated treatment goals



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The effects of cognitive rehabilitation on memory outcome after temporal lobe epilepsy surgery

Cristoph Helmstaedter ^{a,*}, Barbara Loer ^a, Rainer Wohlfahrt ^b, Axel Hammen ^b, Josef Saar ^c, Bernhard J. Steinhoff ^c, Ansgar Quiske ^d, Andreas Schulze-Bonhage ^d

Helmstaedter et al. (2008) investigated the effects of cognitive rehabilitation on memory outcome after temporal lobe epilepsy surgery. He included 112 patients from two epilepsy centers. Fifty-five patients from one center received rehabilitation (metacognitive neuropsychological group therapy), while 57 patients from the other center did not. Therapeutic gains of rehabilitation after surgery are significant on verbal learning and recognition ($F = 6.22$, $p = 0.001$), particularly in patients after right temporal lobe surgery. Moreover, the relative risk of deterioration in verbal learning was 3.4 times higher in patients who did not receive rehabilitation after the TLE surgery.

Helmstaedter et al.³⁰

Short-term efficacy of a CR program for attention, executive, memory, and general coping skills
Rehabilitation (Freiburg center)
No rehabilitation (Bonn center)

Participants assigned to a CR or control group based on surgical center attended (i.e., patients who had surgeries at the University of Freiburg received rehabilitation)
Groups matched for age, gender, age at onset, surgery side/type, handedness, and IQ/education
Epilepsy surgery patients

Selective amygdalohippocampectomy for participants with hippocampal sclerosis (58%)
Temporal lesionectomy excluding mesial structures for nonmesial TL lesions (42%)
78% seizure-free

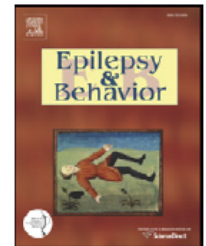
Patients allowed to choose aspects of the program
Group therapy providing psychoeducation, compensatory strategies as well as exercises for attention and problem solving; computer-based cognitive exercises for attention, memory, and executive functions; occupational therapy; and individual counselling related to coping and psychotherapy (e.g., sports, painting)
CR started 3–15 days following surgery and had a mean duration of 29.3 days



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Effective group-based memory training for patients with epilepsy

Kylie Radford^a, Suncica Lah^a, Zoë Thayer^b, Laurie A. Miller^{a,b,*}

Radford et al. (2011) designed a cognitive-rehabilitation training program that consisted of a 6-week, group-based, psycho educational and compensatory strategy course, for which they recruited 31 patients. This was evaluated using a waitlist crossover design and three assessments done 12 weeks apart. The patients made significant gains on tests of anterograde (Rey Auditory Verbal Learning Test, RAVLT) and appointment memory. The results of RAVLT total learning score revealed significant therapeutic benefits of training in both early training group and late training group. In addition, patients who used more strategies to overcome memory problems had fewer prospective memory difficulties in their daily lives. In this study, memory improved more in younger, less-educated, and less-depressed patients. This is consistent with a randomized controlled trial in which the patients who were less educated tended to benefit more from cognitive training. Moreover, patients who had a lower baseline memory capacity but a higher level of attention had better outcomes. Of the clinical variables related to epilepsy, only the number of antiepileptic drugs was associated with outcome, with smaller number associated with greater improvement. Although this study lacks a control group, it provides evidence that even a short intervention can improve the memory function of patients with epilepsy



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Memory rehabilitation and brain training for surgical temporal lobe epilepsy patients: A preliminary report

Loes Koorenhof^a, Sallie Baxendale^{b,c}, Natalie Smith^{b,c}, Pam Thompson^{b,c,*}

Koorenhof et al. (2012) also investigated the short-term effect of a memory rehabilitation program on patients who underwent surgery for left temporal lobe epilepsy (LTLE). In this study, forty-two subjects are enrolled, with 22 healthy control and 20 LTLE patients. One-half of LTLE patients receive rehabilitation program pre-operatively, while the other half receive one post-operatively. The intervention uses compensatory strategies: external and internal memory supports. Outcome measures include performance on a verbal recall/ learning test and subjective ratings of memory in everyday life. In LTLE patients who received rehabilitation pre-operatively, the verbal learning score improved from 51.3 ± 11.9 to 56.9 ± 11 . In the other LTLE group receiving rehabilitation post-operatively, the verbal learning score improved from 38.8 ± 15.2 to 40.7 ± 15.2 . In both LTLE groups, the overall verbal learning scores improved significant after rehabilitation ($F = 16.2$, $p < 0.001$), but there was no significance between the two groups. That means, compared to post-operative memory rehabilitation, pre- operative intervention does not produce better outcomes. Subjective ratings of memory improvements were significant in the LTLE group ($p < 0.005$) but not in the controls ($p < 0.06$). Interestingly, improved verbal learning is correlated with less depression score ($r = -0.58$, $p < 0.008$) in the LTLE group. Based on this study, memory rehabilitation was effective in patients with LTLE, but the benefits did not compensate for the memory decline after the surgery.



REVIEW

Cognitive rehabilitation in epilepsy: An evidence-based review



Elisabetta Farina^a, Alfredo Raglio^{b,c}, Anna Rita Giovagnoli^{c,*}

Table 1 Experimental studies of cognitive rehabilitation in epilepsy.

Study design	Participants	Method	Measurements of efficacy	Highlights	Study class	Reference
Observational Immediate follow-up	36 TLE patients (18 left, 18 right) 2 amnesic patients 36 controls	Mental imagery	Word list learning	Patients submitted to left temporal lobectomy partially compensated verbal memory deficits by using visual imagery	II+	Jones (1974)
Randomized 50-days treatment Immediate follow-up	42 inpatients 64 outpatients 114 waiting list controls (unspecified epilepsy)	50 days cognitive training, psychotherapy, occupational training, and counseling	Self-developed measure of daily performance Quality of life	Improved quality of life Reduced seizure frequency. Correlation between quality of life and seizure frequency	II++	Pfafflin and May (2001)
Observational 8-weeks treatment. Immediate and 6-months follow-ups	22 patients with complex partial seizures	Epilepsy education. Body awareness and relaxation. Creative activities. Cognitive training. Completion of a personal diary	Quality of life Multidimensional symptom self-rating	Improvement at both measures	III	Johanson et al. (2001)
Observational Immediate and 3-months follow-up	21 patients (unspecified epilepsy)	A course book explaining the relationship between memory problems and epilepsy and memory structure, enhancing insight. Group meeting on learning strategies and planning of individual actions for memory problems.	Neuropsychological tests, self-evaluation scales, and memory scales	Increased use of strategies for everyday memory in everyday life Memory improvement at short- and long-term follow-up. Increased coping ability with memory difficulties.	III	Hendriks (2001)
Randomized Six individual weekly one-hour sessions Immediate and 6-months follow-up	46 patients with focal seizures	Computer-based Retraining Method for attention. Compensation Method using strategies for attention deficits relying on external stimuli, stimulating daily routines, and reducing task complexity	Computerized attention tests, Auditory Verbal Memory Test, non-computerized Stroop Color Word Task, self-rating of cognitive functions, quality of life	Improvement in neuropsychological tests, self-reported cognitive outcome, and quality of life	II++	Engelberts et al. (2002b)



REVIEW

Cognitive rehabilitation in epilepsy: An evidence-based review

Elisabetta Farina^a, Alfredo Raglio^{b,c}, Anna Rita Giovagnoli^{c,*}

Table 1 (Continued)

Study design	Participants	Method	Measurements of efficacy	Highlights	Study class	Reference
Controlled One-month treatment Immediate follow-up	112 TLE patients submitted to left or right temporal lobectomy	Meta-cognitive therapy (psycho-education about brain functioning and cognitive deficits), learning compensatory strategies, attention, problem solving, learning, and mnemonics exercises Computer based cognitive exercises focused on attention, memory and executive functions. Occupational therapy. Socio-therapy (group communication and interaction in outdoor activities, sports, painting or designing). Individual counseling.	Verbal learning Figural memory Attention tests	Improved verbal learning in right TLE patients	II+	Helmstaedter et al. (2007)
→ Observational	30 patients with TLE (14 with left TLE, 16 with right TLE)	Internal memory aids	Learning improvement in left TLE patients	Word list learning	III	Bresson et al. (2007)
→ Observational	54 patients with TLE 8 patients with FLE	Self-generation encoding strategy. Passive didactic strategy.	Neuropsychological tests	Cognitive improvement after using self-generation encoding strategy in conjunction with external cues	III	Schefft et al. (2008)
→ Observational Three sessions (for a maximum of four hours) Short-term follow-up	50 TLE patients submitted to left temporal lobectomy 23 patients, 27 controls	Computer-based brain training. Training to use external memory aids and internal memory strategies	Memory test and self-rating Hospital Anxiety and Depression Scale	Improvement of self-rated memory and mood	III	Koorenhof et al. (2012)
→ Observational	3 patients submitted to amygdalectomy	Compensatory strategy for memory on jobs	Learning of strategies	Improvement of memory and awareness	III	Adelinkamp and Vermeulen (1991)

TLE, temporal lobe epilepsy; FLE, frontal lobe epilepsy.



Effectiveness of cognitive rehabilitation following epilepsy surgery: Current state of knowledge

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†Taryn Lenders, †‡¶Brian L. Brooks, and §¶Samuel Wiebe

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doi: 10.1111/epi.12963

	Thorbecke et al. ²⁹		Thorbecke et al. ²⁹
Study focus	Employment status 2 years after temporal lobe epilepsy surgery	CR Program	Neuropsychological interview and counselling. Neuropsychological therapy (e.g., for visual field defects or memory deficits) ± testing Speech, occupational, and physical therapy
Type of groups	Rehabilitation No rehabilitation		Psychological interview and counselling. Individual psychotherapeutic sessions
Patient assignment to conditions	Patients assigned to rehab versus no-rehab based on surgery date (i.e., pre- or postdevelopment of a rehab unit)		Social work interview and counseling
Controls	Epilepsy surgery patients		On the job training, training of job seeking skills
Randomized design (yes/no)	No		
Standardized CR (yes/no)	No		
N	351	Results	No rehab: Rate of those not employed increased slightly from 37.8% to 42.1%
Location of surgery	Left: N = 161 Right: N = 190		Rehab: 2 years after surgery the rate of those not employed had dropped significantly from 38.4% to 27.6%
Age at epilepsy onset	No rehab: N = 119, age = 11.3 (8.6) Rehab: N = 231, age = 13.1 (9.6)		IQ not predictive of employment status 2 years postsurgery
Estimated IQ	No rehab: N = 111, IQ = 94.1 (18.5) Rehab: N = 158, IQ = 90.9 (20.1)		
Surgical approach	Temporal lobe resection; details of surgical approach not specified		
Seizure-free (%)	No rehab: 59.7% seizure-free Rehab: 70.3% seizure-free		

CLINICAL STUDY

Cognitive rehabilitation training in patients with brain tumor-related epilepsy and cognitive deficits: a pilot study

Marta Maschio¹ · Loredana Dinapoli¹ · Alessandra Fabi² ·
Diana Giannarelli³ · Tonino Cantelmi¹

- The aim of this pilot observational study was to evaluate effect of cognitive rehabilitation training (RehabTr) on cognitive performances in patients with brain tumor-related epilepsy (BTRE) and cognitive disturbances.
- The RehabTr consisted of one weekly individual session of 1 h, for a total of 10 weeks, carried out by a trained psychologist. The functions trained were: memory, attention, visuo-spatial functions, language and reasoning by means of Training NeuroPsicologico (TNP) software.
- To evaluate the effect of the RehabTr, the same battery of tests was administered directly after cognitive rehabilitation (T1), and at six-month follow-up (T2).
- Results demonstrated a positive effect of rehabilitative training at different times, and, for these reasons, should encourage future research in this area with large, randomized clinical trials that evaluate the impact of a cognitive rehabilitation in patients with BTRE and cognitive deficits.

INDICAZIONI

NELL'ADULTO CON EPILESSIA, LA RIABILITAZIONE COGNITIVA HA VARIE INDICAZIONI TRA CUI:

- Potenziamento della riserva cognitiva prima dell'intervento chirurgico o farmacologico.
- Deficit di memoria, linguaggio, funzioni esecutive o cognizione sociale, persistenti dopo il controllo farmacologico o chirurgico delle crisi.
- Declino cognitivo.
- Presa in carico globale del paziente in relazione ai disturbi cognitivi e psicosociali ed al fine di facilitare l'inserimento socio-lavorativo.

CENNI METODOLOGICI

La letteratura suggerisce che, in pazienti con epilessia sottoposti a terapia chirurgica o farmacologica, possono essere utilizzate tecniche diverse di riabilitazione (strategie di compensazione, ausili esterni, training per la memoria verbale o visiva, l'attenzione e le funzioni esecutive, visual imagery).

In pazienti selezionati, il training cognitivo abbinato a tecniche di compensazione appare più utile di singole tecniche. Particolari benefici sono descritti per la memoria verbale.

Considerata la complessità anatomofunzionale e le comorbidità associate all'epilessia, appare utile un approccio terapeutico integrato che coinvolga sia la sfera cognitiva che quella fisica, comportamentale e psicosociale, basato sull'associazione di tecniche standardizzate diversificate per le varie componenti cliniche e funzionali.

CRITERI DI TRATTAMENTO

A livello individuale e di gruppo, alcuni aspetti sono rilevanti ai fini della programmazione del trattamento:

- Soggetti: Definire la popolazione target (clinicamente, demograficamente)
 - Valutare la diagnosi e la gravità dell'epilessia
 - Rendere il campione il più rappresentativo possibile della popolazione
- Intervento: Definire l'intervento di riabilitazione/training/stimolazione
 - Standardizzare l'intervento all'interno della popolazione
- Metodi: Utilizzare metodi e strumenti di valutazione standardizzati
 - Criteri di raccolta dati adattati ai fattori anatomoclinici dell'epilessia
- Indicatori di outcome: Validati per valutare l'efficacia della terapia in genere
 - Misure sensibili al cambiamento nel paziente con epilessia
 - Definire un core outcome setting specifico per l'epilessia
 - Definire la durata del follow-up (> 6 mesi)

Conclusioni

- Le terapie cognitive e non farmacologiche in genere sono strumenti promettenti per il trattamento dei disturbi cognitivi nell'adulto con epilessia.
- Tuttavia, c'è scarsa evidenza dei loro effetti o efficacia, sebbene siano descritti miglioramenti a carico delle funzioni cognitive e della qualità di vita.
- È evidente la necessità di una sistematica verifica della loro applicazione ed efficacia attraverso studi controllati e randomizzati.
- Studi clinici rigorosi possono avere importanti implicazioni per la comprensione dei processi di plasticità neurale nell'epilessia.

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