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COGNITIVE REHABILITATION THERAPY

When people talk about Cognitive Rehabilitation Therapy (CRT), they're actually not talking about one therapy - they're talking about a constellation of techniques that are used to try to improve an individual's ability to function after injury. In other words, CRT is not a single therapy, but a collection of individual treatment strategies designed to improve problems with memory, attention, perception, learning, planning and judgment brought about by brain injury, neurological disorders or other illnesses.

Examples of cognitive rehabilitation therapies include writing tasks and interaction with computer-assisted programs. The goal of many of these therapies is to improve functions of memory, attention processing, social communications, problem-solving and the regulation of emotions.

So far, evidence supporting cognitive rehabilitation is encouraging, and efforts by the Department of Defense continue to study and test the effectiveness of several forms of CRT.

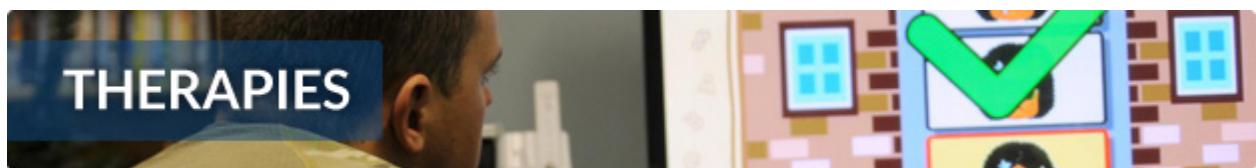
It should be noted that in cases of mild traumatic brain injury (mTBI), nearly 90 percent of patients recover with no residual problems and only those with persistent symptoms need to be evaluated and treated. Diagnostic tools for mTBI are not precise and neuropsychological assessments can be difficult to interpret. Therefore, medical evidence for effectiveness of cognitive rehabilitation therapies has been difficult to measure.



To understand the role CRT may play in treatment plans for people with a variety of traumatic brain injuries (TBI), it's important to see what might happen when different parts of the brain are impacted.

Select the link to view an interactive overview about various kinds of brain injuries.

http://www.health.mil/News_And_Multimedia/Special_Features/crt/neurology101.aspx



On a case by case basis CRT therapies can be used to help retrain and restore brain function or to maintain current levels of brain function in a palliative manner.

Attention Process Training

Area of Cognitive Impairment: Attention

Specific Examples: Letter cancellation tasks with distracting noise in background

Implementation/Procedure: Attention Process Training is a set of standardized auditory and visual procedures for focusing on the components of attention.

Treatment consists of sequential hierarchical interventions aimed at specific attentional processes including sustained attention, selective attention, alternating attention, and divided attention. Increasing levels of distraction are introduced to gradually make the task more challenging.

Training procedures place gradually increasing demands upon attentional capacity by using visual distracters, noise and other audio distracters. The task progression is standardized by using varying levels of a specific distracter. Each skill level is repeated until it is mastered.

Treatment occurs in individual and group therapy sessions by trained clinicians.

Error Management Training

Area of Cognitive Impairment: Attention, Memory, Executive Functioning, Social Pragmatics

Specific Examples: Individual and group self-awareness training

Implementation/Procedure: Error management training is a group support program that includes components of cognitive rehabilitation, cognitive behavioral therapy, and social skills training and focuses on self-regulation and psychosocial functioning. The 16-week intervention is designed to improve self-awareness deficits that are common following TBI and targets error awareness and self-correction in real life settings at home and work.

Emotional Regulation Training

Area of Cognitive Impairment: Attention, Memory, Executive Functioning, Social Pragmatics

Specific Examples: Anger management groups

Implementation/Procedure: The goal of emotional regulation training is to increase the patient's awareness of their negative emotional states, particularly anger, through training in recognition of cognitive, physical, and emotional reactions. Self-monitoring, observer feedback, and self evaluation are employed.

Patients are provided with an outline of anger syndromes and handouts summarizing the sessions as well as practice in relaxation techniques, self- talk methods, and time outs.

Goal management training is a self-regulation strategy that has been used to address the disorganized behavior that often follows TBI and addresses executive functioning skills that are necessary for independent functioning.

Emotional regulation management programs are usually multi-component and include a combination of self-monitoring, relaxation, cognitive restructuring, and interpersonal skills training conducted in group formats.

External Cueing

Area of Cognitive Impairment: Attention, Memory, Executive Functioning

Specific Examples: Supervised living, BlackBerry, Cell phone, PDA

Implementation/Procedure: External cueing provides the patient with aids for recall, such as alarm watches. The therapy also includes restructuring the environment using labels, signs, and directions.

Technology can be used to provide some of this external cueing and serves the purpose of a “cognitive orthotic” in functional activities for the memory impaired TBI patient. For example, pagers can enhance prospective memory, the ability to perform an activity in the future, such as remembering to take

medication on time or shut off appliances. Other aids for memory and executive functioning include voice organizers, mobile phone computer interactive systems, and devices such as PDAs and BlackBerry cell phones.

External cueing strategies may require family as well as individual treatments to select and train the cues most appropriate to the patient's level of cognitive functioning and social environment. A therapist is important to help determine the patient's needs and readiness to use technology, provide feedback and guidance, teach the tools, reinforce their use, and process emotional reactions to the use of cognitive orthotics.

Integrated use of individual and group cognitive, psychological and functional interventions

Area of Cognitive Impairment: Attention, Memory, Executive Functioning, Social Pragmatics

Implementation/Procedure: Integrated day treatment programs that provide individual and group cognitive, psychological and functional interventions are the standard of care in post-acute brain injury rehabilitation. These programs are multidisciplinary and employ multiple treatment modalities in a holistic program that is typically delivered to patients three to five times per week over several months.

Treatment is individualized and psychosocial interventions are employed to enhance effectiveness of treatments focused on specific cognitive impairments. In addition to cognitive and psychosocial functioning, these programs address self-awareness, behavioral and affective regulation, and community reintegration.

The group treatments focus on improving executive functioning and generalizing strategies learned in treatment to the naturalistic environment. The treatment team is usually comprised of a neuropsychologist, speech-language pathologist, occupational therapist, vocational therapist, recreation therapist, and physician and meets regularly to develop individualized treatment goals and monitor patient progress.

Community re-entry is a goal of this treatment, so outings to community settings to practice new skills are an integral component of this treatment; vocational trials are also often included. Families are involved in psychoeducation and family therapy to support the patient's treatment progress.

Memory Notebook

Area of Cognitive Impairment: Attention, Memory, Executive Functioning

Specific Examples: Prosthetics, PDA

Implementation/Procedure: A memory notebook is a memory compensation strategy in which the patient is taught how to use a diary and then how to use this diary to solve problems in daily activities.

A memory notebook includes sections for autobiographical and injury related information, a memory log, a calendar to-do list, transportation information such as bus schedules, names and identifying information, and a feelings log to record emotions that occur in specific situations. Other sections can be added that are personally relevant to the patient.

During the first phase of treatment, the patient is familiarized with the sections of the notebook and the overall purpose of the notebook. In the next phase of treatment, the patient learns to use the notebook with therapist guidance during simulated situations. During the final phase, the patient is coached about how to use the notebook at home or at work.

A PDA is the electronic equivalent of a memory notebook. PDAs and memory notebooks serve as “memory prosthetics” for the traumatic brain injury patient with impaired prospective memory.

An important component in this intervention is therapist facilitation of the patient's emotional acceptance of the necessity of using a memory notebook and the acceptability of the use of devices in the patient's social environment.

Problem Solving Training

Area of Cognitive Impairment: Attention, Memory, Executive Functioning, Social Pragmatics

Specific Examples: Internal problem-solving, Internal dialogue

Implementation/Procedure: Problem solving training interventions address issues in the ability to formulate goals, initiate behavior, anticipate the consequences of action; plan, organize, and monitor behavior; and to change behavior in accordance with feedback.

Training provides patients with techniques for analyzing complex problems by breaking them into manageable steps. Steps taught include defining the problem, generating alternatives, making a decision, and verifying the solution. The patient is taught to use an internal dialogue or self-instructions to approach problems in everyday life; self-awareness and self-regulation are emphasized.

Training methods include cue cards, feedback, modeling, and the keeping of a diary. Problem solving training can occur in individual or group treatments.

Social Communication Skills Training Groups

Area of Cognitive Impairment: Executive Functioning, Social Pragmatics

Specific Examples: Group cognitive therapy

Implementation/Procedure: Social communication skills training is a group treatment approach that is jointly facilitated by mental health and rehabilitation professionals. These groups emphasize self-awareness to set individual goals.

Group process is used to foster interaction, problem solving, a social support system, and awareness that one is not alone. A treatment protocol has been used which was comprised of 12 ninety minute sessions.

Various Mnemonic Techniques

Area of Cognitive Impairment: Memory

Specific Examples: Story method, Acronyms, Sentences/ acrostics, Method of loci, Chunking, Repetition

Implementation/Procedure: Mnemonic Strategies are memory-enhancing strategies that help patients develop techniques to enhance registration and encoding of information.

Examples of mnemonic strategies include verbal organization strategies such as forming acronyms and making paired associations with target words and semantic elaboration which refers to linking target words or ideas in a story. Rehearsal or repetition is another strategy for improving retention of information.

These techniques are typically taught in individual treatment sessions as they are difficult to learn, require assistance to identify applicable situations for use in the patient's life, and require repeated practice for generalization from the treatment session to the patient's own environment to occur.

Additional efficiency can be achieved when a group format is used for practice after individual strategy training.

Visual Imagery Mnemonics

Area of Cognitive Impairment: Memory

Specific Examples: Imagery based training

Implementation/Procedure: Visual imagery is a popular mnemonic strategic in which the patient is taught to make a movie or picture of what needs to be recalled. Application of this technique is useful for improving recall of everyday verbal material such as stories, names, and appointments.

Treatment occurs three times weekly and is of 10 weeks duration.

Working Memory Training

Area of Cognitive Impairment: Attention

Specific Examples: Completing two cognitive tasks simultaneously

Implementation/Procedure: Working memory training refers to a treatment designed to improve and optimize the temporary maintenance and manipulation of mental representations of information. This cognitive process is particularly important when information is presented rapidly or there are multiple sources of information.

Working memory training teaches patients strategies to improve their regulation and allocation of attentional resources. Tasks are administered in a hierarchical sequence with task complexity and additional components added as mastery is obtained. In the n-back procedure, for example, a sequence of stimuli is presented and the patient is asked to recall stimuli early in the sequence.

Number strings or playing cards presented in random sequence have been used for the training task. The therapist modifies the conditions of the task such as changing from self-paced to externally based presentation.

The working memory demands of the task can be further increased by having the patient engage in a secondary task while completing the n-back task to simulate the occurrence of interrupting an activity to respond to an additional task and being able to return to the original activity.

This treatment is conducted individually and part of the treatment time is spent discussing the patient's performance and helping the patient identify task variables which negatively or positively influenced their performance. The work with the therapist also includes attention to managing frustration and other emotional responses elicited by the task, analyzing attentional difficulties relevant to the patient's everyday functioning, and facilitating the application of strategies learned within the session to everyday functioning.



The complexity of the brain and brain injuries has led to questions about the nature of cognitive rehabilitation therapy and its availability to service members who have sustained TBIs.

Does DoD/TRICARE cover CRT?

On April 14th, 2010, the Assistant Secretary of Defense (Health Affairs) directed the implementation of a broad based DoD pilot program intended to conform to the proceedings, and resulting guidance document, of the Consensus Conference on Cognitive Rehabilitation for Mild Traumatic Brain Injury held in April 2009. This guidance document outlined a standardized and measurable process for the provision of CRT services. This policy mandated the implementation of the guidance at 13 military treatment facilities (MTF's).

In 2010, DoD provided over 45,000 hours of care involving CRT to service members and over 32,000 hours to family members of active duty members and retirees. These treatments were delivered by a wide array of health professionals, including psychologists; occupational, speech and physical therapists; and physicians.

For more information, please see the TRICARE CRT Fact Sheet.

<http://www.tricare.mil/tricaresmart/product.aspx?id=811&CID=162&RID=1>

Who may benefit most from CRT?

Patients who have experienced moderate to severe TBI and who suffer from recurring symptoms such as attention and memory deficits, problems with executive functioning and social pragmatics deficits are most likely to benefit from CRT. In cases of mild TBI, nearly 90 percent recover with no residual problems and only those with persistent symptoms need to be evaluated and treated.

What is CBT?

Cognitive behavioral therapy is a common type of mental health counseling consisting of a range of therapies designed to treat conditions like anxiety or depression. CBT is meant to help patients become aware of inaccurate or negative thinking and to view challenging situations more clearly and respond to them in a more effective way. CBT can be an effective tool to help anyone learn how to better manage stressful situation.

For more information about CBT visit the following URL.

<http://www.brainline.org/content/2009/06/community-integrated-brain-injury-rehabilitation-treatment-models-and-challenges-for-civilian-military-and-veter.html>

What is the difference between CRT and CBT?

Cognitive Rehabilitation Therapy is a collection of treatment strategies designed to address problems with memory, attention, perception, learning, planning and judgment brought about by brain injury, neurological disorders and other illnesses, Cognitive Behavioral Therapy is a common type of mental health counseling to help a patient become aware of inaccurate or negative thinking.

Why is it difficult to determine how effective CRTs can be; there seems to be great disparity of opinion on the subject?

Limited data on the effectiveness of cognitive rehabilitation programs are available, and this is in part due to the heterogeneity of the subjects, interventions and outcomes studied. Lack of rigorous methodology (ie randomized controlled trials) in efficacy studies has also contributed to the disparity in opinion on the effectiveness of CRT.

Are CRTs effective or ever used for injuries that did not involve head injuries? For example, is CRT effective for psychological disorders?

The benefit of CRT is not limited to patients with head injuries. Patients with psychological disorders that have impairments in attention, memory, socialization, and reasoning and processing skills can also benefit from CRT.

Are there "specialists" in CRTs, or do most doctors understand their uses?

Neuropsychologists specialize in neuropsychological cognitive testing that is used to determine if a patient will benefit from cognitive rehabilitation. They are also the primary providers who develop the individualized cognitive rehabilitation plan for patients. However, cognitive rehabilitation may be performed by an occupational therapist, physical therapist, speech/language pathologist, neuropsychologist, or a physician.