



# Cognitive Rehabilitation for Service Members and Veterans Following Mild to Moderate Traumatic Brain Injury: Short Version

## BACKGROUND AND SCOPE

These recommendations detail interventions and cognitive rehabilitation delivery to service members and veterans in the post-acute and chronic stages of recovery following mild to moderate traumatic brain injury (TBI). Whereas assessment is critical for a cognitive rehabilitation treatment plan, it is outside of the scope of these clinical recommendations.

1 Cognitive Rehabilitation Modifications for Service Members and Veterans		
1.1	<b>RETURN TO PRODUCTIVITY: DUTY, EMPLOYMENT, VOLUNTEERING AND SCHOOL</b>	<ul style="list-style-type: none"> <li>■ Emphasize the goal of return to full duty for service members or to employment and/or volunteer work for veterans by incorporating functional skills training, as well as tasks and aspects of the patient’s actual work or duty responsibilities into treatment.</li> <li>■ Use activities such as notetaking and test taking that underlie successful return to school to address attentional, executive and prospective memory skills.</li> </ul>
1.2	<b>CONSIDERATIONS FOR MILITARY SERVICE MEMBERS</b>	<ul style="list-style-type: none"> <li>■ Identify and incorporate service member’s military specific occupation into treatment goals and interventions.</li> <li>■ Address factors that may impact the service member’s ability or motivation to comply with treatment plans or put the service member at risk for a repeat TBI.</li> <li>■ Determine whether the TBI was sustained in a traumatic context, such as in a blast during combat operations or in a training mishap, to identify potential post-injury comorbidities such as posttraumatic stress disorder.</li> <li>■ Consider multiple concussions among the risk factors for persistence of cognitive dysfunction and consider a trial of cognitive rehabilitation.</li> <li>■ If family is not involved or available and the service member is willing, consider involving a friend from the patient’s unit in treatment to serve in the supportive role usually taken by family members.</li> <li>■ With the service member’s consent, collaborate with the service member’s leadership to facilitate command support of cognitive rehabilitation treatment goals, translation of compensatory strategies to duty performance, alignment with Department of Defense (DoD) guidelines on return to duty and medical board processes, and continuity of cognitive rehabilitation treatment if needed at separation from service.</li> </ul>
2 Interventions and Strategies to Address Cognitive Dysfunction		
2.1	<b>ATTENTIONAL DIFFICULTIES</b>	<ul style="list-style-type: none"> <li>■ Provide psychoeducation about attentional difficulties and positive expectations for cognitive recovery in the post-acute phase and as a brief initial intervention in the chronic phase of recovery.</li> <li>■ Address attentional challenges as a component of a comprehensive treatment plan for executive dysfunction.</li> <li>■ Ensure that the use of restorative interventions that directly train attention are therapist directed and used in conjunction with or as a supplement to compensatory strategy training; may consider as optional an attentional training component such as attention process training (APT) or interactive metronome (IM) training.</li> <li>■ Consider adding an attentional training component if using a manualized cognitive rehabilitation intervention that does not specifically address attentional function (e.g., Strategic Memory and Reasoning Training, and Goal Management Training).</li> </ul>
2.2	<b>MEMORY AND NEW LEARNING DIFFICULTIES</b>	<ul style="list-style-type: none"> <li>■ Emphasize self-management and internal and external compensatory memory strategies coupled with psychoeducation. If indicated, address within the context of a comprehensive approach.</li> <li>■ Consider including external cognitive aids and assistive technologies (AT) as compensation for prospective memory difficulties.</li> </ul>

2 Interventions and Strategies to Address Cognitive Dysfunction (Continued)	
2.3	<p><b>EXECUTIVE DYSFUNCTION AND COMPREHENSIVE INTEGRATED TREATMENT</b></p> <ul style="list-style-type: none"> <li>■ Individualized compensatory strategy training is the key approach for the management of executive dysfunction complaints. The provider advises and coaches the patient to develop and use compensatory strategies for goal setting, planning, self-monitoring, and time management.</li> <li>■ Approaches that teach and rehearse key compensatory strategies to minimize executive dysfunction often focus on problem solving, goal setting, reasoning, and emotional regulation.                             <ul style="list-style-type: none"> <li>■ Consider using one of the following manualized skills based therapies for treatment of executive dysfunction: Short-Term Executive Plus (STEP), Strategic Memory and Reasoning Training (SMART), Goal Management Training (GMT), or Compensatory Cognitive Training (CCT)/CogSMART.</li> </ul> </li> <li>■ A therapeutic milieu, which provides integrated cognitive rehabilitation, including emotional self-regulation training, is often indicated for patients with cognitive dysfunction and comorbid psychological health disorders.                             <ul style="list-style-type: none"> <li>■ Consider adapting group content and curriculum pertinent to the individual patient(s) from the integrated treatment arm of Study of Cognitive Rehabilitation Effectiveness (SCORE) (Cooper et al., 2016) (Link: <a href="https://dvbic.dcoe.mil/study-manuals">https://dvbic.dcoe.mil/study-manuals</a>).</li> </ul> </li> </ul>
2.4	<p><b>COGNITIVE-COMMUNICATION DIFFICULTIES</b></p> <ul style="list-style-type: none"> <li>■ Tailor cognitive-communication interventions to everyday communication needs based on the patient's functional complaints and an analysis of the individual's communication performance in different contexts.</li> <li>■ Include interventions such as psychoeducation, environmental modifications (e.g., reducing distractions), external aids (e.g., notetaking and recording), and internal compensatory strategies (e.g., active listening, restating, slowing down).</li> <li>■ Consider guidance in The INCOG Recommendation for Management of Cognition Following TBI, Part IV; Cognitive Communication (Togher et al., 2014) for moderate to severe TBI, which may be relevant to mTBI including:                             <ul style="list-style-type: none"> <li>■ Consider the person's premorbid native language, literacy, and language proficiency; cognitive abilities; and communication style, including communication standards and expectations in that individual's culture.</li> <li>■ Provide the opportunity to rehearse communication skills in situations appropriate to the context in which the individual will live, work, study, and socialize.</li> <li>■ Measure outcomes at the level of participation in everyday life (see Appendix E for the outcome measures used in studies included in the evidence review).</li> </ul> </li> </ul>
2.5	<p><b>USE OF TECHNOLOGY</b></p> <ul style="list-style-type: none"> <li>■ Select assistive technology (AT), preferably multi-functional devices, to address the specific cognitive support needs of the patient.</li> <li>■ Instruct the patient's use of the specific AT and collaborate to apply the AT to situations in which cognitive dysfunction occurs.</li> <li>■ Educate the key people (employers, instructors, command) in the environment(s) in which the patient will use the AT and elicit support for the patient's use of AT.</li> </ul>
2.6	<p><b>TELEHEALTH AND VIRTUAL REALITY</b></p> <ul style="list-style-type: none"> <li>■ Consider telehealth as a mode for cognitive rehabilitation delivery when the patient cannot otherwise access cognitive rehabilitation or ease of access interferes with appointment compliance or follow-up.</li> <li>■ If possible, provide an initial in-person visit with the therapist or local team member (such as a case manager) to introduce telehealth, ensure that the patient has access to the hardware and software required for the telehealth interface and knows how to use it, and develop a therapeutic alliance with the patient.</li> </ul>
2.7	<p><b>USE OF COMPUTERIZED COGNITIVE REHABILITATION</b></p> <ul style="list-style-type: none"> <li>■ Use therapist-guided computerized interventions to improve attentional function as an adjunct component of an integrated cognitive rehabilitation treatment plan.</li> <li>■ Avoid self-administered or independent use of computerized cognitive rehabilitation.</li> </ul>

<b>3 Delivery of Rehabilitation for Patients with Cognitive Challenges</b>	
<b>3.1</b>	<p><b>TREATMENT PLANS</b></p> <ul style="list-style-type: none"> <li>■ Incorporate improved self-efficacy and independent management of systems as central components of the treatment plan.</li> <li>■ Consider referral for comorbid conditions that may impact cognitive function prior to or concurrent with cognitive rehabilitation. Concerns include mental health issues, sleep disturbance, pain management, headache, poor nutrition, substance use, physical inactivity, hearing loss, family and financial stress, and visual and vestibular disturbances.</li> <li>■ Collaborate with the patient and any other team members at the outset of treatment to establish patient-centered goals aimed at specific activity or participation outcomes.</li> <li>■ Identify specific activities or tasks that are problematic; the component knowledge, skills, and abilities necessary for successful completion; and target areas in which the patient has decreased efficacy.</li> </ul>
<b>3.2</b>	<p><b>FREQUENCY, INTENSITY, LENGTH, DURATION AND TIMING OF INTERVENTIONS</b></p> <ul style="list-style-type: none"> <li>■ Frequency, intensity, length of sessions: Provide sufficient treatment intensity and practice for the targeted skills to become habitual or automatic and incorporated into the patient's daily activities. For representation targets, provide lengthy and frequent enough sessions for patient to understand and self-manage the condition(s).</li> <li>■ Duration of treatment: Adjust the duration of treatment based on the patient's progress toward treatment goals. If a patient is not progressing, determine the underlying cause and adjust the frequency, or intensity of treatment. A time-limited trial of cognitive rehabilitation for patients with complex environmental or personal circumstances may help to further assess their ability to engage effectively in cognitive rehabilitation.</li> <li>■ Timing: Conduct a motivational interview to indicate the patient's readiness to participate. Patient- identified functional goals for treatment indicate readiness for initiation of cognitive rehabilitation.</li> </ul>
<b>3.3</b>	<p><b>MODALITY OF TREATMENT: COMPARING INDIVIDUAL AND GROUP THERAPY</b></p> <ul style="list-style-type: none"> <li>■ Consider individual therapy when the rehabilitation targets are skills and habits, such as routine use of strategies and AT, or are highly task or needs specific.</li> <li>■ Consider group therapy when the rehabilitation targets are representations, with a focus on peer support, education and conscious practice of skills in an interactive format.</li> </ul>
<b>3.4</b>	<p><b>MANUALIZED TREATMENTS</b></p> <ul style="list-style-type: none"> <li>■ Use manuals as a resource but not as a stand-alone treatment or substitute for clinical judgement.</li> </ul>
<b>3.5</b>	<p><b>INTERDISCIPLINARY REHABILITATION OF COGNITIVE DYSFUNCTION</b></p> <ul style="list-style-type: none"> <li>■ Consider an interdisciplinary team approach for patients experiencing persisting cognitive difficulties and emotional distress that interfere with activity participation.</li> <li>■ Referral considerations include: <ul style="list-style-type: none"> <li>■ Significant complaints of inefficiency and/or difficulty participating in important activities that the patient needs, wants, and/or is expected to perform.</li> <li>■ Concern by key persons in the patient's life who observe a change in the patient's performance of complex instrumental activities of daily life including home, community, work, school and leisure, as well as interpersonal difficulties in affective distress.</li> </ul> </li> </ul>
<b>3.6</b>	<p><b>ADDRESSING COMORBIDITIES</b></p> <ul style="list-style-type: none"> <li>■ Address common comorbid conditions that affect cognition either prior to or concurrent with the initiation of cognitive rehabilitation. These conditions include psychological health disorders, sleep disturbances, headaches, and chronic pain.</li> <li>■ Refer patients with active substance abuse disorder or active psychotic disorder to a behavioral health care provider prior to initiation of cognitive rehabilitation. Provide cognitive rehabilitation concurrently if adequate resources are available and interdisciplinary collaboration is possible. If not, defer cognitive rehabilitation until the disorder is adequately managed.</li> <li>■ Refer patients presenting with decreased alertness and severely diminished attention to the appropriate specialist for assessment and treatment prior to initiating cognitive rehabilitation. Defer cognitive rehabilitation until the patient can sustain adequate attention to benefit from treatment sessions.</li> </ul>

3 Delivery of Rehabilitation for Patients with Cognitive Challenges (Continued)	
3.7	<p><b>INTERVENTIONS FOR PATIENTS WITH DIFFICULTY ENGAGING IN COGNITIVE REHABILITATION</b></p> <p>Consider factors related to:</p> <ul style="list-style-type: none"> <li>■ The patient: assess for potential psychosocial barriers to treatment effectiveness and address personal crises that may need management.</li> <li>■ The team: ensure the team is involved, engaged, and sensitive to the psychosocial needs of the patient, and aim for shared strategy use across providers.</li> <li>■ Treatment delivery: modify treatment intensity and/or incorporate treatment pauses; set clear expectations for attendance and functional homework completion; change provider if necessary.</li> <li>■ The intervention: focus treatment on patient-centered, functional goals to maximize motivation; engage in frequent and ongoing conversation with the patient regarding treatment goals; modify intervention approach; set clear and specific expectations for appointment attendance and boundaries for no-shows. If the initial intervention approach is not resulting in patient engagement, consider selecting an alternative approach.</li> </ul>
3.8	<p><b>GENERALIZING AND MAINTAINING TREATMENT EFFECTS</b></p> <ul style="list-style-type: none"> <li>■ Support generalization and maintenance of treatment effects: <ul style="list-style-type: none"> <li>■ Engage the patient’s network including family, friends, command, academic advisors, and work supervisors.</li> <li>■ Promote self-management of cognitive challenges.</li> <li>■ Promote metacognitive approaches that encourage self-monitoring.</li> <li>■ Encourage skills practice in a variety of environments.</li> <li>■ Assign functional homework.</li> <li>■ Promote AT for self-monitoring.</li> </ul> </li> <li>■ Consider training the patient in anticipatory awareness.</li> </ul>
3.9	<p><b>BOOSTER SESSIONS AND FOLLOW-UP OPTIONS</b></p> <ul style="list-style-type: none"> <li>■ Consider a tapered discharge plan in which sessions are spaced out at increasing intervals prior to discharge of the patient from treatment.</li> <li>■ Consider a booster session after discharge to address specific functional needs.</li> </ul>