

## Attention Challenges Following TBI: Overview and Treatment Strategies

Attention is the mental ability to focus or concentrate. We all experience occasional lapses in attention. However, following a traumatic brain injury (TBI), the nature and frequency of attention lapses can regularly disrupt daily activities at home, work, and in the community. This research brief provides an overview of attention challenges following TBI and treatment approaches for managing these challenges.

### What do attention challenges look like following TBI?

These include but are not limited to:

- difficulty concentrating and keeping one's mind on an activity.
- difficulty maintaining a train of thought.
- being easily distracted by one's surroundings.
- difficulty doing more than one thing at a time.
- difficulty returning to a task after disruptions.
- being very fatigued following activities that require prolonged concentration.
- a feeling of being "in a fog."

Attention is integrated with the ability to: (a) take in information through our senses; (b) rapidly process information; and (c) remember information later. TBI can affect all of these areas. In fact, attention challenges are often the primary cause of memory problems. For example, when someone forgets information immediately or is distracted and then later doesn't remember where they put their keys, the problem is likely due to difficulty with attention, not memory. Attention challenges can also pose a safety risk. An individual who is distracted and unable to focus may not notice an oncoming car while crossing the street or that the stove is still on after heating some food. Other factors, such as lack of sleep, medications, depression, and/or a pre-injury history of attention deficit disorder (ADD), can also contribute to attention problems following TBI.

There are at least four attention systems within the brain: sustained, selective, divided/alternating, and working memory—a complex form of attention. These systems can be linked to specific challenges after TBI, as illustrated below using reading as a sample task.

**Sustained attention:** The ability to maintain focus over time.

*Example:* Steve is unable to read his novel for more than five minutes at a time without losing his train of thought and the main idea.

**Selective attention:** The ability to filter out external distractions.

*Example:* Katie is unable to read her textbook when distracted by noise outside her dorm window.

**Divided/alternating attention:** The ability to switch between tasks, including mental flexibility.

*Example:* Roberto repeatedly checks his email and has difficulty returning to other computer-based work tasks afterward.

**Working memory:** The ability to mentally manipulate information for complex tasks.

*Example:* Leah has difficulty solving math word problems.

## What are the options for treating attention challenges following TBI?

A combination of direct attention training and self-check strategy training can be beneficial in treating attention challenges following TBI. Direct attention training is an intensive drill approach to strengthening the attention systems described above using simple to more complex mental tasks. Self-check strategies—sometimes called meta-cognitive strategies—are self-monitoring techniques used across a variety of situations. Environmental modifications and task management strategies are compensatory techniques that are also used to address attention challenges. For maximum effect, all strategies should be individualized, carefully evaluated, supported by others in the environment, and practiced as part of a daily routine.

### Sample Strategy Checklist

Self-Check Strategies	Environmental Modifications	Task Management Strategies
<p>Create Mindful Moments:</p> <ul style="list-style-type: none"><li>• Slow down.</li><li>• Take a deep breath.</li><li>• Use key phrases such as: “What am I doing now?” “What is the first step, next step, last step?” “What is my goal?”</li><li>• Combine with other strategies such as setting an alarm to go off at regular intervals to help keep focus (see Task Management Strategies).</li></ul>	<p>Keep everything in its place:</p> <ul style="list-style-type: none"><li>• Have a consistent place for items such as the calendar, phone, keys, purse, wallet, and notepad for taking messages.</li></ul> <p>Reduce distractions:</p> <ul style="list-style-type: none"><li>• Decrease noise (use earplugs, turn down or off TV, radio, iPod, etc.).</li><li>• Turn off the phone and use voice messaging to avoid being interrupted during a task.</li><li>• Decrease visual clutter (clean/organize surrounding area).</li></ul> <p>Avoid frustrating environments:</p> <ul style="list-style-type: none"><li>• Work and/or meet others in quiet places with few distractions.</li><li>• Avoid peak hours at stores and restaurants.</li></ul>	<p>Use external aids:</p> <ul style="list-style-type: none"><li>• Use sticky notes with specific reminders to stay on task.</li><li>• Use technology (timers, alarms, personal digital assistants, cell phones, smart phones) to set alerts and alarms for remembering scheduled events and staying on task.</li></ul> <p>Pace the day:</p> <ul style="list-style-type: none"><li>• Schedule more mentally fatiguing activities to occur at optimal times during the day.</li><li>• Schedule shorter more frequent work sessions when possible.</li><li>• Take planned breaks. Set an alarm.</li><li>• Rest often.</li></ul> <p>Do one thing at a time:</p> <ul style="list-style-type: none"><li>• Try not to do too many things at once.</li><li>• Finish one task before starting another when possible.</li></ul> <p>Keep it simple:</p> <ul style="list-style-type: none"><li>• Break a complex task into small, manageable pieces.</li><li>• Keep conversations focused on one topic at a time.</li></ul>

### Where can I find more information?

- \* Cicerone et al. (2011). Evidence-Based Cognitive Rehabilitation: Updated Review of the Literature From 2003 Through 2008. *Archives Of Physical Medicine And Rehabilitation*, 92(4), 519-530 <http://www.ncbi.nlm.nih.gov/pubmed/21440699>
- \* Mateer & Sira (2006). Cognitive and emotional consequences of TBI: Intervention strategies for vocational rehabilitation, *Neurorehabilitation*, (21), 315-326.
- \* Sohlberg et al. (2003). Practice guidelines for direct attention training. *Journal of Medical Speech-Language Pathology*, 11, 3, xix-xxxix [www.ancds.org](http://www.ancds.org)
- \* The Fact of the Matter Research Briefs—[www.cbirt.org/publications-products/](http://www.cbirt.org/publications-products/)

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