

COGNITIVE DYSFUNCTION

Cognitive dysfunction refers to difficulties or impairments in various mental processes that affect an individual's ability to think, reason, remember, and process information effectively. This can manifest as challenges in attention, memory, language, executive functions (such as planning and problem-solving), and other cognitive skills essential for daily functioning.

Individuals experiencing cognitive dysfunction may find it challenging to concentrate, organize their thoughts, or remember information accurately. They may struggle with tasks that require decision-making, problem-solving, or multitasking, and they may experience difficulties in communicating effectively with others.

Cognitive dysfunction can occur as a result of various factors, including neurological conditions (such as Alzheimer's disease, traumatic brain injury, or multiple sclerosis), mental health disorders (such as depression or schizophrenia), developmental disorders (such as autism spectrum disorder), or as a side effect of medication or substance abuse.

The severity and impact of cognitive dysfunction can vary widely among individuals, ranging from mild impairments that only affect certain aspects of daily life to more significant deficits that interfere with independence and quality of life. Effective management often involves a combination of strategies tailored to the individual's specific needs, including cognitive rehabilitation, medication, therapy, and environmental modifications.

Notes

Disabilities Relating to Cognitive Dysfunction

Attention-Deficit/Hyperactivity Disorder (ADHD): ADHD is characterized by difficulties with attention, hyperactivity, and impulsivity. Cognitive dysfunction in ADHD may involve issues with focus, organization, and impulse control.

Autism Spectrum Disorder (ASD): Individuals with ASD may experience challenges in communication, social interaction, and repetitive behaviours, often accompanied by cognitive impairments such as difficulty with executive functioning and processing sensory information.

Intellectual Disability (ID): Formerly known as mental retardation, ID involves limitations in intellectual functioning and adaptive behaviours. Cognitive dysfunction in ID can affect learning, problem-solving, and reasoning abilities.

Traumatic Brain Injury (TBI): TBI can result from a blow or jolt to the head, leading to cognitive impairments such as memory problems, difficulties with attention and concentration, and challenges with executive functions like decision-making and problem-solving.

Down Syndrome: Individuals with Down syndrome have an extra copy of chromosome 21, which can lead to cognitive impairments, including intellectual disability, learning difficulties, and delays in language development.

Cerebral Palsy (CP): CP is a group of disorders that affect movement and muscle coordination. Cognitive dysfunction can occur in individuals with CP due to brain damage or abnormalities, leading to challenges with learning, attention, and communication.

Dyslexia: Dyslexia is a specific learning disability that affects reading and language processing. While primarily associated with difficulties in reading, dyslexia can also involve cognitive impairments related to phonological awareness, verbal memory, and processing speed.

Williams Syndrome: This genetic condition is characterised by cardiovascular problems, distinctive facial features, and intellectual disability. Individuals with Williams syndrome often exhibit cognitive strengths in certain areas (such as language and music) but may also experience difficulties with spatial cognition and executive functioning.

Fetal Alcohol Spectrum Disorders (FASD): Exposure to alcohol during pregnancy can result in a range of cognitive and behavioural problems in children, including intellectual disability, learning difficulties, and deficits in executive functions and social skills.

Multiple Sclerosis (MS): MS is a neurological condition that can lead to cognitive dysfunction due to damage to the central nervous system. Cognitive symptoms may include difficulties with memory, attention, processing speed, and problem-solving.

REPETITION

Repetition is an important part of helping students live with cognitive difficulties, because of its ability to strengthen neural pathways and help learning and memory processes. With each repetition, neural circuits within the brain are repeatedly activated, making the connections between neurons stronger. This process is known as synaptic plasticity.

This process is important when embedding information into long-term memory, as it activates specific brain regions associated with learning and memory, including the hippocampus and prefrontal cortex. Through consistent repetition, these neural pathways become increasingly efficient, facilitating swifter and more precise processing of information over time.

Additionally, repetition gives students a chance to practice. This reinforces what they have learned, empowering students with cognitive challenges to refine their abilities to complete cognitive tasks. By repeating and recalling information, they strengthen connections between related neural networks, which then makes the retrieval of information from memory a quicker process (as seen in the one-word-story).

Repetition is a vital part of supporting students living with cognitive dysfunction. Early intervention can help students recognise what strategies work best for them, allowing them to build routines and habits that capitalise on repetition to enhance their cognitive functioning. By integrating repetitive practices into their learning environments, educators can create structured and predictable experiences that cater to the unique needs of students with cognitive challenges.

Notes

Sensory Overload

What is Sensory Overload? Sensory overload occurs when the brain is overwhelmed by too much sensory information, making it difficult to process and respond effectively. This can occur in individuals with neurodiverse conditions such as autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), sensory processing disorder (SPD), and anxiety disorders, as well as in individuals without diagnosed conditions.

Common Symptoms of Sensory Overload

Heightened Sensitivity: Individuals may experience heightened sensitivity to stimuli such as light, sound, touch, smell, and taste.

Overwhelm and Irritability: They may become overwhelmed or irritable in environments with high levels of sensory input.

Difficulty Concentrating: It may be challenging for individuals to concentrate or focus on tasks when sensory stimuli are distracting or distressing.

Physical Discomfort: Sensory overload can lead to physical symptoms such as headaches, fatigue, nausea, or muscle tension.

Withdrawal or Shutdown: Some individuals may withdraw from social interaction or exhibit shutdown behaviours as a coping mechanism to reduce sensory input.

Triggers of Sensory Overload

Visual Stimulation: Bright lights, flashing lights, cluttered or visually busy environments.

Auditory Stimulation: Loud noises, sudden noises, overlapping conversations, background music.

Tactile Stimulation: Rough textures, crowded spaces, certain fabrics or clothing.

Aromatic Stimulation: Strong smells, such as perfumes, cleaning products, or cooking odours.

Gustatory Stimulation: Strong or unfamiliar tastes, textures, or temperatures of food and beverages.

Supporting Students with Sensory Overload

Provide Sensory-Friendly Environments: Create calm, predictable, and organised environments with minimal sensory distractions.

Offer Sensory Breaks: Allow students opportunities to take breaks in quiet or low-stimulation areas when needed.

Provide Sensory Tools: Offer sensory tools and accommodations such as noise-cancelling headphones, fidget tools, weighted blankets, or sensory-friendly seating options.

Communicate and Collaborate: Foster open communication with students and collaborate with them to identify triggers and strategies for managing sensory overload.

Educate Peers: Raise awareness among peers and staff about sensory processing differences and the importance of creating inclusive environments.

Understanding and addressing sensory overload is essential for creating inclusive and supportive learning environments for all students. By recognising the signs and triggers of sensory overload and implementing supportive strategies, educators can help students thrive academically, socially, and emotionally. Together, we can create environments where every individual feels valued, respected, and able to reach their full potential.

Notes

Disabilities Relating to Sensory Overload

Autism Spectrum Disorder (ASD): People with autism often have heightened sensitivity to sounds, lights, textures, or smells. Sensory overload can lead to distress, shutdowns, or meltdowns.

Attention-Deficit/Hyperactivity Disorder (ADHD): ADHD is linked to difficulties filtering out irrelevant sensory input. This can make busy or noisy environments overwhelming.

Sensory Processing Disorder (SPD): SPD affects how the brain interprets sensory signals, causing either hypersensitivity or hyposensitivity. Overload can occur from routine sensory input.

Tourette Syndrome: Although known for motor and vocal tics, many individuals also report sensory sensitivities. Sensory overload may exacerbate tics or lead to irritability.

Post-Traumatic Stress Disorder (PTSD): People with PTSD may become easily overwhelmed by sensory triggers linked to trauma. Loud noises or crowded places can provoke strong reactions.

Anxiety Disorder: High anxiety can lower sensory thresholds, making everyday stimuli feel intense. This often results in irritability or difficulty concentrating.

Obsessive-Compulsive Disorder (OCD): OCD can involve heightened sensitivity to sensory input, especially around contamination or symmetry. Overload may lead to compulsive behaviours as a coping mechanism.

Migraine: Sensory overload, particularly from light, sound, and smell, is a well-known migraine trigger. During a migraine, even minimal stimuli can be intolerable.

Epilepsy: Some individuals with epilepsy are sensitive to visual or auditory stimuli. In certain cases, sensory overload can act as a seizure trigger.

Traumatic Brain Injury (TBI): Following a brain injury, the brain may struggle to filter sensory information. This can cause confusion, fatigue, or emotional dysregulation in busy environments.

Concussion

What is a concussion? A concussion is a type of mild head injury. It is caused by a direct hit or blow to the head, neck, or body, resulting in some movement of the brain within the skull. This causes a temporary change in how the brain functions. These changes occur at a cellular level, which means structural damage cannot be seen on a clinical brain scan.

Concussion is a common injury. There are many causes of concussions including falls, recreational injuries, car accidents, or sports.

While many children and adults with concussion will notice their symptoms improve within a few days, it can take up to four weeks to recover from a concussion.

Approximately 30% of children and adults may experience symptoms for longer than 4 weeks. Early identification of concussion and appropriate management in the early stages post-injury can help to accelerate recovery. It is therefore important a suspected concussion is not ignored.

Concussion Signs and Symptoms

Physical symptoms

- Headache
- Tiredness or fatigue
- Drowsiness
- Nausea
- Balance problems
- Dizziness
- Visual problems (blurry, double vision)
- Sensitivity to light
- Sensitivity to noise

Cognitive symptoms

- Acts or appears mentally “foggy”

- Has difficulty concentrating
- Has difficulty remembering
- Becomes confused with directions or tasks
- Answers questions more slowly than usual

Emotional symptoms

- Irritability
- Sadness
- Nervousness
- More emotional

Sleep-related symptoms

- Difficulty falling asleep or staying asleep
- Sleeping more than usual¹

¹ <https://www.headcheck.com.au/background/>

Graduated return to school

Your child can continue to increase activities and move onto the next step if they are not showing any symptoms of concussion, or the symptoms are mild and brief in nature (less than one hour). Leave 24 hours between advancing to each step. If the activity results in more than mild, brief worsening of symptoms, go back to the previous step. If your child cannot advance to the next step without substantially increasing symptoms of concussion, take them to see a doctor.ⁱ

Step	Goal
1. Daily activities at home Start your child on typical daily activities, such as reading or gentle walking. Begin with five to 15 minutes at a time and gradually build up.	A gradual return to typical activities.
2. School activities at home Complete light cognitive activities such as homework, school reading or other educational activities at home	To increase tolerance to cognitive work.
3. Return to school part time You should consult with the school and gradually introduce schoolwork and a busy school environment. Your child may need to start with a shorter school day or have increased breaks during the day. Talk to your school about options for quiet break spaces at lunch or break time. School tests may need to be delayed.	To increase academic activities.
4. Return to school full time Gradually increase school activities until your child can tolerate a full day.	Return to usual school activities and catch up on missed work.

ⁱ https://www.rch.org.au/kidsinfo/fact_sheets/Head_injury-return_to_sport/