

AI-01956 Dementia vs Executive Function

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Is dementia and executive functioning related? What are the common initial failures of the human body system where it can lead to dementia diagnosis.

The Executive Function

1. Working memory
2. Inhibition
3. Cognitive flexibility (shifting)
4. Planning
5. Initiation
6. Organization
7. Self-monitoring
8. Emotional regulation
9. Problem-solving
10. Decision-making
11. Task initiation
12. Goal-directed persistence
13. Time management

Relationship Between Dementia and Executive Functioning

Yes, there is a strong and significant relationship between dementia and executive functioning. Executive functions are a set of cognitive processes that are crucial

for controlling and regulating your thoughts and actions. These functions include skills like planning, problem-solving, decision-making, multitasking, and self-control.

Deficits in executive functioning are a common feature of many types of dementia and can even be one of the earliest signs. In some cases, such as with Frontotemporal Dementia (FTD), executive dysfunction can be more prominent than memory loss in the initial stages. The decline in executive function can affect a person's ability to live independently and can be a significant contributor to the functional impairment seen in dementia.

Here's how this relationship plays out:

- **Early Warning Sign:** Poor performance on executive function tests in non-demented elderly individuals has been shown to predict future cognitive decline and the development of Alzheimer's disease.
- **Different Types of Dementia:** The way executive function is affected can vary depending on the type of dementia.
 1. **Alzheimer's Disease:** While memory loss is a hallmark of early Alzheimer's, executive functions like planning and judgment also decline as the disease progresses.
 2. **Frontotemporal Dementia (FTD):** FTD is often characterized by significant executive dysfunction early on, leading to changes in personality, social behavior, and judgment, even before memory is noticeably impaired.
 3. **Vascular Dementia:** This type of dementia, caused by reduced blood flow to the brain, can lead to a sudden or uneven decline in executive functions, often manifesting as slowed thinking or difficulty with organization.
 4. **Lewy Body Dementia (LBD):** LBD can cause fluctuations in attention and alertness, which directly impact executive functions like planning and problem-solving.

Common Initial Failures of the Human Body System that Can Lead to a Dementia Diagnosis

Dementia is not a normal part of aging, but rather a syndrome caused by various diseases and conditions that damage brain cells. While the most well-known symptoms of dementia are cognitive, a dementia diagnosis is

not made based on a single symptom. It's a combination of cognitive deficits that are severe enough to interfere with a person's daily life. Here are some common initial signs and failures that can be part of an early dementia diagnosis:

- Cognitive and Behavioral Changes: These are the most common and often the earliest signs. They include:
 1. Short-term memory loss: This is one of the most common early signs, especially in Alzheimer's disease. This is more than just occasional forgetfulness; it involves forgetting recently learned information, important dates, or asking the same questions repeatedly.
 2. Challenges in planning or problem-solving: Difficulty following a familiar recipe, managing monthly bills, or concentrating on tasks that were once easy.
 3. Difficulty with familiar tasks: Finding it hard to complete daily routines like driving to a familiar location or organizing a grocery list.
 4. Confusion with time or place: Losing track of dates, seasons, and the passage of time, or forgetting where they are or how they got there.
 5. Language problems: Struggling to find the right words, calling things by the wrong name, or having trouble following a conversation.
 6. Misplacing things: Putting items in unusual places (e.g., keys in the refrigerator) and being unable to retrace steps to find them.
 7. Changes in mood or personality: Becoming unusually confused, suspicious, withdrawn, anxious, or depressed.
- Physical and Neurological Failures: While not always the primary symptoms, certain physical signs can be present, especially in specific types of dementia:
 1. Movement and coordination problems: Difficulty with walking, balance, or a change in gait can be a sign of some dementias, like Lewy Body dementia or vascular dementia.
 2. Sleep disturbances: People with Lewy Body dementia, for instance, often experience sleep disturbances, including vivid dreams and acting out dreams.

3. Visual-spatial problems: Difficulty judging distances or interpreting visual images, which can affect driving and daily tasks.
4. Subtle physical symptoms related to other conditions: Sometimes, the initial symptoms of dementia can be related to treatable conditions. These include infections, metabolic or endocrine conditions (like thyroid issues or low blood sugar), or vitamin deficiencies (especially B-12). It's important to rule these out, as treating them might resolve the dementia-like symptoms. It is important to note that experiencing one of these symptoms does not automatically mean a person has dementia. However, if you or a loved one are experiencing several of these issues and they are interfering with daily life, it is crucial to consult a doctor for a complete assessment. Early diagnosis is key for getting the right treatment and support.

List 22 tasks where a person with early dementia might not able to do.

Based on the information I have gathered, here are 22 tasks where a person with early dementia might start to show difficulty. These tasks are often a mix of memory, planning, and executive functioning, which are the first to be affected.

Planning and Organization

1. Balancing a checkbook or managing monthly bills: This involves complex planning, working with numbers, and following a sequential process.
2. Following a recipe with multiple steps: They may forget an ingredient, the next step, or the order of the steps.
3. Organizing a grocery list: This can become challenging as it requires a systematic approach, such as grouping items by aisle.
4. Scheduling appointments or remembering important dates: Keeping track of and adhering to a calendar becomes difficult.
5. Planning a trip or an outing: The multi-step process of booking travel, packing, and making reservations can become overwhelming.

Familiar and Daily Tasks

6. Driving to a familiar location: They may become disoriented or get lost on a route they've taken countless times.
7. Playing a favorite game with established rules: They might forget the rules or the sequence of play.

8. Using a new electronic device: Setting up a new phone or using a smart TV can become confusing and frustrating.
9. Operating a familiar appliance: Forgetting how to use the microwave or washing machine, or the proper settings.
10. Telling time from an analog clock: This can be a subtle sign of difficulty with visual-spatial skills.

Memory and Communication

11. Recalling a conversation from a few hours ago: They may repeat stories or questions, not remembering they've already asked.
12. Finding the right word during a conversation: Known as anomia, this can lead to pauses, using generic words, or substituting inappropriate words.
13. Remembering the names of new acquaintances: While common with age, this becomes more frequent and is accompanied by an inability to recall the names later.
14. Following the plot of a book or movie: They may lose the thread of the story, especially if it's complex.

15. Retracing their steps to find a misplaced item: They may put items in unusual places and be unable to mentally re-create their actions to find them.

Judgment and Safety

16. Dressing appropriately for the weather: For example, wearing a heavy coat on a warm day or light clothing in cold weather.
17. Identifying a scam phone call or email: Their judgment can be impaired, making them more vulnerable to fraud.
18. Understanding the consequences of a decision: They may make a poor financial decision or a choice that puts their safety at risk.

19. Recognizing a health symptom and seeking appropriate care: They may fail to understand the severity of a symptom, like a fever or a fall.

Personal Care and Hobbies

20. Starting a hobby or activity they once enjoyed: They may lose interest or the initiative to begin a task.

21. Taking medication correctly: Forgetting if they've taken their pills, or taking the wrong dose.
22. Following instructions for a new task: Learning a new skill or a new set of directions becomes much more challenging.

I'm a long distance cyclist and a long distance swimmer, if I'm not able to perform my training, is that a ringing bell for D?

A decline in your ability to perform your training as a long-distance cyclist or swimmer is not, by itself, a "ringing bell" for dementia. It is a cause for concern, but it's crucial to understand why a decline in physical performance is a complex issue and not an isolated indicator of a cognitive disorder.

Here's a breakdown of the factors involved:

Normal Age-Related Decline vs. Dementia-Related Decline

1. **Normal Age-Related Decline:** As we age, our bodies naturally lose muscle mass, bone density, and cardiovascular efficiency. This leads to a gradual, predictable decrease in athletic performance. Long-distance athletes often track their performance metrics (speed, power, heart rate) and a slow, steady decline is a normal part of the aging process.
2. **Dementia-Related Decline:** The decline in performance that might be a sign of dementia is typically not just physical. It's often accompanied by cognitive and behavioral changes that interfere with the training itself.

The Real "Ringing Bells" for Dementia in an Athlete

The key difference lies in why you are struggling. It's not the physical failure, but the cognitive failure that may be a sign of dementia. Here are some examples of what might be a real "ringing bell":

- **Difficulty with Navigation and Routines:**
 - Getting lost on a familiar cycling route.
 - Forgetting the number of laps you've completed in the pool.
 - Becoming confused about the location of your usual training spots.
- **Problems with Planning and Execution:**
 - Forgetting to pack essential gear for a long ride or swim.
 - Failing to plan your nutrition or hydration strategy for a workout.

- Being unable to remember the steps of a complex workout or drill that you have done countless times.
- Changes in Judgment and Safety:
 - Making poor decisions on the road (e.g., pulling out in front of a car).
 - Underestimating the dangers of a swimming environment.
 - Exhibiting a significant and uncharacteristic decline in safety awareness during your training.
- Communication and Memory Lapses:
 - Forgetting the names of your training partners or coaches.
 - Struggling to describe a recent training session to someone.
 - Repeating stories about your training because you've forgotten you already told them.

In short, a decline in your peak physical abilities is most likely due to aging. However, if your struggles are related to the cognitive and organizational aspects of your training, and are accompanied by other memory, judgment, or language issues, it would be wise to consult a doctor. A medical professional can help you distinguish between normal age-related changes and a potential cognitive issue.

I'm just curious, is a demented person cognitive functioning can be somewhat close to 2-4 years old?

This is a common and understandable question, as the "child-like" behaviors in people with advanced dementia can be very striking. While there are some superficial similarities in terms of a person's abilities, it is not accurate to say that a person with dementia is "mentally a 2-4 year old." The comparison can be misleading and is not supported by a deep understanding of either a child's brain or a person with dementia's brain.

Here's a breakdown of the similarities and, more importantly, the critical differences.

Superficial Similarities

In the late stages of dementia, a person may exhibit behaviors and abilities that seem to align with a young child's developmental stage. This can include:

1. Communication: A decline in verbal communication, using fewer words, or having trouble forming complete sentences.
2. Memory: Significant short-term memory loss, where they may not remember a conversation from a few minutes ago.
3. Emotional Regulation: Increased mood swings, irritability, or crying, which can be similar to a toddler's emotional lability.
4. Dependence on Caregivers: Needing help with basic daily tasks like eating, dressing, and hygiene.
5. Safety Awareness: A lack of judgment about physical safety, which can lead to wandering or other risky behaviors.

The Critical Differences

The comparison breaks down when you consider the underlying brain function and development. A child's brain and a demented person's brain are on fundamentally different trajectories.

6. Brain Development vs. Brain Degeneration: A 2-4 year old's brain is rapidly developing. It is an intricate and complex process of building new neural pathways and connections, acquiring skills, and learning about the world. A person with dementia, however, is experiencing the complete opposite. Their brain is degenerating. Neural pathways are being destroyed, and previously acquired knowledge and skills are being lost.
7. Sense of Self and Life Experience: A young child has a limited sense of self and very little life experience. A person with dementia has a lifetime of memories, emotions, relationships, and knowledge stored in their brain. Even if they cannot access or express this information, their identity and sense of self are not erased. They may still react to music they loved in their youth or recognize a familiar touch from a loved one. Their life experiences are still a part of who they are, even if they can't articulate them.
8. Consciousness and Emotional Pain: A person with dementia can still experience emotions like frustration, sadness, and fear. They may be aware, on some level, of their own decline, which can be a source of profound emotional pain. They might be aware that they can't remember their loved ones' names, or that they are being treated differently, which is an experience a child cannot have.

9. Innate vs. Lost Abilities: A toddler is learning to speak and walk for the first time. They have an innate capacity for growth. A person with dementia has lost these abilities. This is a crucial distinction. The inability to perform a task is due to a loss of function, not a lack of development.

In conclusion, while the outward behaviors of a person with advanced dementia may sometimes resemble those of a young child, the comparison is limited. It's more accurate to view it as a process of "unlearning" and "regression" rather than "reversion to childhood." The emotional and psychological experience of a person with dementia is unique and cannot be fully understood by drawing a parallel to the developmental stages of a child.