What Is Amnesia? What Causes Amnesia?

When people lose their ability to memorize data they have amnesia ("A"= without, "mne"= memory). Amnesia also refers to an inability to recall information that is stored in memory. In simple terms, amnesia is the loss of memory. The causes of amnesia may be organic or functional.

Organic causes may include brain damage through injury, or the use of specific drugs - usually sedative drugs. Amnesia may be one of the symptoms of some degenerative brain diseases, such as Alzheimer's disease.

Functional causes are psychological factors, such as defense mechanisms.

People with amnesia also find it hard to imagine the future, because our constructions of future scenarios are closely linked to our recollections of past experiences. Researchers from Washington University in St. Louis used advanced brain imaging techniques to show that remembering the past and envisioning the future may go hand-in-hand, with each process sparking strikingly similar patterns of activity within precisely the same broad network of brain regions.

According to Medilexicon's medical dictionary, amnesia is "A disturbance in the memory of stored information of very variable durations, minutes to months, in contrast to short-term memory, manifest by total or partial inability, to recall past experiences."

Our ability to recollect events and experiences is a very complex brain process. In fact, experts say we are only now starting to scratch at the surface in understanding exactly what happens when we commit something to memory, or when we try to retrieve data that was stored by our brain.

Being a little forgetful is completely different to having amnesia. Amnesia refers to a large-scale loss of memories that should not have been forgotten. These may include important milestones in life, memorable events, key people in our lives, and vital facts we have been told or taught.

Most people with amnesia are usually lucid and have a sense of self. However, they may experience severe difficulties in learning new information and forming new memories, as well as finding it extremely difficult to recall memories of past experiences and information.

Although amnesia is a popular theme for movies and books, it is a very rare condition.

What are the types of amnesia?

There are many different types of amnesia. Below is a list of the most common ones:

- **Anterograde amnesia** - the patient cannot remember new information. Things that happened recently, information that should be stored into short-term memory disappear. This is usually caused by brain trauma (brain damage from a blow to the head, for example). However, a patient with anterograde amnesia can remember data and events which happened before the injury.

- **Retrograde amnesia** - often thought of as the opposite of anterograde amnesia. The patient cannot remember events that occurred before his/her trauma, but remembers things that happened after it normally.

**Anterograde amnesia vs. retrograde amnesia**

Anterograde refers to inability to learn new memories after the injury, so the way to remember this is to think of the "a" for "after."

Retrograde refers to forgetting what you learned before the injury so the way to remember this is to think of "retro" as referring to something in the past (such as the retro styles of 1980 clothing, for instance)
Transient global amnesia - a temporary loss of all memory. The patient with transient global amnesia also finds it very hard to form new memories - he/she has severe anterograde amnesia. The loss of past memories is milder. This is a very rare form of amnesia. A transient global amnesia patient tends to be older, and usually has a vascular disease (a problem with the blood vessels).

Traumatic amnesia - memory loss caused by a hard blow to the head. People who lose their memory as the result of a car accident may have traumatic amnesia. People with traumatic amnesia may experience a brief loss of consciousness, or even go into a coma. In the majority of cases the amnesia is temporary - how long it lasts usually depends on how severe the injury is. Sports scientists say that amnesia is an important indicator of concussion.

Wernike-Korsakoff's psychosis - this type of memory loss is caused by extended alcohol abuse. The disorder tends to be progressive - it gradually gets worse and worse over time. Patients with Wernike-Korsakoff's psychosis also tend to have neurological problems, such as poor coordination, and the loss of feelings in the toes and fingers. It can also be caused by malnutrition. It is linked to thiamin deficiency.

Hysterical (fugue) amnesia - this is a very rare phenomenon. Patients forget not only their past, but their very identity. A person could wake up and suddenly not have any sense at all of who they are - even if they look in the mirror they do not recognize their own reflection (the person in the mirror is a stranger). All the details in their wallet - driving license, credit cards, IDs - are meaningless. This type of amnesia is usually triggered by an event that the person's mind is unable to cope with properly. In most cases the memory either slowly or suddenly comes back within a few days. However, the memory of the shocking event itself may never come back completely.

Childhood amnesia (infantile amnesia) - the patient cannot recall events from early childhood. Experts say this type of amnesia may be associated with language development. Others say it is possible that some memory areas of the brain were not fully mature during childhood.

Posthypnotic amnesia - events during hypnosis cannot be recalled.

Source amnesia - the person can remember certain information, but does not know how or where they got that information.

Blackout phenomenon - amnesia caused by a bout of heavy drinking. The person cannot remember chunks of time during his/her binge.

Prosopamnesia - the person cannot remember faces. People can either acquire prosopamnesia, or be born with it.

What causes amnesia?

Any disease or injury that affects the brain can interfere with the intricate functions of memory. Memory function engages many different parts of the brain simultaneously. Damage to brain structures that form the limbic system (which controls our emotions and memories), the hippocampus and thalamus, can lead to amnesia.

Causes of organic amnesia

This refers to amnesia caused by brain injury or damage. Possible causes are:

- Stroke.
- Brain inflammation. This can be caused by a virus infection, such as herpes simplex (HSV), or an autoimmune reaction to cancer in another part of the body.
- Celiac disease - although no clear link has been completely agreed on. Researchers reported that the most common reasons for seeking medical help among patients with celiac disease were amnesia, confusion and personality changes.
- Oxygen deprivation - any illness or situation which undermines the supply of oxygen to the brain, such as a heart attack, respiratory distress, or carbon monoxide poisoning.
- Some medications - such as the sleeping drug, Ambien. This interesting study explains why so many people report not remembering what they did after taking the prescription drug.
- Hemorrhage - bleeding in the area between the skull and the brain.
- A brain tumor that lies in a memory-controlling part of the brain.
- ECT (electroconvulsive therapy) - also known as electroshock therapy. This is a well established psychiatric treatment in which seizures are induced for therapeutic effect on patients. It is sometimes used for patients with major depression whose illness has not responded to other treatment. ECT is also sometimes used for treating schizophrenia and bipolar disorder. The memory loss is nearly always temporary.
- Head injuries - such as those that occur in car accidents, can lead to memory problems. In most cases the amnesia is not severe and is not long-lasting.
Causes of functional amnesia

Also known as dissociative amnesia. This is caused by an emotional shock, such as:

- Being the victim of a violent crime.
- Sexual abuse.
- Child abuse.
- Being involved in combat (soldiers).
- Being involved in a natural disaster.
- Being present during a terrorist act.

The list is endless - basically, any intolerable life situation which causes severe psychological stress and internal conflict.

How is amnesia diagnosed?

Initially, the health care professional will need to rule out any other possible causes of memory loss, including Alzheimer's disease, depression, or a brain tumor. The doctor will require a detailed medical history - this may be difficult if the patient does not remember things, so family members or caregivers may also have to be present. A doctor will need the patient's permission to talk about his/her medical details with somebody else.

The doctor will try to cover the following issues:

- Can the patient remember recent events, and/or remote events (events further back in time)?
- When did the memory problems start?
- How did the memory problems evolve?
- Were there any factors which may have caused the memory loss, such as a head injury, surgery, or stroke?
- Is there a family history of any neurological or psychiatric diseases or conditions?
- Details about the patient's alcohol intake.
- Is the patient currently on any medication?
- Has the patient taken illegal drugs, such as cocaine, marijuana, etc.?
- Are the patient's symptoms undermining his/her ability to look after himself/herself?
- Does the patient have a history of depression?
- Has the patient ever had cancer?
- Does the patient have a history of seizures?

The physician may also carry out a physical exam. This may include checking the patient's:

- Reflexes.
- Sensory function.
- Balance.

The doctor may also check the patient's:

- Judgment
- Short-term memory
- Long-term memory
- Conduct an MRI (magnetic resonance imaging) or EEG (electroencephalogram)

What are the treatments for amnesia?

Fortunately, in the majority of cases amnesia resolves itself without treatment. However, if an underlying physical or mental disorder is present, it should be treated (if possible).

Psychotherapy may sometimes be effective for some patients. Hypnosis can be an effective way of recalling memories that have been forgotten.
Family support is crucial in helping a patient with amnesia get better. Psychologists and psychiatrists say that reality orientation aids may help to nudge patients back into their environment if they are surrounded with familiar objects, photographs, smells, and sounds (music).

The aim of amnesia treatment often involves techniques and strategies to help compensate for the memory problem. This may involve:

- Working with an occupational therapist to acquire new information to replace lost memories, or to use existing memories as a basis for acquiring new information.
- Learning various strategies for organizing information so that it is easier to store.
- Learning how to make best use of a personal digital assistant (PDA), such as an iPhone or Blackberry. With the right training, even patients with severe memory loss can become quite competent with day-to-day tasks. The PDA can be used to remind the patient about important events, when to take medications, appointments, and key commitments. Patients who cannot remember people’s names or faces can store a long list of photographs of faces and check them whenever they wish.

There are currently no drugs for the restoration of memory for patients with amnesia. As Wernicke-Korsakoff syndrome involves a thiamin deficiency, targeted nutrition can help. Whole grain cereals, beans, lean pork, and yeast are rich sources of thiamin.

**What are the complications of amnesia?**

Complications depend on the severity and scope of the amnesia. However, even for people with mild symptoms, difficulties in dealing with daily life can take their toll. Patients can experience employment, school, and social problems.

Some individuals never recover lost memories. In very severe cases, people may require some kind of supervision, or extended care facility.

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