

Developmental amnesia: Rare disorder that causes children to forget things they've just learned

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Even though it came out more than 20 years ago, many people still remember "[Finding Nemo](#)" thanks to one of its beloved main characters: Dory. The blue fish is remembered not only for her happy-go-lucky personality but for the condition she has, which makes her forget things almost as soon as they've happened.

Viewers might have assumed Dory's condition was the stuff of fantasy, crafted to spur the movie's plot forward. What many may not realize is that Dory's [memory](#) troubles are similar to a real but rare condition that affects [children](#).

Developmental amnesia causes children to forget things almost as soon as they've happened. Like Dory, they are unable to recall previous conversations or events—even significant ones such as an exciting birthday party.

This condition can affect them throughout their adult lives too. However, research by myself and colleagues may have uncovered a new [way to support](#) these children and make the most of their memory.

Developmental amnesia is caused by a lack of oxygen reaching the brain. There are a number of reasons this could happen, including a traumatic birth where the baby becomes stuck in the birth canal, [unable to breathe](#). Respiratory failure and [cardiac arrest](#) after birth are other potential causes.

It's long been known that a lack of oxygen can cause brain damage. But in the late 1990s, Faraneh Vargha-Khadem, a consultant neuropsychologist at Great Ormond Street Hospital in London, identified three teenagers who had been [struggling with memory difficulties](#) since they were little. All had suffered a lack of oxygen to the brain in [early life](#), and MRI scans showed all had damage to their hippocampus—the brain's memory hub.

Based on what Vargha-Khadem observed, she outlined three main characteristics of developmental amnesia. First, spatial memory problems, such as getting lost in familiar surroundings or forgetting where they'd left their belongings.

Second, temporal memory problems, including needing to be frequently reminded of regularly scheduled classes or activities. And third, episodic memory problems or being unable to remember events in their lives.

These memory problems are lifelong and can be very disabling—meaning the children will need support for the rest of their lives.

It's not known how common developmental amnesia is. Like Dory from Finding Nemo, children with developmental amnesia have good language skills, motor skills and cognitive abilities. So, at first glance, they don't appear to have a problem.

This means doctors can miss their memory problems and the children don't get referred to a specialist. Some are also misdiagnosed with attentional problems instead.

Memory help

Unfortunately, it's not possible to repair the hippocampus once it's damaged. As such, treatments for developmental amnesia focus on supporting children to make the most of their abilities.

Despite this support, children with developmental amnesia are at a considerable disadvantage in school. If they ask a question in class, they'll soon forget the answer. When they get home from school, they can't remember what their lessons involved.

However, one remarkable feature of developmental amnesia is that [recognition memory](#)—the ability to recognize something that has been encountered before—is not impaired.

So, if you showed someone with developmental amnesia pictures of faces, then later gave them a [memory test](#) of those faces, they'd be able to identify the ones they'd seen before.

While they wouldn't remember where they'd seen the faces, they'd be able to say a face feels familiar—and correctly judge they'd seen it previously. This shows us that some aspects of memory can still function well in children with this condition.

We wondered if the ability to recognize familiar things could be key to helping children with developmental amnesia learn. To [test this idea](#), we set up a [case study](#) with eight-year-old "Patient H."

Patient H watched four different educational videos six times each. After each watch, he was immediately given a memory test.

For half of the videos, he was asked open-ended questions such as: "Where did the Egyptian nomads live?" This sort of test is very difficult for children with developmental amnesia. Even though he'd watched each video six times, he performed very poorly in the test.

For the other videos, he was given a multiple-choice test. This allowed him to use his recognition memory to identify which of the answers felt familiar.

Patient H performed far better in this test, getting 18 out of 20 answers right, compared with only six out of 20 in the first test. In fact, he performed as well in the recognition test as children without developmental amnesia.

A week later, Patient H returned to the lab and was given another memory test based on the videos he'd previously watched. Remarkably, he was able to recall twice as much information from the videos he'd been tested on using multiple choice, compared with the first time he was tested—even when he was asked open-ended questions. Crucially, he wasn't only able to recognize the information but could recall details.

How new memories are formed

Our conclusion was that multiple-choice tests allowed Patient H to use intact parts of his brain's memory system to process and consolidate information. This helped him learn information more efficiently and build a stable memory.

This finding is encouraging, but further research is needed to understand if recognition memory can support learning in the classroom and over longer delays than one week. The fact that developmental amnesia is so rare makes it difficult to study and test interventions in larger groups of people.

We also need to do more work to understand the learning processes that occur in developmental amnesia, and how new memories are formed. Understanding this may help develop better learning techniques for people with the condition.

But these results are promising nonetheless, showing that multiple-choice tests may be an easy and helpful tool for children with developmental [amnesia](#) in forming stable memories and potentially keeping up in class.

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