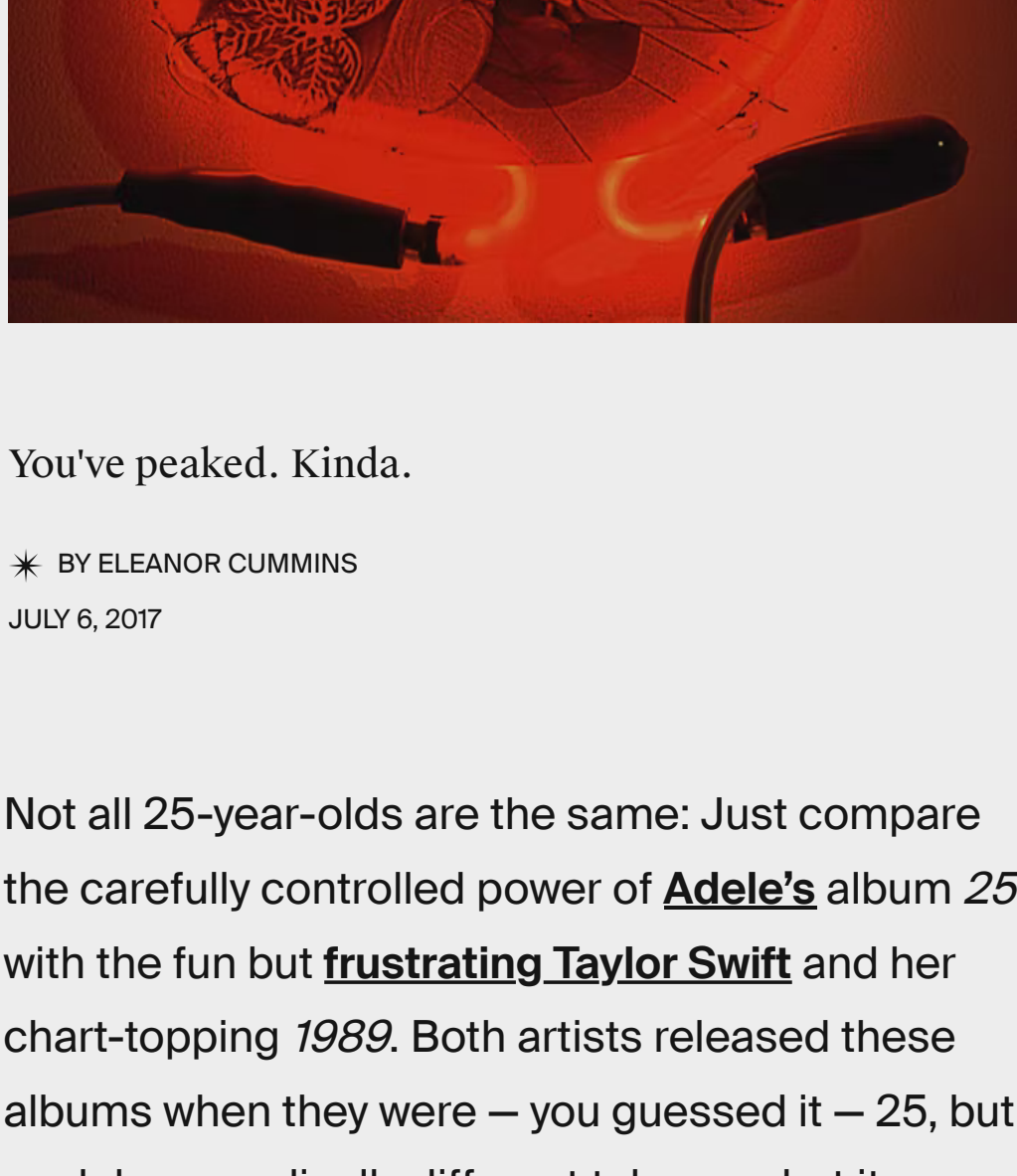


SCIENCE

3 Life-Changing Things That Happen to the Human Brain at 25



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You've peaked. Kinda.

* BY ELEANOR CUMMINS

JULY 6, 2017

Not all 25-year-olds are the same: Just compare the carefully controlled power of **Adele's** album *25* with the fun but **frustrating Taylor Swift** and her chart-topping *1989*. Both artists released these albums when they were — you guessed it — 25, but each has a radically different take on what it means to live for a quarter of a century.

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And yet, despite the stark differences between the two stars, there's a growing body of research that suggests their brains underwent similar changes. Taken together, these shifts mark a peak in human cognitive development. Coincidentally, they also signal the beginnings of a slow and steady decline. Here's what science says is actually happening at this turning point — whether you call it a quarter-life crisis is up to you.

3. YOUR BRAIN HITS THE BRAKES

Adolescent brains move fast: They can say “yes” to this and “no” to that, all without looking up from their phones. But that cognitive agility — specifically **the brain's ability to identify patterns** and do it *quickly* — peaks around 25.

Earlier this year, researchers asked participants between the ages of 9 and 91 to play seemingly random games, like coin tosses and dice rolls. The results, published in the journal *PLOS Computational Biology*, show that after 25 **the ability to identify these patterns** begins to decline.

But as study author Hector Zenil, Ph.D., told *Inverse* at the time, slowing down isn't necessarily a bad thing. As we age, he explained, we may be trading obscure tricks, like fast dice roll identification times, for something more important: **real wisdom**. While many cognitive skills may decline, wisdom doesn't suddenly taper off in mid-life. Instead, it consistently **increases well into our 70s**.

2. THE PREFRONTAL CORTEX GETS LIT

Though your fast cognitive reflexes may be slowly eroding, at 25, your risk management and long-term planning abilities finally kick into high gear.

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In May, scientists explained in *Nature Neuroscience* that the parts of your brain that control basic functions like eating, sleeping, and breathing are more or less formed in utero, but the **prefrontal cortex** — the seat of so-called executive decision making — takes a while longer to develop.

Scientists believe that the prolonged path to maturity explains **why teenagers are the exasperating way they are**, as *National Geographic* famously documented in 2011. By the time we're 13, our brains have reached their full size, but they're also undergoing a giant, expansive internal remodel. White matter grows thicker, synapses are pruned, and slowly — very slowly — the ability to think strategically about our needs and the needs of others develops.

This time-lapse video from the National Institutes of Health shows the dramatic change in grey matter in an adolescent brain between ages 5 and 20:

By age 25, the remodel comes to an end and brain development stalls. But, once again, it comes with a few positive side effects: By quarter-life, **most of us have figured out how to control our impulses**, plan and prioritize well, and organize our lives in a way that gets us to our end goals. We have, in short, grown up.

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1. IT GETS HARDER TO CHANGE

But one of the downsides to all of these changes is that a developed brain is a hardened brain. While you technically *can* teach a 25-year-old dog new tricks, it's only going to get harder with age.

In 2006, a meta-analysis of 92 personality studies published in *Psychological Bulletin* showed that our openness to other people and ideas **tends to close off as we get older**. The reason isn't totally understood, but it likely has to do with the fact that once you've been around the block a few times, you become pretty certain about what you think and what you've seen.

Fortunately, research indicates that healthy minds have a lot of choice, even in old age. You can, in other words, *choose* to be open — if you want to. The same holds true for new skills, whether that's playing the guitar or mastering Mandarin. Just because language acquisition really is harder after age seven and **holding on to memories is more difficult**, even for the fittest geriatrics, that doesn't mean it's impossible to continue growing over the course of your life. It just takes more determination and, in some cases, a willingness to be **more childlike** in order to nail “Stairway to Heaven” or order a dish in a foreign language.

So, don't take your quarter-life crisis too seriously. While it may seem that your brain has peaked (it kind of has), there are still plenty of reasons to live — and to learn.

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