

Neural Nostalgia

Why do we love the music we heard as teenagers?

By Mark Joseph Stern

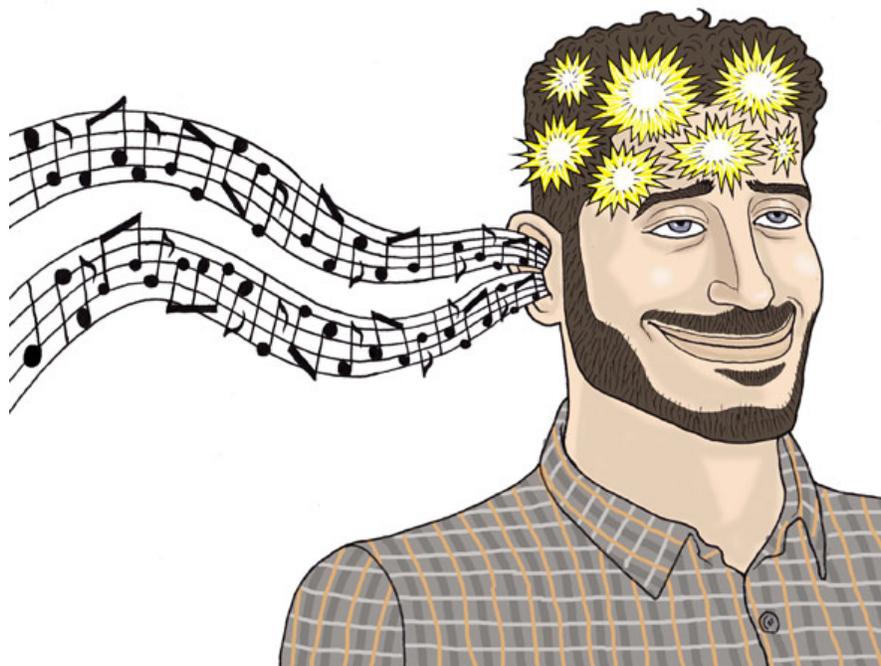


Illustration by Mark Alan Stamaty

As I plod through my 20s, I've noticed a strange phenomenon: The music I loved as a teenager means more to me than ever—but with each passing year, the new songs on the radio sound like noisy nonsense. On an objective level, I know this makes no sense. I cannot seriously assert that Ludacris' "Rollout" is artistically superior to Katy Perry's "Roar," yet I treasure every second of the former and reject the latter as yelping pablum. If I listen to the Top 10 hits of 2013, I get a headache. If I listen to the Top 10 hits of 2003, I get happy.



MARK JOSEPH STERN

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Why do the songs I heard when I was teenager sound sweeter than anything I listen to as an adult? I'm happy to report that my own failures of discernment as a music critic may not be entirely to blame. In recent years, psychologists and neuroscientists have confirmed that these songs hold disproportionate power over our emotions. And researchers have uncovered evidence that suggests our brains bind us to the music we heard as teenagers more tightly than anything we'll hear as adults—a connection that doesn't weaken as we age. Musical nostalgia, in other words, isn't just a cultural phenomenon: It's a neuronically commanded. And no matter how sophisticated our tastes might otherwise grow to be, our brains may stay jammed on those songs we obsessed over during the high drama of adolescence.

To understand why we grow attached to certain songs, it helps to start with the brain's relationship with music in general. When we first hear a song, it stimulates our auditory cortex and we convert the rhythms, melodies, and harmonies into a coherent whole. From there, our reaction to music depends on how we interact with it. Sing along to a song in your head, and you'll activate your premotor cortex, which helps plan and coordinate movements. Dance along, and your neurons will **synchronize with the beat of the music**. Pay close attention to the lyrics and instrumentation, and you'll activate your parietal cortex, which helps you shift and maintain attention to different stimuli. Listen to a song that triggers personal memories, and your prefrontal cortex, which maintains information

relevant to your personal life and relationships, will spring into action.

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But memories are meaningless without emotion—and aside from love and drugs, nothing spurs an emotional reaction like music. **Brain imaging studies show** that our favorite songs stimulate the brain's pleasure circuit, which releases an **influx of dopamine**, serotonin, oxytocin, and other neurochemicals that make us feel good. The more we like a song, the more we get treated to neurochemical bliss, flooding our brains with some of the same neurotransmitters that cocaine chases after.

Music lights these sparks of neural activity in everybody. But in young people, the spark turns into a fireworks show. Between the ages of 12 and 22, our brains undergo rapid neurological development—and the music we love during that decade seems to get wired into our lobes for good. When we make neural connections to a song, we also create a strong memory trace that becomes laden with heightened emotion, thanks partly to a surfeit of pubertal growth hormones. These hormones tell our brains that *everything* is incredibly important—especially the songs that form the soundtrack to our teenage dreams (and embarrassments).

On its own, these neurological pyrotechnics would be enough to imprint certain songs into our brain. But there are other elements at work that lock the last song played at your eighth-grade dance into your memory pretty much forever. Daniel Levitin, the author of *This Is Your Brain on Music: The Science of a Human Obsession*, notes that the music of our teenage years is fundamentally intertwined with our social lives.

“We are discovering music on our own for the first time when we’re young,” he told me, “often through our friends. We listen to the music they listen to as a badge, as a way of belonging to a certain social group. That melds the music to our sense of identity.”

These songs form the soundtrack to what feel, at the time, like the most vital and momentous years of our lives.

Petr Janata, a psychologist at University of California–Davis, agrees with the sociality theory, explaining that our favorite music “gets consolidated into the especially emotional memories from our formative years.” He adds that there may be another factor in play: the **reminiscence bump**, a name for the phenomenon that we remember so much of our younger adult lives more vividly than other years, and these memories last well into our senescence. According to the reminiscence bump theory, we all have a culturally conditioned “life script” that serves, in our memory, as the narrative of our lives. When we look back on our pasts, the memories that dominate this narrative have **two things** in common: They’re happy, and they cluster around our teens and early 20s.

Why are our memories from these years so vibrant and enduring? Researchers at the University of Leeds proposed one **enticing explanation** in 2008: The years highlighted by the reminiscence bump coincide with “the emergence of a stable and enduring self.” The period between 12 and 22, in other words, is the time when you become *you*. It makes sense, then, that the memories that contribute to this process become uncommonly

important throughout the rest of your life. They didn’t just contribute to the development of your self-image; they became *part* of your self-image—an integral part of your sense of self.

Music plays two roles in this process. First, some songs become memories in and of themselves, so forcefully do they worm their way into memory. Many of us can vividly remember the first time we heard that one Beatles (or **Backstreet Boys**) song that, decades later, we still sing at every karaoke night. Second, these songs form the soundtrack to what feel, at the time, like the most vital and momentous years of our lives. The music that plays during our first kiss, our first prom, our first toke, gets attached to that memory and

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takes on a glimmer of its profundity. We may recognize in retrospect that prom wasn't really all that profound. But even as the importance of the memory itself fades, the emotional afterglow tagged to the music lingers.

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As fun as these theories may be, their logical conclusion—you'll never love another song the way you loved the music of your youth—is a little depressing. It's not all bad news, of course: Our adult tastes aren't really weaker; they're just more mature, allowing us to appreciate complex aesthetic beauty on an intellectual level. No matter how adult we may become, however, music remains an escape hatch from our adult brains back into the raw, unalloyed passion of our youths. The nostalgia that accompanies our favorite songs isn't just a fleeting recollection of earlier times; it's a neurological wormhole that gives us a glimpse into the years when our brains leapt with joy at the music that's come to define us. Those years may have passed. But each time we hear the songs we loved, the joy they once brought surges anew.

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