



## **D-News Script:**

When I'm playing Assassin's Creed or Call of Duty my brain is totally absorbed in its virtual environment but what happens to my brain when I come out of it? Does it come out different? Hey everyone thank you for watching DNews today I'm Trace. This week we humans will spend 3 billion hours playing video games. This week 1.2 billion people play regularly. 99% of boys and 94% of girls under 18 lock their eyeballs on a video game, quote: "regularly" according to game designer and author Jane McGonigal. That's an incredible amount of time living in what amounts to an alternate reality for the brain. A study from the Proceedings of the Royal Society B that came out last December looked at the brains of gamers while playing and offer another alleged turn in the thumbscrews of action games. Their study found that video game players have a less robust striatum nucleus a part of the brain that constructs an internal representation of the outside world. Essentially games aren't helping people learn to map the real world out here action gamers are using something called response learning, instead of the more advanced place learning. To simplify, imagine you're trying to get to your familiar place, like your friend's house or a favorite restaurant. Response learning is when your brain creates a map using landmarks but place learning is an advanced internal map so you know to turn based on distance and direction, not just like that there's a McDonald's right there.

It's the difference between associating a lot of little bits of information. I have to turn when I see the McDonald's as opposed to combining that information into an understanding of the external world. These researchers think that the action video game players are under developing their striatum to such a degree that it might affect them throughout their lives. They may even develop a neurological disorder because of this, although some outlets have called this as a risk of Alzheimer's but that's a pretty damn big jump

For every study of games negatively affecting our brains there are plenty of studies saying the exact opposite. A study in July of last year in Molecular Psychiatry put gamers into magnetic resonance imagers to reveal how grey matter was developing in their Cabezas. They found a correlation in the size of their gray matter, specifically the entorhinal cortex, related to their "joystick years" or the amount of time they played certain video games. According to their results, people who played more logic puzzle and platform games had a larger entorhinal cortex but action based role-playing games had a smaller one. The entorhinal cortex works with the hippocampus to create memories and maps of your life so you know when and where something has happened as well as how it fits in with what happened the day before or the last time you met that person.

Another study in that Journal from February of the same year found results using games like Commander Keen and Super Mario 64 basically, science is saying platformers and logic games are great for your entorhinal cortex, even while action games kind of aren't. That being said, however, the hippocampus and gray matter in all video game players had added brain plasticity overall. Plasticity is the ability for the brain to adapt and change their neural pathways. More plasticity is better and it's not just the plasticity. A study done with chimpanzees

published in science news last month assess how chimps brains responded to playing video games. After teaching them to play a cooperative game, the researchers found that cells in the chimps brains would fire, predicting what the next move of the other chimp playing with them would be 79 percent of the time. These chimps understood what was going on in the brains of their co-op players. We know that video games change how our brain works but whether that's good or bad seems like it changes when new research comes out, which is every month. We cover this research all the time. For instance, do video games make you more aggressive? Joe Bereta explores that idea in this episode: It isn't graphic bloody head shots, spinal cord snaps, or gruesome koopa troopa curb stomps that generate aggressive / violent behavior in players. The root of the evil actually lies in the failure and frustration that a human experiences when gaming. Do you think video games are good or bad? ...