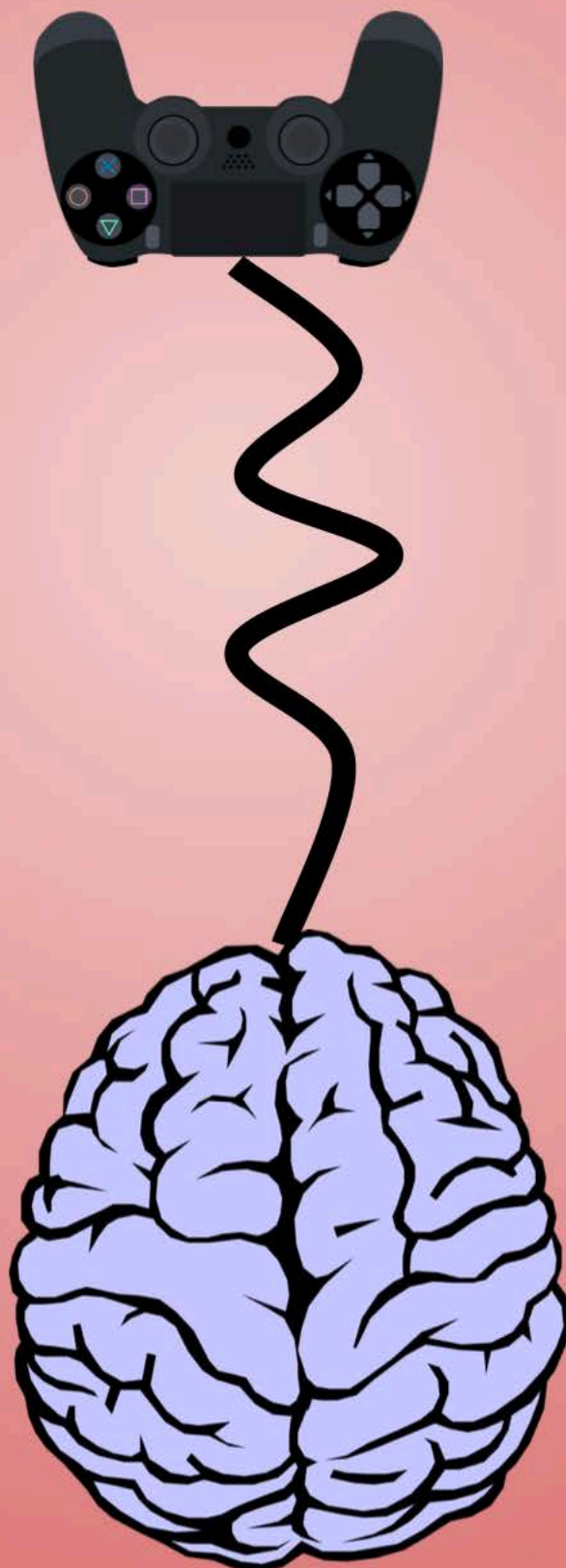


# Video Games & The Brain



By: The Fire  
Breathing  
Rubber  
Duckies



# The History of Video Games Over the Years

## 1950's: Where it all Began.

In the 1950's, a man by the name William Higinbotham made a game called tennis for two, but most people know it by the name pong.

## 1962: Now, Time for Space

12 years after the creation of tennis for two, a man called Steve Russell made a game called Spacewars! at MIT. It now involved more content for people to play; intense dogfights and gravity effects

## 1972: The First Console

In 1972, a man by the name of Ralph Baer made the Magnavox Odyssey. Kids could finally play video games at home

## 1978: A New Dawn For Gaming

Around the time of 1978, arcade machines started to popularize and games such as space invaders and later, the iconic pac man started to take the scene of video games, but this popularization would soon be forgotten thanks to a new competitor

## 1983: The Rise of Computer Gaming

Around this time, a new avenue of gaming started to rise, computer games. These types of games would soon make arcade games a thing of the past

## 1985: The Release of Another Icon

Around this time, the NES became a best selling console with titles such as Donkey Kong, Duck Hunt and The Legend of Zelda

## 1990-94: A Rivalry Begins

Around this time, two iconic gaming companies were against each other, Nintendo and Sony, but Nintendo was dominating with the Super Mario titles. While Sony had the Playstation and made games with cutscenes.

## 1996-2000: The Release of More Icons

With the release of the Nintendo 64, which included 3D games now. On the other hand, Sony had released the Playstation 2 along with some iconic games: Metal Gear, GTA and Final Fantasy.

## 2000-2002: A New Challenger Approaches

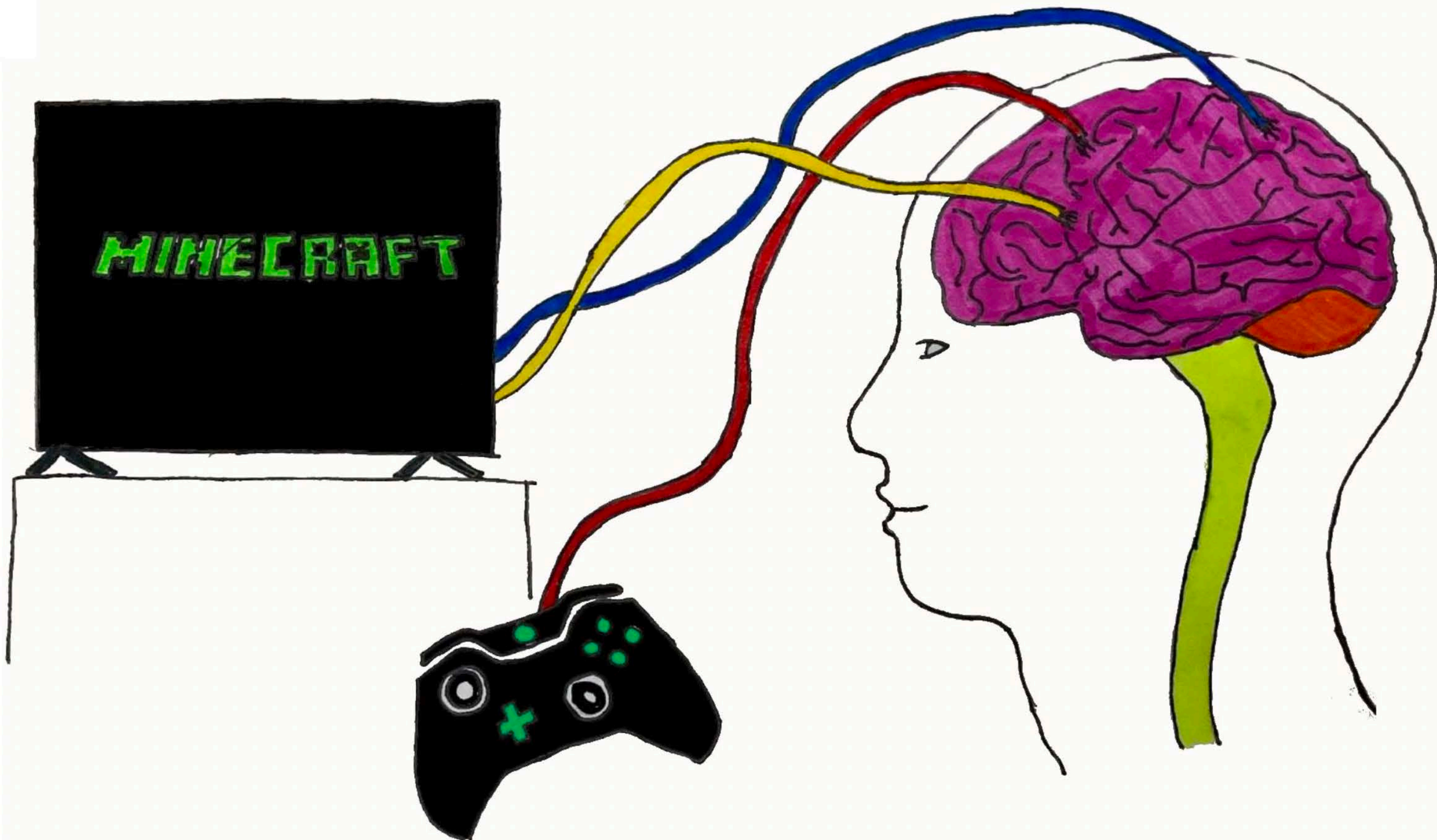
With the rise of Microsoft, Xbox and the release of Halos CE and 2, they started to become another Icon and a big seller. But from the shadows, another company Blizzard, made the iconic PC MMORPG, World of Warcraft, which made PC gaming more popular.

## Modern Day: Where We Are Now

As of 2022, gaming has truly evolved, very realistic graphics and cutscenes, different companies have become more or less iconic and people on different platforms can now play with each other in games.

Timeline Source: (Wirtz, 2021).





*Artwork by Aidan Mendoza*



# ***FUN FACTS***

**“10–20 minutes of violent gaming increased activity in the brain regions associated with arousal, anxiety, and emotional reaction”  
(Paturel, 2014).**

**“Tetris Shown to Lessen PTSD and Flashbacks” (Nixon, 2012).**

**“Playing video games can lead to structural changes in the brain, including increasing the size of some regions, or to functional changes, such as activating the areas responsible for attention or visual-spatial skills”  
(UOC, 2020).**

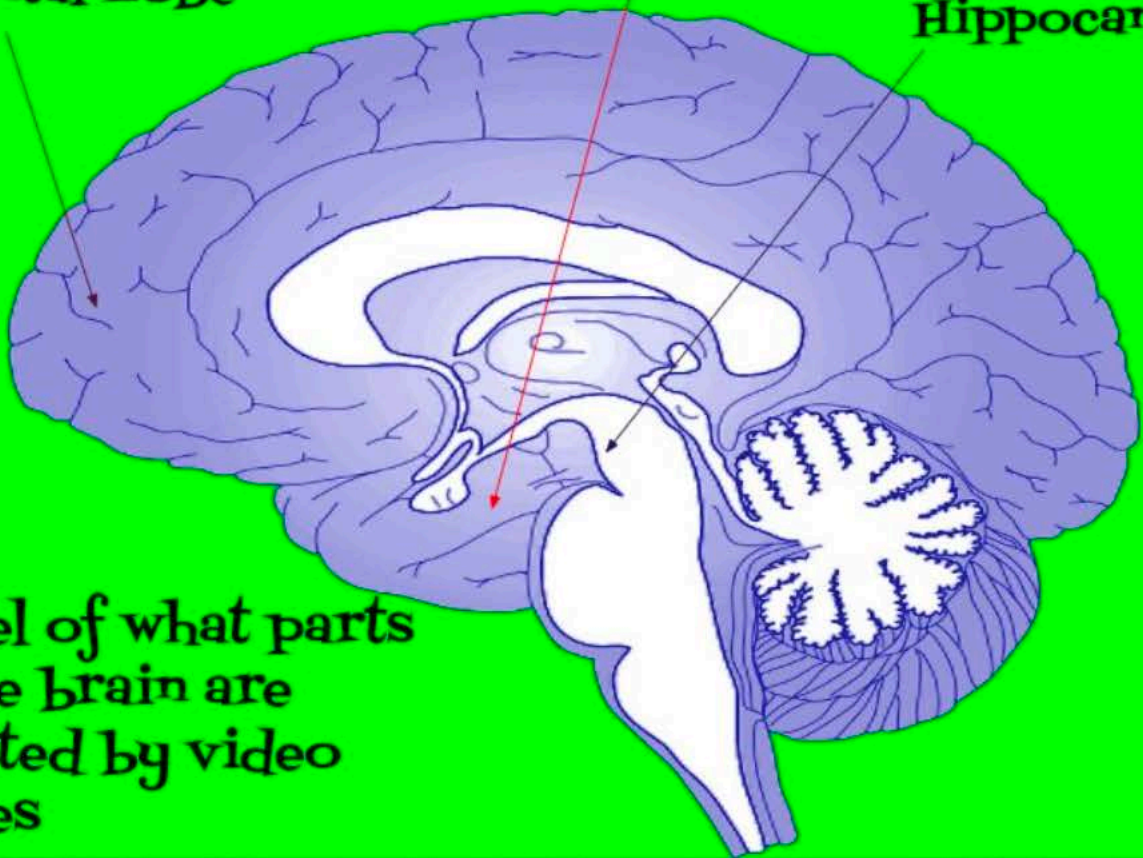
**“In 1998 a study showed playing video games releases the feel-good neurotransmitter dopamine.”  
(Patural, 2014)**



## The Nucleus Accumbens

Frontal Lobe

The Hippocampus



Model of what parts of the brain are affected by video Games

- **Frontal Lobe:**

Video games have shown better cognitive Function, specifically with short term memory, visual attention, reaction time and working memory (Guy-Evans, 2021).

- **Nucleus Accumbens:**

The Nucleus Accumbens Is affected by video games since you use both your hands and your memory (Wilms, 2013).

- **Hippocampus**

Different types of video games can either cause growth or shrinkage of The hippocampus (Bailey, 2019).



**Pros**

**Cons**

## of playing video games

Playing video games can help distinguish subtle differences like shades of gray

Even though video games can ease anxiety and depression they can also increase anxiety and depression

Playing video games can help reduce anxiety and depression

Video games can become addictive and cause damage in someone's school, family, and social life

Video games can improve executive functioning for example the ability to solve problems and multitasking

Video games can make people more aggressive and violent. specifically people that play shooter games

(Bernstein, 2017)



# REFERENCES

Bailey, Regina. "How Do Video Games Affect Brain Function?" *ThoughtCo*, ThoughtCo, 5 Nov. 2019,  
<https://www.thoughtco.com/video-games-affect-brain-function-373182#:~:text=Video%20Games%20Increase%20Brain%20Volume&text=The%20cerebral%20cortex%20covers%20the,who%20played%20strategy%20type%20games.>

Bernstein, R. (2017, May 23). Exploring the Pros and Cons of Video Gaming. Retrieved March 15, 2022, from  
<https://online.concordia.edu/computer-science/pros-and-cons-of-video-gaming/>

Brilliant T, Denilson, et al. "Does Video Gaming Have Impacts on the Brain: Evidence from a Systematic Review." *Brain Sciences*, MDPI, 25 Sept. 2019,  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6826942/#!po=0.485437.>

Guy-Evans, O. (2021, September 27). *What part of the brain controls cognitive functions.* The Brain Power. Retrieved March 17, 2022, from  
<https://brainpower4.wordpress.com/2021/09/27/what-part-of-the-brain-controls-cognitive-functions/>

Nixon, R. (2012, April 25). *Tetris Shown to Lessen PTSD and Flashbacks.* Scientific American.  
<https://www.scientificamerican.com/article/tetris-shown-to-lessen-ptsd-and-flashbacks/> Universitat Oberta de Catalunya

Paturel, Amy. "Game Theory: The Effects If Video Games on The Brain." *Brain and Life*, June 2014,  
<https://www.brainandlife.org/articles/how-do-video-games-affect-the-developing-brains-of-children.>

Universitat Oberta de Catalunya (UOC). (2020, September 22). Playing video games as a child can improve working memory years later, researchers find. *ScienceDaily*. Retrieved March 17, 2022 from  
[www.sciencedaily.com/releases/2020/09/200922112253.htm](http://www.sciencedaily.com/releases/2020/09/200922112253.htm)

Wilms, I. L., Petersen, A., & Vangkilde, S. (2013). Intensive video gaming improves encoding speed to visual short-term memory in young male adults. *Acta Psychologica*, 142(1), 108–118.  
<https://www.sciencedirect.com/science/article/abs/pii/S0001691812001850>

Wirtz, B. (2021, November 13). *The Evolution of Video Games: A Brief Timeline of Gaming Industry.* GameDesigning.org. Retrieved March 15, 2022, from  
<https://www.gamedesigning.org/gaming/history/>

Special thanks to the guest speakers who helped us with our research: Dr. Amanda Roberts of Scripps Research Institute and Matthew Koch, MFT.



**Contains  
interesting facts  
& details about  
the brain and the  
way it responds  
to video games &  
much more...**



**Micah, Max, and Aidan**