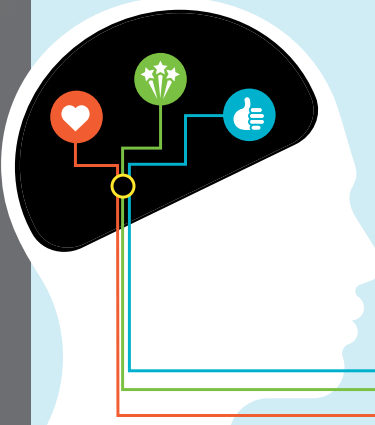


# The Awesomely Evolved Human Brain



Have you ever thought about how many different things your brain can do? This amazing organ, which scientists are only beginning to understand, has been refined through millions of years of evolution. It helps you process information—often before you are aware of it. And it figures out things fast, even when information is incomplete. Did you know that your brain even controls what you *enjoy*? The brain does this to help you survive and to keep your body's internal environment stable and balanced, a state known as *homeostasis*. The brain is awesomely complex and crucial to who we are and how we live.

## THE BRAIN'S REWARD SYSTEM

Your brain has evolved to make you feel good when you do things that help you survive. The pleasure you feel is caused by the chemical *dopamine*, which is released in your brain's reward system. When you enjoy certain activities, dopamine is released, and you are more likely to repeat those activities. This brain system has evolved to help you learn and grow, and to become healthy, happy, and successful.

**THAT LOOKS GOOD...**The brain has evolved to crave the fattiest meats, the sweetest fruits—natural, unprocessed foods that contain the highest energy. Why? Because our evolutionary survival instinct tells us that famine may be just around the corner.

**WHAT A RUSH!** You live to skateboard. Your friends love it when you complete 360° turns. No doubt you are taking some risk, but it's healthy! Evolution has designed us to learn from new experiences so that we become independent—and find our own place in this world.

**CRUSH ALERT** When you first met, you couldn't stop flirting with each other. Why? Members of every species are designed to find a partner, and humans are no different.

**WARNING**

## WHEN TOO MUCH OF A GOOD THING CAN BE BAD

The brain's reward system can go haywire. This is especially true in today's world, where many of the foods we eat are highly processed, and technology invades almost every aspect of our lives, overloading us with information. Because evolution takes millions of years, our brains have not yet caught up with the demands of today. This overload can throw us out of balance and lead to *compulsivity*—or the inability to stop a behavior, even when it's harmful.

**"I JUST ATE AN ENTIRE FAMILY-SIZE BAG OF CHIPS."**

**TRYING DRUGS IN ORDER TO FEEL A RUSH**

**CHECKING YOUR PHONE FOR TEXTS 100 TIMES AN HOUR**

## Dopamine Overload

Ever feel like you just can't stop? Maybe it's eating potato chips, or maybe it's playing a video game over and over—it can be different things for different people. These experiences overstimulate the brain's natural reward system, causing some people to compulsively repeat certain behaviors, like overeating, which can cause obesity.

It also happens with drugs, which overload the brain with dopamine. This is why for some people, experimentation can lead to addiction.



## BRAIN EVOLUTION TIMELINE

**THE EARLY BRAIN**  
Focus on Survival—**MILLIONS OF YEARS**

**RAPID BRAIN GROWTH**  
Rise in Innovation—**THOUSANDS OF YEARS**

**THE BRAIN IN THE MODERN AGE**  
Dramatic Technological Advances—**HUNDREDS OF YEARS**

BEGINNING OF TIME

MILESTONES



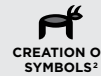
**WALKING UPRIGHT**  
6,000,000 Years Ago



**FIRST TOOLS**  
2,600,000 Years Ago



**CONTROLLING FIRE**  
800,000 Years Ago



**CREATION OF SYMBOLS<sup>2</sup>**  
40,000 Years Ago



**CREATION OF ALPHABET<sup>3</sup>**  
3,000 Years Ago



**INVENTIONS**  
SCIENCE/MEDICINE



**PROCESSED FOODS**  
TECHNOLOGY



**COMMUNICATION**  
MASS PRODUCTION

500 Years Ago to TODAY

<sup>1</sup> Compared to the baseline dopamine level of 100%, the amount of dopamine present in the absence of a reward stimulus. <sup>2</sup> Some estimates push this as far back as 164,000 years ago. <sup>3</sup> Icon includes two letterforms from the ancient Phoenician alphabet.