



Science Behind the Story (SBS)
Your Brain Wants You to Be Happy (🧠 An Emotional Health Story)
(1st Grade – 6-7 yrs)

This story introduces children to the reward pathway, the place in your brain that makes you feel happy.

- 🧠 The main job your brain has is to keep you alive.

Our nervous system is made up of a number of different parts that are all working together to keep us alive.

One part of our nervous system, the hypothalamus assesses our needs and produces the behaviors (in the form of both visceromotor behaviors – which involves your autonomic nervous system - and somatic motor behaviors – which includes moving the muscles of your body) to help us achieve what we need so that our bodies can stay alive (Williams, 2001; Nagashima, 2000). These behaviors include the need for food, water, sleep and shelter to help us regulate our body temperature. These behaviors also include reproductive behaviors, to help keep the species “alive” (Sterenson, 2013). Reproductive behaviors include a number of social behaviors, such as mating, aggressive behaviors, parenting and dominance behaviors (Eagleman, 2016).

- 🧠 When you do something that you need to do to stay alive, like eating food, you “feel” happy. This makes sure you do that behavior again.

Another part of the nervous system that helps to keep us motivated to do the behaviors we need to do is our dopaminergic mesolimbic system, which is also known as the reward pathway (Di Chiara, 2007; Breedlove, 2017). Activation of the reward pathway not only helps us to obtain the motivational stimuli (food, water, sleep, etc.) that we need to stay alive – but it also causes us to feel pleasure (Dutcher, 2018; Wise, 2005). It does this so we will repeat behaviors that help to keep us to get the things that we need to survive. Your brain is built to make you feel happy. The brain is a bit sneaky here – yes, you get to feel happy, but the brain gets what the brain and body need to stay alive. I call this “selfish altruism”.

Think about how motivated you are to find food when you are really hungry and how good you feel when you finally get to eat. The food you eat when you are really hungry just seems to taste so good. That is because your brain “knows” that it and your body need energy to stay alive. Your brain wants to be sure that you eat when your body tells your brain that it is running low on energy, so it makes sure that you feel pleasure when you eat so you will do the behaviors you need to do to eat (getting food, putting it in your mouth, chewing and swallowing).

- 🧠 Whenever you feel happy, your reward system is working, so listen to your brain...it wants you to be happy.

There are a number of internal drives that activate our reward system to motivate us to obtain what we need to survive, but what about things like playing video games, watching a football game on tv, going shopping, or reading a good book? Those are things that make some people feel pleasure, and yet they

are not tied to your obtaining any of the things you need – like food, water, or sleep – to survive. But, as you definitely feel pleasure your brain will want you to do these things. If we look at why the brain activates the reward pathway, it is usually to “get something” that the brain and body needs.

It turns out that things like playing video games, watching a football game on tv, going shopping or reading a book are doing something that the brain and body needs. These are activities that **relieve stress!!!** In our world that is constantly changing, we encounter stressors all the time throughout our lives. Neuroscientists know that a little bit of stress is good for you, it activates another part of your nervous system – the hypothalamic-pituitary-adrenal (HPA) axis) and gets you ready to handle the stressors (McEwen, 2015). Activation of the HPA axis which activates your sympathetic system (fight or flight) and you parasympathetic system (rest and digest), which make up the autonomic nervous system (Engelmann, 2004).

While a little bit of stress is good, too much or prolonged stress can cause a number of deleterious events that are not good for your brain or your body (Sapolsky, 2015; McEwen, 2022). So, doing behaviors that help you relieve stress is good for your brain because it helps it stay healthy and it makes you feel happy.

Identifying what things cause stress, for children and adults, is important. Finding ways to relieve stress, which may change in different situations or at different times in your life is also important. The thing to remember is “moderation is key”. While eating food when you are hungry makes you feel good and is good for you, too much food is unhealthy to your body and your brain. Too much water can actually cause the cells of your brain and your body to burst – not good. Too much of a good thing can actually hurt instead of helping, even if it is making you feel pleasure. So, it is important for you to help your brain to help you to stay alive.

National Standards:

Next Generation Science Standards

- Crosscutting Concepts:
 - **Structure & Function:** The way an object is shaped or structured determines many of its properties and functions.
 - The shape and stability of structures of natural and designed objects are related to their function(s).
 - **Cause & Effect:** Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.
 - Events have causes that generate observable patterns.
 - **Patterns:** Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.
 - Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.

National Health Education Standards (Shape America) & CDC (Centers for Disease Control and Prevention)

- **Standard 1:** Students will comprehend concepts related to health promotion and disease prevention to enhance health.
 - 1.2.1: Identify that healthy behaviors impact personal health. **(CDC)**
- **Standard 4:** Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.
 - 4.2.1: Demonstrate healthy ways to express needs, wants, and feelings. **(CDC)**

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