

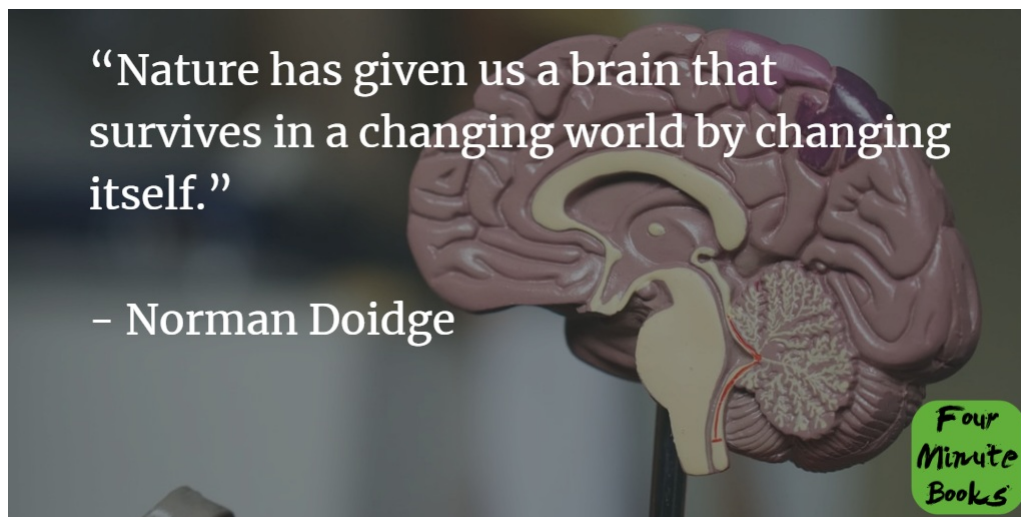
The Brain that Changes Itself Summary

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1-Sentence-Summary: *The Brain that Changes Itself* explores the groundbreaking research in neuroplasticity and shares fascinating stories of people who can use the brain's ability to adapt and be cured of ailments previously incurable.

Read in: 4 minutes

Favorite quote from the author:



Your brain is amazing. At first sight, that grey, wrinkly blob might not look like much, but it's responsible for everything you know and love about being human. It contains your memories, brings emotions and sensations, controls movements, and allows you to think and make decisions.

We are now learning more about neuroplasticity, or the brain's ability to change. Previously, scientists thought of the brain as fixed when fully formed, then deteriorated as we age. But with the rise of neuroplasticity, we now know our brains can heal themselves from injury, change from experience, and regenerate even into old age.

Author Norman Doidge is a world-renowned psychiatrist and psychoanalyst whose work is published in many journals and magazines. In *The Brain that Changes Itself: Stories of Personal Triumph from the Frontiers of Brain Science* he sets out to investigate neuroplasticity. Doidge includes stunning stories from the top scientists researching it as well as the people whose lives it has transformed. He shatters notions that many ailments of the brain are incurable and shows just how resilient humans can be.

Here are the 3 most amazing lessons from the book:

1. Your brain has an incredible talent of changing itself as needed through processes like unmasking.
2. Using your imagination can change your brain.
3. You can change your libido and sexual desires.

Are you ready to be astounded at how incredible the human brain is? Let's dive in!

Lesson 1: The brain can change itself through things like unmasking.

Neuroplasticity is the ability of the brain to reform itself by making new neural connections throughout life. A catchy phrase used by Psychology teachers to describe this is "neurons that fire together wire together." When two events happen at the same time, those neurons involved in the experience fire together. Thus they associate themselves with each other. As this connection becomes stronger, these neurons wire together.

Scientists thought for a long time that each area of the brain had a distinct function, and if that area got damaged, there was no getting that part back. **Though some areas are responsible for specific roles, many often overlap and help one another.** If one pathway becomes blocked, a secondary one is exposed and used instead. This new pathway grows stronger with repeated use in a process called unmasking.

A story of a woman named Cheryl Schiltz demonstrates this phenomenon. For years, she struggled with her balance because of a loss of the part of her brain responsible for balance. A neuroplasticity pioneer, Paul Bach-y-Rita, created a device called an accelerometer that sent balance signals through an electrode on her tongue. This stimulated the area of Schiltz's brain responsible for balance. After using the device consistently, it "unmasked" a new pathway for balance. Schiltz could miraculously balance on her own.

Lesson 2: We can change our brains just with our imagination.

Just imagining what we want can make physical changes in the brain and body. An example of this is patients who experience phantom pain. This is the phenomenon where people who lose a limb experience pain that seems to come from the limb that doesn't exist anymore. Once considered a psychological problem, phantom pain is now known to be a nervous system problem.

The theory for why the pain still happens is that the brain map for that missing limb is eager for input and sends growth factors to nearby neurons. With this theory, neuroplasticity researcher V. S. Ramachandran created a mirror box that showed the mirror image of the working limb so the brain would think the missing limb was moving and responding to

input. This way, they could unlearn the phantom pain. It worked wonders for a patient experiencing severe phantom pain after losing his arm in a motorcycle accident. After using it for ten minutes a day for four weeks, the pain had disappeared.

Another way imagination can change our brain is through visualization. An experiment had two groups of beginning pianists. One group sat in front of the piano and visualized playing a sequence while the other practiced it for the same amount of time. **When they mapped the subjects' brains, scientists discovered that just doing mental practice resulted in the same physical changes in their motor systems as the ones who actually practiced.** In other words, they had approximately the same skills. Imagining doing something and actually doing it aren't very different to the brain.

You can also use imagination to strengthen your muscles. Another study had one group exercise by doing finger contractions over four weeks, while another just imagined doing the muscle contractions. At the end of the four weeks, the ones who actually did the exercise increased muscle strength by 30 percent, but get this—the ones who just visualized it increased their strength by 22 percent! And they didn't even have to do anything.

Lesson 3: Your libido and sexual preferences are plastic and can change with experience.

Brain plasticity doesn't just help us improve and recover lost skills; it also changes our sex drive. **The hypothalamus, which controls instinctive behaviors like sex is plastic, meaning that our sexual inclinations can change.**

The sexual and romantic inclinations we learn in our critical age become wired and continue to impact us for our whole lives, but we can continue to learn and change sexual preferences later in life.

We see this in those who view pornography, where latent sexual preferences from childhood are sometimes unmasked then subsequently strengthened as this inherent desire is fulfilled. This can lead to new patterns or even a new kind of sexuality over time.

People also tend to develop a tolerance for pornography and seek out more aggressive imagery. Combining that aggressive imagery with sexual release connects the associated neurons. Those networks strengthen with repetition. This explains why the industry has seen increasing popularity in sadomasochistic themes.

The Brain that Changes Itself Review

I feel like I was only able to skim the surface on this fascinating book. The author sets out to teach us about the wonders of neuroplasticity in a way that we non-neuroscientists can understand it. The Brain that Changes Itself will empower you by helping you realize you can

change and improve your brain even in adulthood.

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Who would I recommend *The Brain that Changes Itself* summary to?

The 19-year-old fascinated with psychology that is thinking about studying neuroscience, the 48-year-old who wants to help her mother that suffered a debilitating stroke, and anyone with a brain!