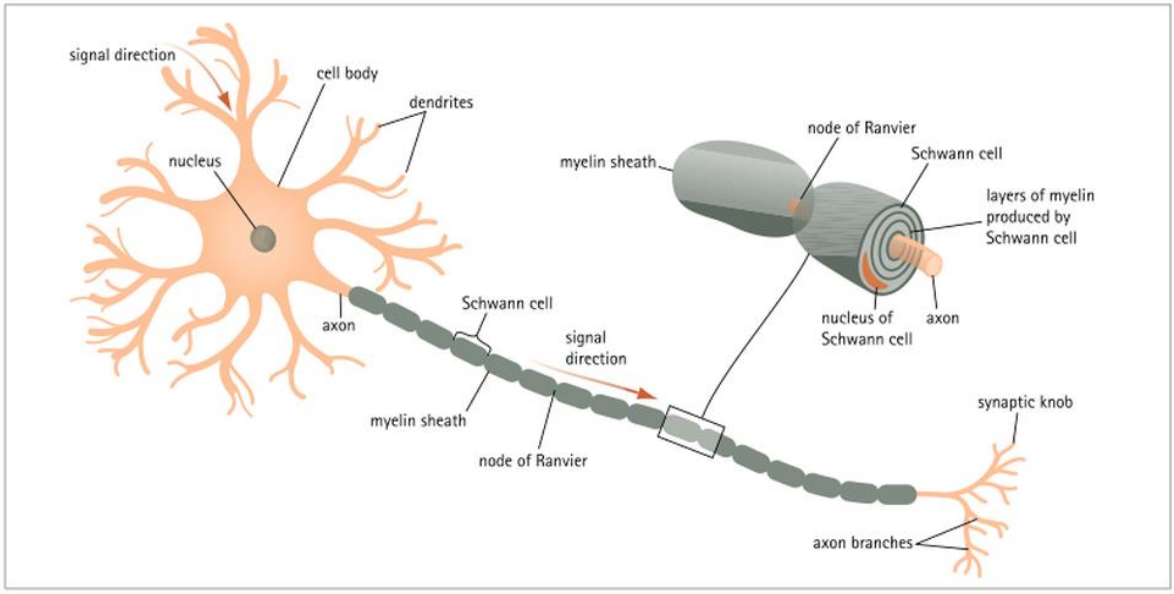
How repeated practice automatizes reading: Creating strong neural pathways in the brain

To learn something new, to set a new habit in place, repetition is required. When you practice something deeply, intentionally, and with some element struggle a neural pathway is formed. Neurons are now firing together in a new sequence, and thus are wiring together as a collective. Repeated firing signals that this neural pathway is important. Repeated firing with deep practice and either struggle or ecstasy, alerts oligodendrocytes and astrocytes that this pathway needs to be upgraded, or insulated, and the process of myelination begins.



The newly forged and repeatedly fired neural pathway is then insulated like an electrical wire wrapped in a protective coating. This pathway (grey matter) is strengthened via the myelin (white matter) insulation and it is transformed from the equivalent of dial up to broadband. Heavily myelinated neural pathways are up to 300 times faster—they've been optimized for speed and efficiency. They've also become the default behavior, as the brain will choose the most highly myelinated pathways (because clearly they are the most important). This is how we form new automatic behaviors, also known as habits or habitual behavior choices.

What Einstein Did

When Einstein's brain was autopsied in 1984 record amounts of myelin were found. Does it mean he was smarter than most? Not necessarily. Does it mean he persevered, failed, keep pushing forward with deep focused practice? Yes.

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retrieved August 30, 2020 from https://www.forbes.com/sites/christinecomaford/2014/11/07/the-truth-about-how-your-brain-gets-smarter/#564c9f0919bc

> *[The] process whereby written words are converted into strings of phonemes must be taught explicitly. It does not develop spontaneously, and must be acquired. [Reading instruction] must aim to lay down an efficient neuronal hierarchy, so that a child can recognize letters and graphemes and easily turn them into speech sounds. All other essential aspects of the literate mind—the mastery of spelling, the richness of vocabulary, the nuances of meaning, and the pleasures of literature—depend on this crucial step.*
>
> —Dehaene, 2010, p. 219

from (see below)

The Superkids Reading Program

BUILDING *the* READING BRAIN

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&

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