Brain Fact or Brain Myth?

Here are some common conceptions (and misconceptions!) about our amazing human brains.

1. **Boys have bigger brains than girls. (Fact)**
   New research has pooled the results of 126 studies examining the differences in brain size between men and women to see if structural differences are part of the explanation. It found that on average men had larger overall brain volumes than women. It is also probably simplistic to assume that there is a direct link between brain size and intelligence. *(NHS)*

2. **We only use 10% of our brain. (Myth)**
   Though an alluring idea, the “10 percent myth” is so wrong it is almost laughable, says neurologist Barry Gordon at Johns Hopkins School of Medicine in Baltimore. It turns out though, that we use virtually every part of the brain, and that [most of] the brain is active almost all the time,” Gordon adds. “Let’s put it this way: the brain represents three percent of the body’s weight and uses 20 percent of the body’s energy.” *(Scientific American)*

3. **Your brain generates enough electricity to power a light bulb. (Fact)**
   While awake, your brain generates between 10 and 23 watts of power or enough energy to power a light bulb. *(Huffington Post)*

4. **Half you brain can be surgically removed without effect on personality or memory. (Fact)**
   The operation known as hemispherectomy is where half the brain is removed. This surgery is considered in patients with severe seizure disorders coming from one side of the brain. The surgery does not appear to decrease intellect. Intelligence sometimes improves due to a lack of seizures and elimination of anti-seizure medications. You might not want to do it, but removing half of your brain may not significantly impact who you are. *(The Hemi Foundation)*

5. **Brain development has finished by the time you reach high school. (Myth)**
   Our brains can continue to grow at any age. One of the startling revelations of the 21st century is the improvement in our knowledge of nerve cell development among older adults. Known as neurogenesis or brain plasticity, this new knowledge is showing us that the brain has the ability to CHANGE throughout life by forming new connections between brain cells, and to alter function. *(Psychology Today)*

6. **Exercise helps make you smarter. (Fact)**
   It is well known that any exercise that makes your heart beat faster, like running or playing basketball, is great for your body and can even help improve your mood. But scientists have recently learned that for a period of time after you’ve exercised, your body produces a chemical that makes your brain more receptive to learning. So if you’re stuck on a homework problem, go out and play a game of soccer, then try the problem again. You just might discover that you’re able to solve it. *(National Geographic Kids)*

7. **When we sleep, the brain shuts down. (Myth)**
   Until the 1950s, most people thought of sleep as a passive, dormant part of our daily lives. We now know that our brains are very active during sleep. Moreover, sleep affects our daily functioning and our physical and mental health in many ways that we are just beginning to understand. During sleep, we usually pass through five phases of sleep. *(National Institutes of Health)*
8. **Left-brained people are logical; people who are right-brained are creative. (Myth)**

The preference to use one brain region more than others for certain functions, which scientists call lateralization, is indeed real, said lead author Dr. Jeff Anderson, director of the fMRI Neurosurgical Mapping Service at the University of Utah. For example, speech emanates from the left side of the brain for most right-handed people. This does not imply, though, that great writers or speakers use their left side of the brain more than the right, or that one side is richer in neurons.

There is a misconception that everything to do with being analytical is confined to one side of the brain, and everything to do with being creative is confined to the opposite side, Anderson said. In fact, it is the connections among all brain regions that enable humans to engage in both creativity and analytical thinking. “It is not the case that the left hemisphere is associated with logic or reasoning more than the right,” Anderson told Live Science. “Also, creativity is no more processed in the right hemisphere than the left.” *(Live Science)*

9. **Neurons send information to your brain at more than 200 miles per hour. (Fact)**

Information can be processed as slowly as 0.5 meters/second or as fast as 120 meters/second (about 268 miles/hour). *(National Geographic Kids)*

10. **You are either a visual, auditory, or kinesthetic learner. (Myth)**

There is no scientific evidence that learners acquire information more effectively if it is presented to them in their preferred learning style. In fact, according to Paul Howard-Jones of the University of Bristol, there is some evidence to the contrary. Some research actually suggests that children learn better when presented with information in a way that takes them out of their “comfort zone.” *(Think Neuroscience)*