Your Brain & Exercise

The human brain is amazing. Its processing capacity gradually increases as the brain continues to develop, even into one's 20s. Then it begins a slow decline. This doesn't mean you stop learning. It just means it takes longer. Neural pathways and linkages that quickly form in the growing brain eventually plateau.

Language is a prime example. Young children can easily become fluent in many different languages, whereas it's much more difficult for an adult to learn even one different language. The speech and motor centers for thought and the tongue are plastic and form at a young age. They become fixed in adulthood, so thinking and speaking a different language becomes much harder. For example, a young Japanese child can easily learn to speak English fluently. However, if he doesn't learn English before the age of 12, he'll always have the inability to pronounce the letter "r." Interpreting nuance, body language, phobias, emotions, the ability to read and remember or perform mathematical calculations are all developed in the growing brain.

What about the aging brain and exercise? Just as marathon runners' times get progressively longer as they become older, we know there's a cognitive decline with aging. It's natural and not pathological.

However, wisdom and knowledge are retained. In fact, an older individual's brain still retains "plasticity" and can "work around" obstacles to solve problems. For example, there are different visual and auditory ways to learn. An individual who has had a stroke may have damaged the speech center and cannot talk. However, the auditory center might still be normal. So the individual can listen to songs and might, eventually, even sing along with the words and regain the ability to speak.

Magnetic Resonance Imaging (MRI) in older individuals shows an increasing incidence of WMHs, or white matter hyperintensities. These WMHs are believed to be associated with impaired motor function or, possibly, cognitive impairment. But in individuals who regularly exercise, the volume of WMHs did not correlate with impaired function. It's speculated that exercise creates or maintains greater plasticity so that the brain can work around a block.

Exercise creates or maintains greater plasticity in the brain. In a large study of 18,766 women ages 70-81, those who exercised regularly had a 20 percent lower risk of cognitive impairment. Pure and simple, if you go for a walk, your brain is continually processing motor function, balance, information about your surroundings, etc. Every day, you engage your brain's plasticity, its "workarounds," and its processing capacity. Physical exercise may create a reservoir of processing capacity to protect you from age-related cognitive decline.

So go for a walk, jog or run. Take a fitness class or ride a bike. In addition to the physical benefits of exercise, you'll also be feeding your brain!

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