

LONG-TERM STRESS MAY SHRINK THE BRAIN

Living under too much stress may harm your brain as well as your body. Previous studies have already shown that stress hormones, such as cortisol, can increase the risk of heart disease and other ailments. but a recent study shows that stress hormones may also shrink the brain.

Researchers found that older adults with high levels of cortisol performed poorly on memory tests and had a smaller hippocampus, the part of the brain responsible for learning and memory. "Stress has become more commonplace and accepted in our everyday lives," says researcher Sonia J. Lupien, PhD, of McGill University in Montreal. "Many studies show the negative impact of stress on physical health such as blood pressure, heart disease, etc., but few address the effects on mental health. Our studies look directly at the long-term effects of stress and stress hormones on brain function."

In a series of studies, researchers looked at the effects of long-term exposure to stress hormones on the brain function of older adults, young adults and children. The results appeared in a recent issue of the journal *Psychoneuroendocrinology*. In the first study, researchers measured levels of cortisol in a group of older adults over a period of three to six years. They found that older adults with continuously high levels of cortisol performed worse on memory tests than older adults with moderate or low cortisol levels.

In addition, older adults with long-term exposure to high cortisol levels also had, on average, a 14% smaller hippocampus. "This study clearly shows the negative effects of long-term stress, negative effects of long-term stress," says Lupien. "This explains why some older adults show poor brain function while others perform very well." In tests with young adults, researchers found that short, temporary increases in cortisol negatively affected the children's thinking and memory skills. But these impairments were only temporary.

Finally, another study with young children and teenagers from different socioeconomic classes showed that children with lower socioeconomic status had higher average stress hormone levels than the other children. "Similar to our findings with the older adults, stress was an important modulator of brain

function in children as well," says Lupien. "All these studies show that people of all ages are sensitive to stress, and we need to acknowledge the importance of this factor on our mental health."

Clearly, there's very little good news about stress from a brain health standpoint ... and as I always remind you, your brain affects everything you do! If excess stress is defining your life there are positive changes you can make that will have genuine physiological effects. Certainly, no one lives a stress free life, that's not realistic. But, you can help optimize your brain function by decreasing your stress levels and I am encouraging you to look for ways to do that. The research is in – lower your stress and you'll change your brain. Change your brain and you'll change your life!

To Your Brain Health,

Daniel Amen, M.D. CEO, Amen Clinics, Inc. Distinguished Fellow, American Psychiatric Association