

ACEs in Alaska

by Jan Adasiak

Part 2: The ACE Study: Our brains are affected by adverse experiences – sometimes even before we are born, sometimes permanently.

ACEs can change your brain and body: Everyone has had the experience of being really frightened. There is a “fear center” in the brain which takes over when you perceive you are in danger and need to protect yourself. It goes by the name “limbic system” and is made up of the amygdala and hypothalamus in the brain, and adrenal glands over your kidneys. When activated the limbic system sends nerve signals to your adrenal glands, your muscles and cardiovascular system. Now your sense of hearing and eyesight are improved. More blood goes to your muscles and heart to prepare your muscles to help you flee or fight. If you are still a fetus in the womb, your mother’s increased stress hormones will appear in the womb and will affect you as well. If episodes like this happen frequently, your fetal brain will respond over and over. It will get faster and more efficient at responding to angry sounds. This is an automatic reaction. If you were exposed to fear-producing sounds before you were born, you come into the world with a nervous system that has been primed for frequent fear responses. If you are a toddler and hear and see parental fights frequently, your limbic system will develop robustly. If you are in elementary school you may be involved in playground fights because you may mistakenly sense hostility and aggression in others when it is not really there.

ACES and genetics: DNA research has shown that the genes of individuals who suffered starvation in northern Europe long ago had not only alterations in how those genes were read and expressed, but then those alterations were passed on to subsequent generations. This type of research launched a new field of study called epigenetics. Scientists are learning that events we experience can change our DNA and the changes can be passed on to our offspring—including genes that influence behavior. More recent research on present generations has shown that tendencies for violence can pass through the genes. Genetic research involving present day peoples and the bones of ancestors who suffered through a famine in the northern Europe proved that the genetic changes caused by the famine could carry forward to subsequent generations.

ACEs and chronic illnesses: Early and consistent emotional trauma produces more frequent and long-lasting release of stress hormones such as adrenaline and cortisol. Research has linked early and consistent over-release of cortisol to development in adulthood of autoimmune diseases in which the body attacks itself. Examples include rheumatoid arthritis, fibromyalgia, irritable bowel syndrome, chronic fatigue syndrome, migraine headache, chronic back pain. This is because of frequent overproduction of neurotransmitters that signal various parts of the body that an inflammatory response is called for to summon various blood components in case of injury. Inflammation around a cut can help reduce blood loss--that is one good thing about it. But too much inflammation or consistently high levels of inflammation can lead to autoimmune diseases. Release of cortisol to produce helpful inflammation in anticipation of injury is a good thing, as long as it does not last long.

Book resources: “The Body Keeps the Score (Brain, Mind, and Body in the Healing of Trauma)” by Bessel Van Der Kolk, M.D. , who first described and named PostTraumatic Stress Syndrome. “Childhood Disrupted: How Your Biography Becomes Your Biology, and How You Can Heal” by Donna Jackson Nakazawa. (much on autoimmune diseases) This author is also on YouTube.

Next time, in Part 3 of ACEs in Alaska we will look at ACEs, kids, school and work.

Questions? Whenever you have questions, please e-mail me, Jan Adasiak, at adasiakjan@gmail.com