



## Conewago Township Police Department

Adams County

541 Oxford Avenue  
Hanover, Pennsylvania 17331

Telephone (717) 637-7361  
Facsimile (717) 637-6833

### Lizard Brain?

Stress is a part of our lives, regardless of age, race, or gender. The five-year-old anticipating his or her's first day of kindergarten feels stress. The anxiety associated with stress is relative to the person having the experience.

Repeated exposure to stressful events can lessen the effects on our brains and our bodies, much like a rehearsal prepares actors to take the stage. A routine public speaker is far less stressed about a presentation than, say, a high school valedictorian is about speaking to his or her classmates.

The human brain is composed of three parts; 1- The brain stem and the cerebellum (Lizard Brain), 2- the limbic system (Mammal Brain), and 3- The neo-cortex (Human Brain). The first part is our autopilot, our fight or flight response system; it's generically called the lizard brain because that's about all the brain a lizard has. (No offense meant towards our reptile friends) The second is our mammal brain, which provides emotions, memories, habits, and attachments. The third is our neo-cortex, and this part gives us language, abstract thought, imagination, consciousness, reasoning, and rationalizing. (Paul D. MacLean's model of the "Triune Brain.")

The lizard brain is vital for our survival because it is quick to respond. The lizard part of our brains allows us to react fast in dangerous situations; the drawback to this immediate response is the lack of fine motor skills. The brain, in these instances, has only a set of preprogrammed actions to rely on and requires little if any conscious thought on our part. When the brain is startled by an external stimuli it sets the body in motion to respond to the event, a series of alarms are activated within our bodies that prepares resources to deal with the threat. Our heart rate and breathing increase, blood flows to large muscle groups for instant access, and our brain increases focus on the danger. Even our immune system gets in on the action by ramping up to ready itself for possible injury.

These changes make us faster, stronger, and more focused. All this sounds pretty great, our brain, muscles, and immune system all focused and prepared for battle; what's the downside. Sadly, this process is largely controlled by our lizard brain, and

this baby isn't meant for reasoning, just reacting. As stress mounts, like in a physical confrontation, the human brain loses its ability to think; this is the brain shutting down. In these situations, humans turn to instinctual actions, which are primarily limited to fight, flee, or freezing. Common side effects of high-stress encounters, like deadly force incidents, are:

- Tunnel vision – Your field of focus might narrow to only the most immediate threat, limiting or negating peripheral details.
- Auditory exclusion – You might stop hearing what is happening around you.
- Time dilation – Things might seem to move in slow motion.
- Out-of-body experience – You might feel as if you are outside your own body watching an event as its happening.
- Reduced motor skills - You might experience reduced fine motor function.

One of the most apparent indicators of our stress response is our heart rate. At roughly 60-80 beats per minute (BPM), we are in condition white. Condition white is our normal resting rate, and you are likely in a comfortable, safe environment. 90-120, BPM are conditions yellow into red, at which your body enters a heightened state of readiness, fine motor skills deteriorate, but gross motor skills are at their peak performance. You are stronger and faster, just not more intelligent. At 150-175, BPM cognitive processing and auditory abilities begin to fail. You will experience tunnel vision, time distortion; the environment is becoming overwhelming. If the stressful encounter continues, the human brain loses its ability to process information; it is overloaded. You may experience freezing and even voiding of the bowels or bladder.

Actual real-life violent encounters do not occur in the clean, choreographed way in which movies and TV shows depict. Actual violence is scary, messy, and life-altering for all involved. The process that the brain and body go through under traumatic stress is difficult to imagine, let alone understand, without having experienced it. Watching any real-life violent encounter after the fact makes it easy to dissect the actions of those involved, possibly concluding that we would have done things differently.

That's our neo-cortex working leisurely to reason the problem and slowly providing what might seem like a rational outcome. Reacting to a violent confrontation leaves little if any time to reason a response; humans are not capable of processing startle response stimuli through the neo-cortex (Human Brain) in these instances.

Life is sometimes chaotic, and we need to understand that rehearsed action scenes from movies and TV will never duplicate real life. Real-life violence is not cool to witness, it's ugly, cruel, and no one wins.

Gary L. Baumgardner – Chief of Police