

When We Are Very Young

Episode 7

The Bunny Story (or the Autonomic Nervous System in Action)

One aspect of developmental trauma that is necessary for parents to understand is the mammalian response to a substantial threat. OK. Let's break that down a bit.

Like all mammals, humans have a built-in mechanism that, when threatened with harm or death, operates without need for conscious control. This mechanism directs our physiological responses (by that I mean internal body processes) and behavioural responses which are external or visible to others. This mechanism involves the senses, the brain and the body. The senses perceive the threat, the midbrain reacts to it and directs the body, via the autonomic nervous system (ANS), to react behaviourally. I say all this not because you need to know the anatomy and physiology (although I find it helpful to know it), I say it to illustrate that the behavioural responses are hard-wired; they are not under conscious control, not choices or decisions. And, it's very important to note that with repeated use, these responses become more likely to be used. So, when threatened, and our brain and body respond -- this is especially true for

children—we have little cognitive control over the body’s responses.

Thinking of jumping out of the way of a falling object. You react by jumping out of the way. Then you feel fear and all the body’s reactions of pounding heart and adrenaline-filled limbs, and then you start processing the incident cognitively (that is, talking about it). “Whew! That was close!”

I like to illustrate this system with the Bunny Story, an allegory for understanding the Autonomic Nervous System’s role in survival behaviour.

So here goes...

A cute little bunny is hopping about in the clover field on a beautiful early dawn, munching the sweet clover it favours. Just then, the shadow of a hawk passes over the bunny.

FREEZE!

The bunny instantly becomes motionless – on the outside – but not on the inside. On the inside, the bunny’s heart is pounding, its blood pressure is high, its body is highly energized ready for what might come next. The freeze behaviour is controlled by the bunny’s midbrain, it is a survival reaction to imminent threat. The hawk’s visual system responds to movement so this freeze behaviour reduces the chances that the hawk will see the bunny. So freezing, remaining motionless, is the bunny’s primary or

first defense reaction. But alas, it's too late, the hawk sees the bunny and begins to dive.

FLIGHT!

The bunny runs for its life, zigging and zagging, trying to avoid the hawk. Its bladder and bowels empty, reducing the load (the ANS is also connected to the gut). The bunny's arousal level is at its peak, as is its fear, which we assume based on these behavioural markers of the ANS. But too late, the hawk's talons start to grab the bunny. The bunny turns to...

FIGHT!

With tooth and claw, kicking and screaming (yes bunnies scream), the bunny tries to fight off the hawk. But the hawk is bigger and stronger. The hawk flies up with the bunny in its talons.

Now a strange thing happens. The bunny's body's response to imminent death is to

SHUT DOWN.

In shut down, the ANS rapidly switches to LOW arousal, low heart rate, low blood pressure and low respiration. This reaction has two purposes for the bunny – and all mammals – the first is that the shut-down of the body reduces blood loss at the site of injuries. Very helpful. Secondly, this state is also called “feigned death” because the bunny now looks dead

and hawks don't eat dead stuff. Dead animals don't move and don't bleed much. So, hopefully (if you are rooting for the bunny) as the bunny lies unconscious on the tree branch, the hawk will decide to go for some more lively prey. For opossums, who are slow and have few physical defenses, "feigned death" is their primary defense mechanism. We call it "playing possum". This strategy works quite well, given the number of possums around.

So how does this bunny story relate to children who have experienced early trauma and neglect within the caregiving environment? Let's define our terms.

Trauma refers to harm, threats of harm or threat to survival. For an infant these include exposure to toxins prenatally including drugs, alcohol, tobacco products and maternal stress hormones. Prenatal starvation is a threat to survival. Post-natally, harms include abuse, neglect and frightening experiences in all its forms. It most certainly includes separation and loss of primary caregivers, which are threats to the infant's survival.

Early Trauma refers to trauma that occurs during the critical developmental period of the child's life. During gestation and the first three years of life, the brain and the nervous system are forming in terms of structure, function and connections between structures. Recent research

has demonstrated that early trauma can affect brain development in all three of these areas.

Repeated or chronic trauma during the developmental period, may result in changes to the brain and those changes *MAY* result in long-term changes in functioning of the child. Interestingly, not all children who have demonstrable brain changes, have changes in functioning. Interesting indeed. Some children are resilient, even though they have “trauma brains”, so to speak. (The effects of childhood maltreatment on structure, function and connectivity of the brain; Teicher, Samson, Anderson and Ohashi. Nature, 2016)

The main idea for this bunny story, is that children who have experienced early trauma and neglect may be more reactive to threat. Their responses are brain-based and controlled via the ANS. Their fear reactions are not choices and cannot be behaviourally modified.

So what are these fear reactions in children? What do they look like? How do they display? We see behaviour however we must understand the meaning of that behaviour. In other words, parents need to respond to the cause of the behaviour not the behavioural display. The behaviours that are associated with higher arousal can be thought of as falling into the categories of fight, flight, freeze, while shut down has a low arousal level.

Fight can be seen in resistance, non-compliance, and in verbal and physical aggression. Flight is demonstrated when children bolt from situation, often to hide or escape. Freeze is likely to occur prior to flight and sometimes prior to fight. So watch out, action is likely to follow freeze. Shut down may occur rapidly or gradually. The first sign is often yawning or stretching, perhaps burping. Day dreaming, vagueness or “zoning out” are signs of deeper shut down. And finally, stupor which is non-responsiveness but still conscious, fainting that is becoming unconscious, and seizures.

As you might suspect, how a parent responds to a child who is in shut down would be quite different from a child who is in high arousal. There is more to discuss though before we get to that. The Window of Tolerance is an important concept which we will discuss in the next blog.

Reading List:

1. The Whole Brain Child, Dr. Dan Siegel. I think it is important that parents understand the basics of how their own and their child's brain work. After all, developing our child's brain is what we are doing when we parent.
2. Hope for Healing, published by ATTACH.org. This is a book written for parents by professionals who are also adoptive parents (including me!) It is a really great place to start and easy to read. I recommend sharing it with grandparents and other family members to help them understand your child.
3. Creating Loving Attachments by Kim Golding and Dan Hughes. Dan has written several books, some for therapists and some more for parents and therapists. Read everything he writes if you enjoy the art and science of attachment-focused parenting.