

Somatic Experiencing®
BEGINNING YEAR
Module 2

SURVIVAL AND DEFENSIVE RESPONSES

Understanding the function of survival responses in relation to traumatic stress is essential for understanding the SE model. One of the critical aspects in trauma renegotiation is the completion of incomplete survival responses, in particular orienting, fight, flight, and freeze responses. Interrupting or thwarting these responses at different stages in the threat response cycle produces subtly different disturbances in the physiology, which will in turn require slightly different interventions for resolution.

For physical care practitioners (bodyworkers, physical therapists, chiropractors, physicians), it is particularly important to understand how to restore good function to orienting and protective responses. These critical self-protective reflexes and responses are prone to disturbance following physical injury, particularly high-velocity injuries such as car accidents. Restoring these self-protective responses is an essential part of recovery from traumatic stress due to physical injury

THE THREAT RESPONSE CYCLE

The threat response cycle is a hierarchy of responses that are triggered, initially, by novelty in the environment. For ease of discussion, each of the phases of the sequence is presented separately. In actual threat response, the movement from perception of threat into active defense may happen in milliseconds, with no apparent transitional phases. Likewise, in an over-responsive nervous system, startle may be the habituated response to any novelty in the environment, but it won't be followed by specific defense when there is no actual threat. The cycle progresses as follows:

- **Arrest response/preparatory orienting** — When there is novelty, stop, and notice the external environment. Evaluate whether or not the stimulus is threatening.
- **Startle** — The startle may happen almost simultaneously with the arrest response. The difference between the two is that the startle has a higher level of sympathetic arousal and actively begins the preparation for action. It includes mobilization of the chemical and physical resources needed to respond to threat.
- **Defensive orienting response (DOR)** — The potential for threat is assessed as being high; orienting is now done in the context of specific threat and the need for more detailed assessment of that threat. Activation level is usually moderate to high.
- **Specific defense**
 - Fight
 - Flight
 - Freeze
- **Completion** — If threat does not materialize, physiology returns to the resting state after activation level is reduced via normal self-regulatory processes. If threat requires active defense, completion of the fight, flight or freeze sequence (if defense is successful) leads to discharge of the high activation levels of the threat response, and the physiology returns to equilibrium via normal recovery processes.
- **Exploratory orienting response (EOR)** — Relaxed alertness to both internal and external environment; curiosity; gathering information about the environment with a low level of activation.

THE ORIENTING SEQUENCE

Arrest Response, Preparatory Orienting (in response to novelty in the environment)

As noted previously, the startle and arrest response may occur simultaneously, or the arrest response may be overridden by the startle response, moving directly into other threat responses. For ease of discussion, the arrest and startle responses are separated in this material.

The squirrel hears a twig snap. It:

- Stops in mid-motion;
- Crouches slightly;
- Is instantly alert, vigilant, ready to search for more information.
- From the tensed position, its head and neck extend, as if pulled up by imaginary strings.

The eyes open wide, the head turns toward the sound to locate it.

- Where is it?
- What is it – is it food, danger, neutral?
- What is its relationship to me?
- Is it bigger, heavier, moving away, moving toward?
- How much time do I have?
 - Is it moving quickly; do I need to react immediately?
- Its posture is tense and alert, which is optimal for panoramic scanning. Its stance brings all sensory organs to alert, makes immediate movement possible, and is in good relationship to gravity for instant response.

These arrest and/or startle responses are activating, and will be followed by discharge of the accumulated activation if no further threat response is needed. As the animal moves from a state of activated hypervigilance toward one of ordinary relaxed activity, its body may vibrate, tremble, sweat, or exhale, thus dissipating the accumulated readiness of the activated state. Its nervous system returns to equilibrium, ready to respond to the next potential threat.

How will we notice this in our clients?

Language: The client's language will include words that express focused curiosity about the external environment. Their language will often pose the question (or answer): Where is it, what is it, what is its relationship to me, how much time do I have?

In the language of the senses:

"I realize the door is open behind me."

"I smelled smoke."

"It was a really heavy thud, like something very large had fallen."

"There are voices coming from outside."

"It is such a strange sound, I can't figure out what it is."

Posture/physical presentation: The classical arrest response posture brings the sensory organs (eyes, ears, nose, tactile, and vestibular senses) to high alert. Commonly, the head will be cocked slightly, and the facial expression will show curiosity (or perhaps slight confusion as the person struggles to identify what has shifted in the environment).

Relationship to gravity: The client will display at least slight anti-gravity efforts; there will be some tension in the muscle system; weight will not be resting fully on the ground; client will appear to be just about ready to do something.

Sensations: Jumpy, tense, something's about to happen, feels ready to move.

Emotional/psychological/behavioral: Client presents as being easily startled, jumpy; may feel activated and disoriented simultaneously; may feel unable to settle and relax even in relatively stable and safe environments; may experience that things happen "out of nowhere" – that they can't tell when something threatening may be about to happen; hypervigilance.

Restoring Preparatory Orienting Responses

If the response cycle is interrupted at the arrest/preparatory stage (for example, if there is strong impact just as orienting is initiated), preparatory orienting may be disrupted. The client may be inefficient or inaccurate in gathering information about the external environment. They will be unable to accurately assess potential threat; they will often be literally “disoriented”, and not able to manage their own body movements and weight-bearing efficiently.

If this response was interrupted while scanning **wide** before the identification of threat, the client may continue to look all over, can't identify the source of danger, generalizes to life, becomes unsettled and paranoid. If interrupted during **narrow** vision scanning (when threat has just been identified and focused on, for example), the client may become fixated, lose other details around them, become accident prone, bumping into things, stuck in narrowed field of vision.

The three most common orienting disturbances are:

- Hypervigilance (all dangerous things come from the left, so I should always look to the left);
- Avoidance (all dangerous things come from the left, so if I don't look over there I won't see anything bad);
- Extinguished orienting (I can't figure out what anything is, so I won't pay attention to any of it).

To restore equilibrium in preparatory orienting:

- Slow down, and allow time and space to help a client feel ready and prepared. Having that time restores the sense of readiness, which is a missing resource that the swiftness of traumatic experience can often override. This greatly relaxes the client, and reduces the feelings of urgency or incompleteness that accompany trauma.
- Pay attention to the intentional preparatory movements. Give the body time to organize intentional or “pre-movement” instead of gross motor movement. There is a lot more discharge out of shock states possible through allowing the body time to organize intentional, or pre-movement, than through following gross motor movement. Help the client break down gross motor movement into impulse or intentional movement.
- Move the eyes very slowly.
- Transition from the state of activated vigilance to one of normal relaxed activity.
- Titrate the orientation because there may be a lot of activation associated with orienting. Normalize it.
- Help develop “space orientation” and “time orientation” by ordering content, and by working with the neck muscles.
- For some people, the neck is so rigid that they need to collapse completely before they can physically orient again (you may need to support their neck as they go through this stage). This is called a brace, collapse, rebound pattern (discussed in full on page 18 of this module).
- Ensure that orienting is restored 360°, and in all sensory modes.

STARTLE RESPONSE/REFLEX

The startle response begins as a primitive reflex, which persists throughout life (see Beginning Module 3 for more information on motor developmental reflexes), and is then linked to learned responses, such as startling when we think we see a snake.

How will we notice this in our clients?

Language: Language will be similar to that of the arrest response, but will typically express the adrenalized fright of startle:

“My heart was racing.”

“I just about jumped out of my skin.”

“It scared me half to death.”

Posture/physical presentation: The startle and Moro reflexes (discussed in detail later in this module), combined, give a presentation of initial extension of trunk and neck, widening of eyes, with arms and legs going up and out to the sides; this is followed immediately (or sometimes is almost simultaneous with) flexion or folding of the head and/or arms, drawing arms across the body, embracing self, closing hands. This is the classic startle reflex/response and you will see at least some elements of this pattern in the client’s physical presentation.

Relationship to gravity: As with the arrest response, the client will appear to be just about ready to do something.

Sensations: More activation than with arrest response – tense, contracted, heart racing, holding of breath.

Emotional/psychological/behavioral: Startles easily, jumpy, can’t settle. Feels like there is always a surprise just around the corner; feels that things “come out of the blue”.

Restoring Healthy Startle Responses

Neurologically, it is almost impossible to suppress the startle reflex/response so it is rare that you will see it shut down. However, it is common for the startle response to be over-activated so it is triggered by relatively small stimuli (such as a car door slamming in the distance).

The methods for restoring good function are essentially the same as for the arrest response, above. Due to the reflexive, instantaneous nature of the startle, as well as the higher arousal level as compared to the arrest response, it is more challenging to slow the process down enough to work with the startle response itself. In effect, you will be working with the precursor - the arrest response and preparatory orienting - to diminish the over-reactivity of the startle. The emphasis is on slowing the entire process enough to restore relaxed orientation.

THE DEFENSIVE ORIENTING RESPONSE

If the animal perceives that a threat is real and imminent, it will move from the arrest/startle response, or preparatory orienting, into defensive orienting. This type of orienting is specifically focused toward escape, assessment of the magnitude of the threat, and assessment of the need for fight vs. flight. Defensive orienting is very similar to preparatory orienting, except that it has much greater urgency and activation associated with it. At this point in the process, the need to assess the environment becomes so urgent that curiosity is eliminated, and highly focused attention narrows down to the specific threat.

Since activation levels increase here, chances are greater that the client will already be moving into overwhelm, and therefore be more likely to get confused about the meaning of the environmental information they pick up.

As noted in Beginning 1, in a traumatized person, defensive orienting can get stuck in the “on” position (resulting in hypervigilance, hyper-responsiveness); or, conversely, it can get stuck in the “off” position, and be extinguished as a result of the nervous system categorizing a specific orienting response as ineffective (resulting in avoidance, under-responsiveness).

How will we notice this in our clients?

Language: The client's language will contain more urgency, and potentially more confusion:

"I can't figure out where the window is."

"The car is moving so fast."

"Where did it go, where did it go, where is it?"

"It was so dark, I was really trying to see, but it was so dark."

"I don't know where I am – I need to get out of here, but I don't know where to go."

Posture/physical presentation: The orienting posture will be more focused; the client may be physically turned toward the perceived threat. The focus of the visual field will have moved to central vision (rather than peripheral vision); the eyes will have more tension and pressure. The facial expression will show urgency rather than curiosity.

Relationship to gravity: There will be enough tension in the muscle system that weight is barely resting on the ground. Client will appear ready to explode into movement.

Sensations: Often focused around the face and eyes; sensations associated with limbs feeling ready to do something – tension, contraction of muscles; confusion in sensory information.

Emotional/psychological/behavioral: May feel under immediate threat, but confused about how to respond; may experience others are threatening, even in benign situations; difficulty reading the social cues about how others are feeling.

Completion of Defensive Orienting Response (DOR)

If the response cycle is interrupted during defensive orienting, there will be a much higher level of charge associated with orienting activity. The most common effect of this type of disruption is that DORs are "locked" into the system. That is, there is no such thing as preparatory orienting or curiosity any longer. The person moves directly into high levels of activation when any change is perceived in the environment. Their physiology responds in kind, and maintains a high level of rigidity and urgency through the physical systems that support orienting.

To restore equilibrium in DOR:

- Work in the same way as with preparatory orienting, except the process will need to be more titrated due to higher levels of activation.
- Recognize, track, and encourage/evoke thwarted DORs (stiffening, retracting, rotating), and move them toward completion, release and resolution.
- Discharge high activation associated with the DOR being stuck "on". Encourage the uncoupling of fear from the gathering of environmental and sensory information. Allow time to take in and notice the full visual field of surroundings so activation can lessen in relationship to this orientation to the environment.

- Animals run it off or fight it out – humans often suppress completion, and become immobile or stuck. Support and encourage any intentional movements toward defense – always in a titrated way.
- The threat response can become internalized, and trigger even in the absence of external threat.
- Move through completion of DOR to return to exploratory orienting response (EOR), which is discussed in full below. This may mean moving from DOR to EOR, or from DOR into completion of full-blown defensive response (*see page 8*).
- Movement through DOR and back into exploratory curiosity is a sign of the return of equilibrium to the system.

PROTECTIVE, DEFENSIVE RESPONSES: FIGHT, FLIGHT, FREEZE

In the normal hierarchy of the threat response cycle, defensive responses are initiated once the animal has determined via the orienting process that a threat is imminent and requires some form of defensive response. As noted in Beginning 1, there are three potential defensive strategies: fight, flight, or freeze.

Healthy defensive responses provide a wide range of possible strategies, come into play when needed, and match the magnitude of the threat. In a traumatized person, defensive responses can be triggered by the most subtle of cues, without the person even being aware of having oriented to their environment. Alternatively, certain defensive responses can be almost entirely extinguished due to motor developmental disturbances or trauma. In this case, orienting to threat does not evoke the defensive responses that are needed.

In working to restore the equilibrium of defensive responses, it is important to understand that activation is a natural part of this stage of the threat response cycle. If an animal did not in some way perceive itself to be under direct threat, the urge to defend would not arise.

Overview

As noted in Beginning 1, nature places no value judgment on which defensive strategy is superior – the value lies in survival. The response to threat is instinctually orchestrated by the reptilian brain and limbic circuits. The limbic circuits are critical in the response to threat as they help us sort the relevance of environmental information in light of past experience (emotional, sensory, and relational). Instinctive, physiologically pre-programmed responses to threat, combined with learned strategies based on previous experience, determine which type of survival response will be used in the split-second responses that occur under threat. The only “right” responses are those that lead to survival.

Unresolved trauma from previous experiences interferes with the smooth interplay between instinct and learned behavior. For example, if a physical defensive response (e.g., fighting back) has been extinguished, it will not be used even when it might be the most effective response to a current situation. The perceived lack of effective defensive response will increase activation, which in turn can trigger the immobility response.

In addition to unresolved trauma, the sheer magnitude of certain modern experiences can overwhelm our capacities for effective survival response. One example is motor vehicle accidents, which happen at such a speed and with such force that our physiology is essentially unprepared to match the magnitude of the threat at the time it occurs.

FIGHT

Fighting is the defensive response initiated in situations that call for aggression, or when it seems necessary or possible to overcome a threat directly, or when flight seems unavailable or was unsuccessful. If the defensive response cycle is interrupted in the fight stage, most typically there will be a linking (coupling) of aggression and powerlessness. The strong urge to fight will have been overcome, but not eliminated. When the fight response is thwarted, and flight is unavailable, the freeze response will be the natural result.

How will we notice this in our clients?

Language: The client's language may contain direct reference to the urge to harm others (or possibly themselves, if the impulse to fight back is too scary or would have caused dangerous escalation); language will often include metaphors of combat and conflict; will often express the dilemma of a strong urge to fight, combined with the anguish of not being able to succeed in overcoming the threat; words that express any of the physical, emotional or behavioral aspects of fighting (see below):

"I could just rip his face off."

"My stomach feels like a bomb just went off."

"I'm so stupid, why didn't I know this would happen."

"A voice said 'just let go'; but some part of me just couldn't give up."

Posture/physical presentation: The client will show indicators of the urge to physically defend or attack:

- Eyes: glaring; as if "looks could kill," or tense, distorted expression; confrontive stare; squinting hard with hatred.
- Mouth: gnashing; biting; spitting; chewing; chomping; jutting of clamped jaw; gritting or grinding teeth.
- Arms/hands: fists, clenching and unclenching; pounding; stabbing gestures; punching; hitting; blocking; pushing; pulling; striking out; flailing; pinching; ripping; scratching.
- Legs/feet: kicking; stomping; pushing; stepping on; kneeling.
- Overall posture: aggressive posture; leaning forward; muscle tension and readiness with arms and legs engaged; physical attention focused in a single direction.

Sensation: Description of sensations will often have to do with strong circulation, muscles being tense and engorged with blood/burning hot; fiery; exploding; strong electrical charge; tension patterns; knotted stomach; breath being hot and rapid.

Somatic or visual metaphors: Can be an image or feeling indicative of holding too much undischarged anger in the body, or a revenge fantasy directed toward themselves or the threat; exploding like a bomb or erupting like a volcano. The more the person felt overwhelmed, the more violent, gory and/or destructive their returning or newly initiated fight responses are likely to be.

Emotional/psychological/behavioral: Thwarted fight responses most commonly manifest as rage and anger. Homicidal or suicidal feeling; need to blame, judge, hurt or destroy self or other; hostility; explosive, violent, fierce, aggressive feeling or behavior. May be caught acting out repetitive angry outbursts, or display more covert passive-aggressive behavior.

Restoring Fight Responses

- Blocked or thwarted fight response indicators: The person may shut down, dissociate, or appear frozen in general, or in relationship to a specific aspect of the trauma.
- Repetitive fight response indicator: The person may be easily and inflexibly triggered into rages or angry outbursts that fail to resolve. Stuck or overwhelming anger will lead toward disintegration or dissociation vs. integration and completion.
- Uncouple (unlink) rage and powerlessness. Usually in the trauma pattern, the rage is overcoupled with intense helplessness and this is what we work with. We tease them apart by bringing the fight response out slowly and in a “titrated” way — bit by bit, or chunking down, so that the anger can feel strong, safe and empowering to the client as it gradually discharges and uncouples.
- Titration example: If a person is feeling lava in their veins and describes feeling like a volcano erupting, invite them to stay with their specific sensation, but break it down into something manageable. One possibility would be to have them look for and focus on the steam rising from the volcano, or just a trickle of warm lava that exits into the sea, where it gradually cools. Then have them track and sense how that feels in their body.
- Create distance: Have them experience the scene or image in their bodily felt sense at a comfortable, safe distance from the volcano, so that you are essentially putting it outside their body, which may reduce the activation until it can be integrated internally. Or, you could have them watch themselves act it out as if in a movie on a screen as far away as they want it to be. This also enhances the sense of being in control, which reduces activation.
- Insertion of time: Have the client re-establish their own sense of personal timing, pace and rhythm. “Allow the lava to cool at your own pace.” “Take all the time you need to feel the anger dissipate.”
- Allow the impulse: Another way to support gentler release is through finding and supporting the impulse (to hit, to cry, etc.) that may arise before the active fight response; or you might want to “back up” and help the client “be with” the impulse itself until release occurs.

Example: If the client has a fixed pattern of crying, you might ask them to just stay with the impulse to cry in order to help them learn to contain and integrate the emotion. Other clients might be emotionally shut down, and it is very useful for the tears to flow.

- Releasing through intentional movement: Discharge can also take place through the non-conscious intentional movements that occur when the body has the time it needs to organize or prepare for an action without going into the action at all. You can have the client focus on these micro-movements (rather than the gross motor movements that can release energy too quickly, and intensify symptoms such as dissociation). This is especially useful when the anger comes up intensely or too quickly.

Example: The client wants to hit the other driver. You might suggest, “Let’s play with that scene out on a movie screen in front of you. Now which arm would you use?”... “The right one.” ...” OK, Let yourself feel the muscles of your right arm organizing and preparing to hit, all the way from your

shoulders through your upper arm into your elbow, into your forearm, wrist and hand... Watch yourself, or feel the slow sense of movement in your arm as you gradually complete that gesture.” No movement may actually be visible. At times, the whole movement is acted out, but very slowly. Occasionally one or two gross motor movements can be useful for release. Watch for signs of integration.

- Introduce protective allies: Have the client watch someone else, a protective ally, do the job of defending for them. The younger the person was at the time of overwhelm, the more they will realistically need someone to help them. Usually after help has been experienced and enjoyed, the client will want to do it alone.
- Support the need for realistic help and autonomy: Both the capacity to ask for help as well as the capacity for autonomy are equally important resources to have, develop, or restore if missing. Unfortunately, some people have never experienced much real protection in their actual life. That needs to become available through their body’s felt sense experience, and restored to their menu of options.
- The client needs to learn to tolerate their aggression at the basic level. In the mixture we are of human animal, aggression can feel murderous and dangerous. Particularly if the client has been imprinted with the most violent of such urges (via a perpetrator, for example), coming into relationship with normal aggression within oneself may at first feel like the worst possible thing that could happen. It’s important to help the client learn to recognize and normalize natural aggression.
- If a thwarted fight response has led to the freeze response, the immobility of the freeze will need to be addressed first (*see page B2.16*); then completion of the fight response can take place.

FLIGHT

Flight is initiated when the perceived magnitude of the threat is such that fighting seems unlikely to succeed, when fighting has failed, or when the threat is non-specific enough that direct confrontation is unavailable. If the response cycle is interrupted in the flight stage, the client is more likely to move into an immobility response/freeze state. The strong urge to flee is incomplete. When flight is unavailable, either the freeze response will ensue, or a last-ditch attempt to fight will sometimes be provoked.

How will we notice this in our clients?

Language: The client's language may contain direct references to attempts at escape; language will often contain metaphors of fleeing or hiding; will often contain reference to the dilemma of wanting to run away, but being restrained or otherwise prevented from escaping; when the focus of escape is on hiding, words may be said in a whisper; words that express any of the physical, emotional or behavioral aspects of fleeing (see below):

"I can feel my legs wanting to run."

"I know I should move, but my feet feel like they're nailed to the floor."

"There has always been this pattern for me in my life – I can't face what scares me, I'm always avoiding confrontations."

"I just don't want to deal with this. I just want to get out of this room. I can't stand it here anymore."

Posture/physical presentation: The client will show indicators of the urge to escape:

- Eyes: similar to defensive orienting (scanning, looking for an escape route)
- Extremities: there are often subtle or obvious movements of the extremities (like restless legs, fidgeting); movements mimic running, crouching, hiding.
- Overall posture: looks ready to flee; perhaps turned slightly, all limbs moving in the same direction; weight is not planted on the ground.

Sensation: Description of sensations often have to do with the perception of intentional movements, with the quality of wanting to move, or of being prevented from moving; agitation; nervous energy centered in the arms and legs; an almost exquisite sense of being unable to stay still; sensations of being trapped or held; rush to move or run; or sense of urgency to escape. Conversely, when the focus is on hiding (as a form of escape), sensations may center on not wanting to move; on feeling the tension of stillness; on being quiet and still with the breath.

Somatic or visual metaphors: Running, breaking free, feeling a euphoric sense of unlimited space.

Emotional/psychological/behavioral: Thwarted flight will most often manifest as panic or anxiety; some form of fear or terror. Can include emotional withdrawal or "trying to get away" through disconnecting or avoiding. The client may report needing to sit facing doors or otherwise find escape routes in any setting.

Restoring Flight Responses

- Emphasis is on mobilizing and organizing the impulses toward escape; completing a successful escape.
- Blocked or thwarted flight response indicators: The person may be shut down, dissociate, or appear frozen in general, or in relationship to a certain aspect of the trauma.
- Repetitive flight response indicator: The client may have a strong avoidance or withdrawal pattern, and seem to repetitively feel the need to run away.
- Uncouple (unlink) fear and immobility in a titrated way.
- Create distance: Work with the running metaphor; have the client visualize running in a safe place, with friends or a pet. Have them feel their feet on the ground and describe the surface on which they are running. Have them describe what they see as they run along. Expand their awareness. Remind them that it is fine to take breaks and that their body will know when the running is finished.
- Expansion of time: Have the client re-establish their own sense of how much time they need to organize their escape.
- Allow and encourage the impulse: Slow down the process of movement toward escape; allow the client to notice the small increments building toward the urge to flee.
- Intentional movements: The physical movements of escape will often initially be disorganized and incomplete. The pre-movements, micro-movements, or intentional movements need time to organize into full-blown flight responses. Take the time to allow the client to notice these initial indicators of physical escape strategies as they slowly organize.
- Introduce protective allies: Have the client imagine someone else showing them how to escape.
- Support the need for reasonable support as well as autonomy: The capacity to ask for and receive help, as well as the capacity for autonomy, are both important resources. In some traumatic situations, such as a car accident in which the person is trapped in the vehicle, obtaining help to escape can be a potentially critical element.
- The client needs to learn that fleeing is sometimes the best option, and is not a shameful choice. Coming into relationship with the natural urge to escape danger, and normalizing it, can be an important step in the overall trauma renegotiation process. Normalize the flight response as a biological instinct. The client may need to work through the affect of shame.
- If the thwarted flight response has led to the freeze response, the immobility of the freeze will need to be addressed first (*see page B2.16*); then completion of the flight responses can take place.

FREEZE

The freeze, or immobility, response is not a conscious choice in the hierarchy of the threat response cycle; it happens automatically when excitation or activation reaches a certain physiological threshold. The freeze is like a circuit breaker that shuts down the physiology when it is overloaded. The freeze is a profound physiological state, and has a tremendous amount of activation contained within it.

In the face of threat the organism orients, determines if the threat is worthy of further mobilization of fight and flight energies, mobilizes the energy through the ANS primarily, and through other systems of the body, and uses orienting and fight/flight maneuvers to overcome or escape the threat. If these strategies don't succeed, evolution has given us an advantage in the freeze/dissociative response of the lower brain.

These are instinctual, automatic survival responses we share with animals. When the reptilian brain, which regulates the basic biological systems governing the life processes in our bodies, determines that the freeze is the way to go, then you have an automatic freeze/dissociative response, over which your higher brain may not have much control. The extent to which people go into the freeze/dissociative response in relation to threat varies widely, according to individual history and the personal resources of the higher brain.

The mechanics of the freeze response aren't very well known. Some of the common theories with some basis in research include the fact that sometimes you can have a constriction pattern in the musculature, like a freeze/constriction, that may not involve much of the lower brain freeze mechanism. At other times, research indicates it's the motor cortex inhibition that accounts for the freeze in traumatic response.

"I heard a shout. Startled, in looking half round, I saw the lion just in the act of springing upon me. I was upon a little height; he caught my shoulder as he sprang, and we both came to the ground below together. Growling horribly close to my ear, he shook me as a terrier does a rat. The shock produced a stupor similar to that which seems to be felt by a mouse after the first shake of the cat. It caused a sort of dreaminess in which there was no sense of pain nor feeling of terror, though quite conscious of all that was happening. It was like what patients partially under the influence of chloroform describe, who see all of the operation, but feel not the knife. This singular condition was not the result of any mental process. The shake annihilated fear, and allowed no sense of horror in looking round at the beast. This peculiar state is probably produced in all animals killed by the carnivore; and if so, is a merciful provision by our benevolent creator for lessening the pain of death."

— David Livingstone

The Freeze Response

The freeze response is mediated by the dorsal vagal system of the ANS, and is critical for survival:

- It aborts the predator's instinctive attack
- It mimics death, fooling the predator into leaving
- It triggers an additional release of endorphin (for pain; to inhibit self-ministering)

Repetitive exposure to inescapable shock will:

- Impair basic storage of memory and information
- Result in initially benign stimuli being perceived as traumatic stimuli
- Assure that freezing will follow trauma even if escape is possible
- Freeze in the system will bring continued passive immobility (can't learn new responses)
- Freeze response becomes linked to environmental cues through conditioning

The freeze response changes autonomic equilibrium (endorphins over underlying norepinephrine)

- Blood pressure drops dramatically
- Tense muscles collapse into vegetative state and become still
- Mind becomes numb and dissociates, also due to high level of endorphins
- Memory access and memory storage are impaired
- Some level of amnesia
- Simultaneous high levels of parasympathetic tone and sympathetic arousal

How will we notice this in our clients?

Language: In profound freeze states, the client will have difficulty speaking, as if they are speaking from the bottom of a deep well; language associated with dissociation is common (speaking in the third person, speaking as if from another part of the room); language that expresses a lack of impulse or interest in moving; unable to articulate sensations; language that makes the freeze state seem like the safest, most comfortable state in which to stay; client can be irritated with efforts to move them through/out of the freeze state so voice tone can express this irritation; words that express any of the physical, emotional or behavioral aspects of freeze (see below):

“I can’t really notice anything.”

“Let’s see, my feet feel.... (long pause)... um... well... what did you ask?”

“Well, if she would just look around, she would know it’s not going to work” (in reference to self).

Posture/physical presentation: The client will most often seem to be collapsed, but with a state of rigidity or arousal underneath. Breathing will be shallow or otherwise constricted; sometimes they will report feeling relaxed, but they will appear to be tense; sometimes there will be a combination of tension in some muscles, with slackness in others. Eyes will usually be either unfocused, or closed. Client may appear questionably calm. Skin tone may appear pale, or alternate between pale and coloration.

Sensation: Descriptions will often be of numbness, feeling disconnected, or unable to notice sensation at all; cold; dark; rigid or tense; absence; blankness; constriction; feeling of being paralyzed or frozen.

Somatic or visual metaphors: May see images of ice, snow or cold winds; metaphors of floating without anchor; being in a cave or deep well; being safe in a cocoon, unable to be touched by others.

Emotional/psychological/behavioral: May report nothing at first due to the disconnection in this state; may experience tremendous fear, expressed as either terror or rage, as they first begin to surface from the freeze response; may be chronically dissociated, or dissociated only in relation to specific aspects of the trauma; flat affect; may be both agitated and dissociated simultaneously. Functional freeze – exhibit all the right social behaviors (doing a good imitation of someone who is present), but are not fully present or embodied.

Completion of Freeze Response and Restoration of Mobility

- Freeze = immobility response = tonic immobility
- Uncouple fear from immobility. Terror is a primary affect in trauma. Understand that the client will likely be afraid of activation/arousal – they are instinctively afraid of the underlying terror. If the fear and terror are not addressed in small increments, the client may drop directly back into the freeze response. The fear needs to be uncoupled (unlinked) from the immobility response. In general, the more profound the freeze response, or the longer the dissociation, the more terror is likely to be present. When trauma occurs early in physical development, the connections between lower and higher brain functions are not yet formed. This tends to result in greater volatility in movement into the freeze response as an adult.
- Understand that a high level of activation lies under the freeze response. When the parasympathetic tone lowers and inhibition is lifted, you'll begin to see the sympathetic tone in its unmasked form. When the dorsal-vagal shutdown diminishes and the inhibition is lifted on the underlying sympathetic arousal, the underlying activation will emerge. (*See page B2.24*)
- Titrate. You must help them to discharge the fear in stages to uncouple it from the immobility response. This uncoupling will allow the eventual movement through the immobility response in a relaxed way so the experience can be integrated. Slow everything down.
- The body can become patterned to activate to threat, bypass fight and flight, and go immediately to freeze, which greatly compromises future safety. Activation can then result directly in the freeze/collapse response.
- Activate and complete DORs: The fear can often be substantially reduced or de-potentiated through completion of DORs
- Thwarted fight and flight responses: When a client is in freeze, the fight or flight response cannot be initiated and/or completed. These active defensive responses have been overwhelmed or thwarted. The massive amounts of energy that have been called forth to defend the organism are activated, yet frozen or stopped. There is full activation of the sympathetic (stuck “on”) and parasympathetic (stuck “off”) branches of the nervous system. You might invite these responses out by asking, “If your body could move just a bit, where might it want to move?”
- Discharge activation and complete the fight/flight responses: Fight and flight responses are usually generated from high activation. As the person “wakes up” from the freeze state, this high activation rises to the surface again. To avoid re-traumatizing or overwhelming the system, the activation must be accessed in small increments (titrations). As activation is diminished through pendulation, titration, grounding (or anchoring), the defensive responses re-surface, and there is the opportunity to complete them. There is tremendous relief, potential relaxation and discharge when the body can complete its natural impulses – especially those related to survival mechanisms.
- As a clinician, make the distinction for the client that the freeze was the best choice then; there are more options now.
- The freeze state tends to feel “good” compared to the high activation state that provoked it. The freeze state is one of being semi-anesthetized, so perception of pain and distress are limited. When the client thaws from the freeze state, pain and other uncomfortable sensations return, and are sometimes interpreted as something bad happening. It's important to educate the client at this point so they understand the need to stay present with these uncomfortable or frightening sensations.

- Involuntary trembling response: A very gentle trembling will sometimes take place as the immobility response thaws out. This is a non-conscious response, and some clients will stop it because it is so unfamiliar or scary. It is a good idea to explain this state ahead of time so that they will allow it to complete (see below). When the trembling starts, encourage the client to stay with it, and don't interrupt the process with too much talking or touching. The nervous system is literally coming out of the icy shock, and is deeply engaged in renegotiation at that time. You've worked hard to get to this healing stage, so you'll want to let it do its job.

BRACE, COLLAPSE, REBOUND

When you are working with a client to restore survival responses, it's important to understand that it won't be a simple, linear process. Physically, there will often be a cycle of movement from the bracing that is associated with thwarted defensive impulses, into the collapse of immobility, into activation and the urge to defend, and so forth. Many clients will not be able to tell the difference, at first, between the collapse of immobility and helplessness, and the deep state of expansion and letting go that follows the discharge of bound activation. They will often resist the feeling of collapse and keep themselves braced.

When the client finally allows the freeze state to thaw, the completion of thwarted survival responses to occur, and the discharge of accumulated survival energy, they will most typically move into a deep state of recovery, which usually has very low muscle tone associated with it. From this state, the client will rebound naturally into a more resilient and integrated posture and physiology. This cycle of brace, collapse, and rebound is very important in the overall re-regulation of physiological function.

- Emphasize to the client that any phase of this cycle is time-limited.
- Support the client's awareness of each phase of the cycle:
 - Notice the rigid, braced body posture or body part; have the client emphasize the stiffness or draw their body awareness to it and have them track the felt sense. Stay with it and eventually the body will want to let down. Softly talk to them about this in order to normalize their experience.
 - Let the client rest in the collapsed state (physically support as needed so they are sitting in a position that allows them to relax). Have them notice their breathing, the overall sense of gravity affecting them again (as they release their anti-gravity bracing), and help them register their felt sense of this state.
 - Encourage them to stay with this until they begin to feel the organic and natural restoration of muscle tone, and the gentle urge to come more upright – the rebound phase. Again, they may need some physical support through the stages of increasing tone so they don't push the process and brace again.
- Educate: Explain the cultural norm of "stiff upper lip" programming vs. the biological need to let down after stressful events. Allowing this cycle helps restore normal resiliency.
- Stay patient. It takes time for the physiology and neuromusculoskeletal system to re-organize from the collapse into rebound. The rebound phase is very important in the restoration of resiliency, but it takes time and should not be rushed. Learn to sit quietly as the client rests in the precursor state of collapse, and trust the body's ability to find its natural equilibrium again.

DISCHARGE AND COMPLETION

If the survival response is completed, there will be an instinctive dissipation of the autonomic activity that was stored and accumulated when the natural process of completion of the threat response cycle was interrupted. This is often referred to as the discharge state, or cycle.

- Shaking and trembling; vibrations; goose bumps;
- Warm perspiration; motor and autonomic response that can persist for several minutes; ending in deep breaths, like sighs; or yawning;
- Completion of survival responses: motor muscular activity locked in unconscious procedural memory;
- Restoration of the exploratory orienting response (EOR)
- Return to baseline in physiological function.

EXPLORATORY ORIENTING RESPONSE (EOR)

The exploratory orienting response often follows the completion and discharge phase of the threat response cycle resolution process. The client returns to open, curious and relaxed engagement with the environment. The return of EOR often signals the completion of DOR, and is always a good sign. As with the brace/collapse/rebound cycle, it's important to take as much time as necessary to support the client's exploration of the environment from this deeply relaxed and open state. Help them notice details of their sensations and observations so this phase of the cycle is as fully available to them as possible.

(Thanks to Dave Berger, Diane Poole Heller, and Kathy Kain for providing more detail to the different elements of the Threat Response Cycle.)

NEUROPHYSIOLOGY OF THE THREAT RESPONSE

When a threat is perceived, we orient toward it. We orient through the five senses, which is facilitated by the body (especially the neck and postural muscles). Data goes from the organs of perception to the brain, passing through a relay station in the midbrain called the thalamus. The current theory is that this relay station processes the information in two ways: (1) it can send it to a lower limbic brain structure called the amygdala (lower both anatomically and evolutionarily), or (2) it can also send the information to higher brain structures, such as the hippocampus.

LIMBIC FUNCTION IN THE THREAT RESPONSE

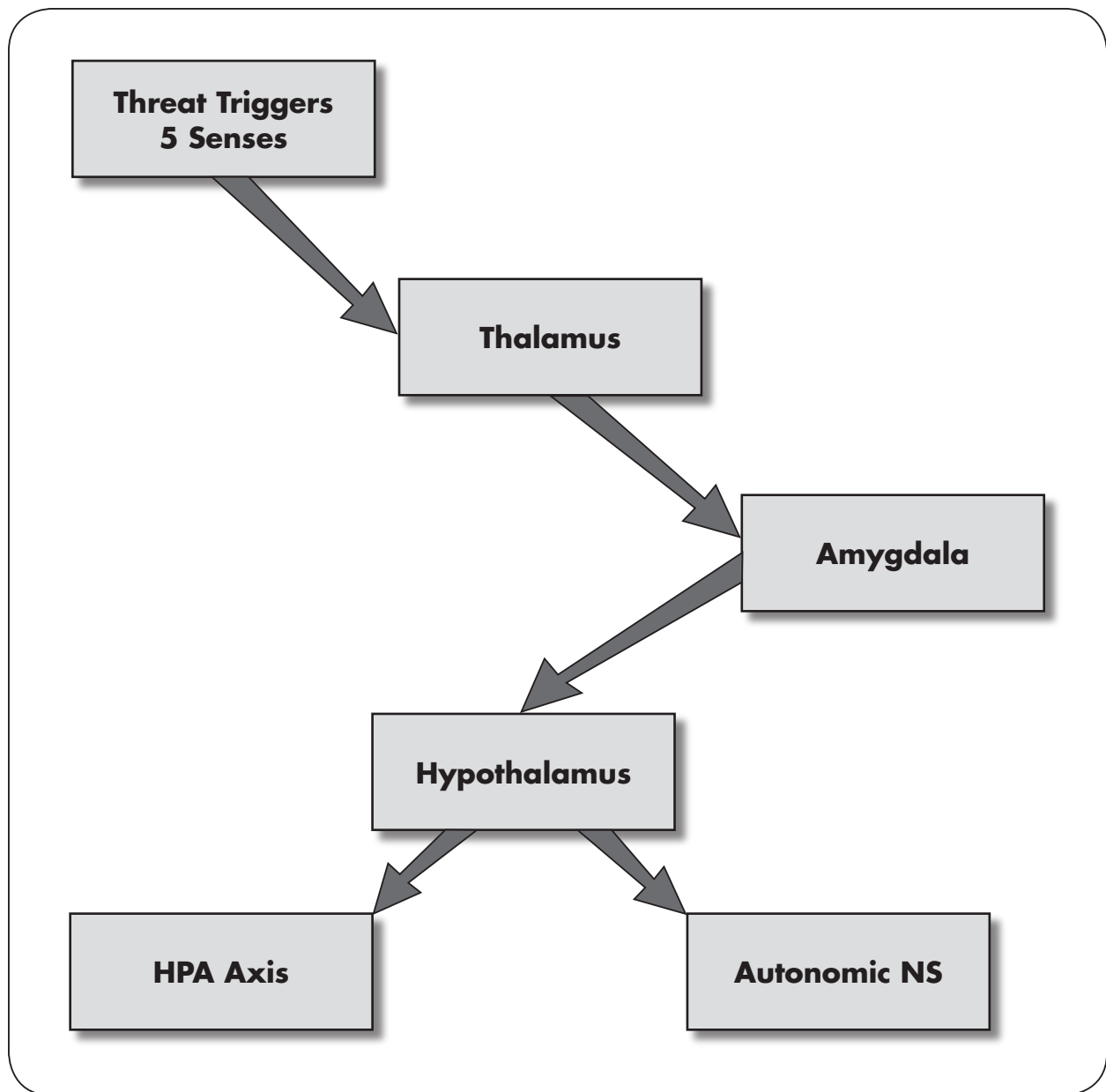
(The various brain structures described below have many functions, so this description is highly simplified.)

The **amygdala** is sometimes called the fear organ. If both sides of the amygdala are removed, there is no experience of fear. Information is relayed in a fast circuit to the amygdala, which quickly determines, through primitive levels of discrimination, whether or not there is a threat. We've all experienced this rush of assessment: Is that a snake or a stick? Even as our brains are asking the question, we are experiencing activation, just in case it is a snake. That's the amygdala doing its job.

The amygdala triggers the hypothalamus, again a lower limbic structure. The hypothalamus has two primary jobs:

- It is responsible for the 5 F's (flight, fight, freeze, feed, fornicate). We could add orienting to this list as well. The hypothalamus triggers the muscular system, in particular, toward fight/flight behavior.
- When fight or flight are impractical, the hypothalamus inhibits the muscular system as part of the freeze response.

The hypothalamus is the seat of control of the ANS through this fast circuit. It mobilizes energy for survival via the HPA axis (hypothalamic-pituitary-adrenal axis). The subtle, homeostatic interactions between these three glands constitute the HPA axis, a major part of the neuroendocrine system that controls reactions to stress, and other body processes that use energy, such as digestion and immune system response. Essentially, it is the primary mobilizer of energy in the body for all kinds of responses, not only fight or flight. If the amygdala becomes over-sensitized due to incomplete experience of traumatic overwhelm, the ANS gradually becomes unable to mobilize without triggering fight or flight responses, or the stress response. Then any activation, even that required for normal function, will be interpreted as threat.



HIGHER BRAIN FUNCTION IN THREAT RESPONSE

As stated above, the thalamus relay station can also send sensory input to higher brain structures, such as the hippocampus. The hippocampus is involved in memory, as well as the association areas of the higher brain, thoughts, and language. The thalamus sends information to the hippocampus as a way to get a second opinion after the amygdala's interpretation of potential threat: "Hey, is that *really* a snake?" This assessment, of course, takes longer to process than the quick-circuit response of the amygdala. The hippocampus and other higher brain structures use association areas that recognize that the stick is not a snake. Then, they send the message to the amygdala: "Hey, there, calm down – it's only a stick."

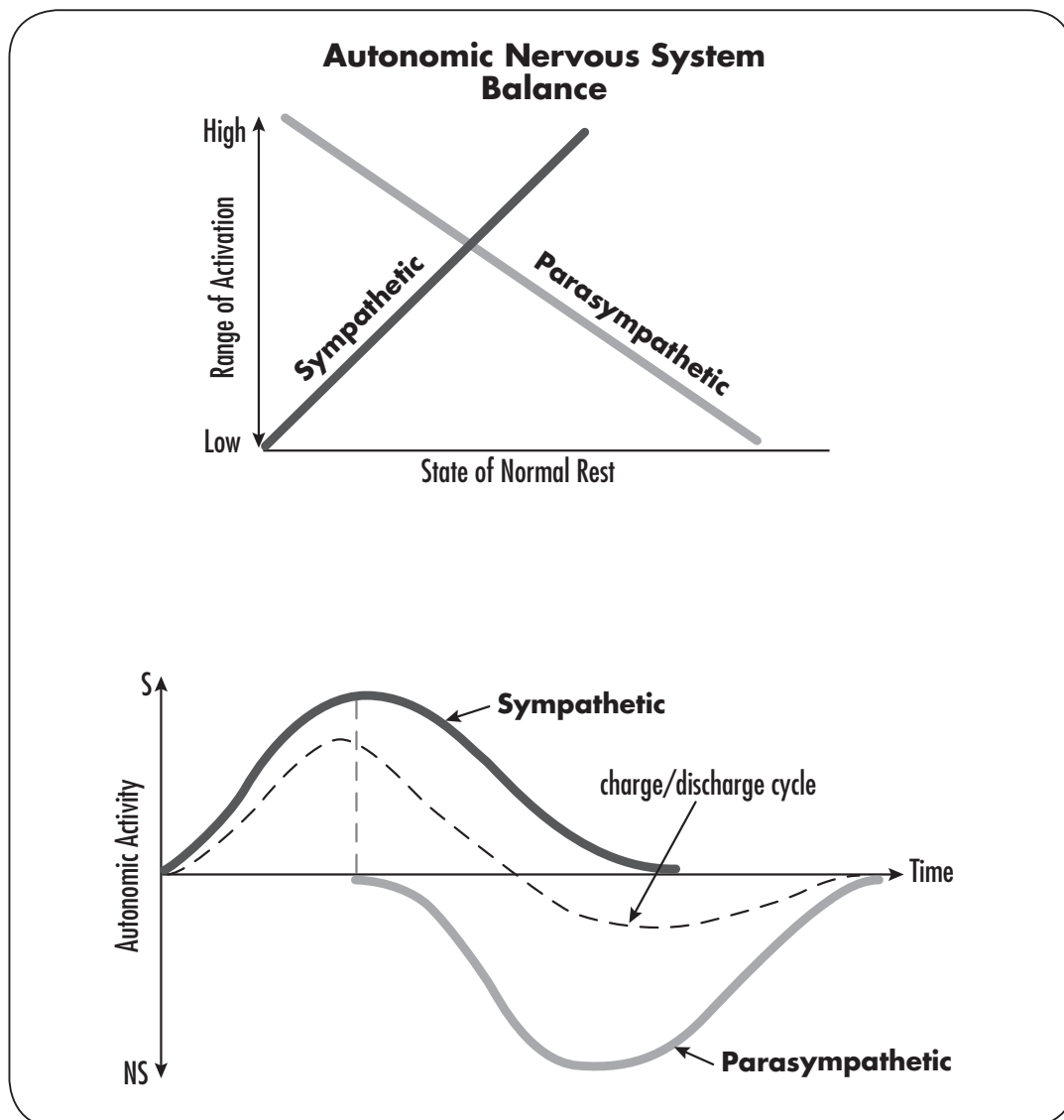
In a traumatized person, the amygdala is disproportionately reactive to small stimuli. Even when the higher brain says to calm down, the amygdala won't (or can't) listen. The higher brain says it isn't a threat, but the lower brain says it *is* a threat. The lower brain then triggers a fear response (through the neurotransmitter acetylcholine), essentially instructing the higher brain to look for negative associations. This is the neurobiological basis of anxiety. Either the higher brain is not able to override the lower brain, or the higher brain input is available, but the body reacts as if the lower brain input were the correct information. In either case, the amygdala activates the hypothalamus to engage the ANS, mobilize the energy for flight and fight, and engages the muscular system for movements toward fight or flight.

(Thanks to Raja Selvam for the simplified descriptions of the neurophysiology, above.)

Autonomic Nervous System (Smooth Muscles—Involuntary)	
Sympathetic Branch	Noticeable signs of increased tone:
<ul style="list-style-type: none"> Activates during stress states including (but not only) traumatic events. 	<ul style="list-style-type: none"> Adrenal system is activated Heart beats faster Blood pressure increases Skin is cold and pale Stomach and chest tighten Pupils dilate Breath is shallower, faster, more constricted Muscle tone intensifies Increased sweating
Parasympathetic Branch	Noticeable signs of increased tone:
<ul style="list-style-type: none"> Activates to moderate the effects of sympathetic activation. 	<ul style="list-style-type: none"> Slower and deeper respiration Slower heart rate and pulse Decreased blood pressure Skin warm and dry to the touch Increase in digestion and peristalsis Constriction of pupils Relaxed muscle tone

ACTIVATION OF SYMPATHETIC (SNS) AND PARASYMPATHETIC (PNS) NERVOUS SYSTEM

Nervous system activation level is called “tone”. We speak of an increase in its tone, and a decrease in its tone. If one branch of the ANS (autonomic nervous system) increases in its activity, that represents an increase in tone. To mobilize energy for any activity, the tone of the SNS (sympathetic nervous system) increases, and the tone of the PNS (parasympathetic nervous system) decreases. If you want to return to a resting state, you increase tone in the PNS and decrease tone in the SNS. There is a notable exception to this simplified version of the interplay of these systems, as is discussed further on page 25.



In this reciprocal system model, the activity of the PNS acts as a brake on the activity of the SNS. The more active the PNS, the more it will dampen the activation of the SNS; the less active the PNS is, the more it allows an increase of activation in the SNS. Understanding that it is the PNS being *active* that decreases SNS arousal is a critical element in understanding the overall physiological mechanism of the stress response.

Sympathetic Activation

The SNS is an energy-spending system. As noted above, as sensory input activates the hypothalamus, it triggers a cascade of chemical and biological responses that prepare the organism for activity or for response to threat. The body responds similarly when the activity is exciting to when it is threatening. The difference is in the meaning, which is processed in the hippocampus, where new and past information are compared: Are we having fun, or under threat?

As part of the overall chemical cascade, pain-modulating endorphins are also released, which increase the pain threshold and induce a feeling of euphoria – hence the “adrenaline rush” of high-risk activities.

Parasympathetic Activation

The PNS is an energy-conserving system. It prepares us for rest and relaxation, and modulates the effect of the SNS. When the PNS is active, it slows the heart, lowers blood pressure, shunts blood away from muscles and to the abdominal viscera, and reactivates the digestive process. The PNS is also active in the freeze response (*see material on polyvagal theory, page B2.27*).

Simultaneous Activation of SNS and PNS

One of the contributions that Peter Levine has made in the study of traumatic stress physiology is his observation that extremely high levels of activation in both the SNS and PNS may occur simultaneously, acting to “lock” the system. That is, the sympathetic arousal is attempting to mobilize body resources in response to threat, while at the same time the PNS, via the dorsal vagus, is trying to shut down metabolic function (the gas pedal revving the engine, while the brakes are fully engaged). This simultaneous high activation in both systems produces an unsolvable physiological dilemma, causing the organism to bind this extreme energy in symptoms that manifest as a mixture of hyperarousal in some systems and shutdown in others. This complex form of physiological symptoms will be discussed fully in the Advanced modules.

POLYVAGAL THEORY – OVERVIEW

Note: The polyvagal material will be covered more fully in the Advanced modules of the training; an overview is provided here.

To this point we've been using a simplified version of the ANS, which makes reference only to its two branches: the PNS and SNS. Stephen Porges' recent scientific research has contributed greatly to a more sophisticated understanding of the function of the ANS.

"Expanding the focus on how humans respond to danger, Porges emphasizes that the ANS has three sequential systems that follow brain evolution instead of only two reciprocal systems, PNS and SNS. His research relies on phylogenetic development. He suggests a specific sequencing of ANS function while confronting threat. Porges believes we access our highest functioning first when confronting threat, and if the higher functions are thwarted or inadequate, we revert to the subsequent lower ones. He sees the nervous systems operating sequentially versus in a reciprocal or simultaneous fashion. Even though these two models of nervous system function differ in emphasis, both are valuable as guiding principles in treatment of PTSD or in resolving overwhelming life events."

Porges' significant research is called Polyvagal Theory, referring to the dual role of the Vagus nerve. The Parasympathetic has two branches; the Dorsal Vagal that is more primitive in evolution and drives immobility and the Ventral Vagal that is more recent in evolution and involves higher functioning and supports social engagement. The Polyvagal nervous system includes the following (from lower to higher in order of development):

- *The Dorsal Vagal drives the PNS response that is sometimes referred to as the "primitive" parasympathetic and is unmyelinated. The Dorsal branch of the tenth cranial Vagus nerve emanates from the dorsal nucleus of the brain stem, or reptilian brain, and strongly influences digestion. It also activates the immobility response and may include a feeling of overwhelming helplessness and sometimes paralysis. It also descends to the heart and lungs, slowing heart rate and/or restricting breathing for oxygen conservation, a response we have in common with reptiles, resembling the "diving reflex"...*
- *The sympathetic branch (SNS) activates the reptilian and limbic mammalian brain to take action to defend oneself. When confronted by threat it initiates fight/flight reactions...*
- *Porges' theory suggests that the more recently evolved social engagement, or ventral vagal system (existing only in humans and mammals) drives a parasympathetic (PNS) response. It is myelinated and originates from the ventral brain stem. Sometimes referred to as the "smart vagus", it supports face-to-face communication and contact for social engagement..." (Diane Poole Heller)*

"Traditional concepts that the parasympathetic nervous system's control is inhibitory and sympathetic is excitatory have proven too simplistic, as we now are aware of many exceptions in both systems. The best characterization is that the sympathetic nervous system is a quick response mobilizing system and the parasympathetic is a more slowly activated dampening system, but even these concepts do not hold up in all cases of peripheral regulation since there are clear examples of where the two systems work together to carry out physiological functions i.e. penile erection and ejaculation." (Parasympathetic Function, from www.macses.ucsf.edu)

The polyvagal model provides a more complex view of the interplay between the SNS and PNS. The dorsal vagus provides an “emergency brake” for high activation of the SNS, shutting down metabolic function under circumstances of extremely high stress. In the resting state, the dorsal vagal system seems to be involved in stimulating gentle peristalsis of the digestive system, particularly during sleep.

The ventral vagal aspect of Porges’ theory is the more speculative. It postulates that the relationship between this portion of the PNS and the nerve supply for facial muscles and the vocal center make it a part of the overall social engagement system. In effect, we use our social engagement system as an additional self-regulatory mechanism via the ventral vagal aspect of the PNS. By accurately modulating our social interactions, and by seeking reassurance from those around us, the PNS can act to dampen SNS arousal.

“In mammals, two vagal components have evolved in the brainstem to regulate peripheral parasympathetic functions. The dorsal vagal complex (DVC), consisting of the dorsal motor nucleus (DMNX) and its connections, controls parasympathetic function below the level of the diaphragm, while the ventral vagal complex (VVC), comprised of nucleus ambiguus and nucleus retrofacial, controls functions above the diaphragm in organs such as the heart, thymus and lungs, as well as other glands and tissues of the neck and upper chest, and specialized muscles such as those of the esophageal complex. The VVC only appears in mammals and is associated with positive as well as negative regulation of heart rate, bronchial constriction, vocalization and contraction of the facial muscles in relation to emotional states (see below). The VVC inhibition is released (turned off) in states of alertness. This in turn causes cardiac vagal tone to decrease and heart rate to increase to support responses to environmental challenges. Thus novel and potentially dangerous situations can initiate an increase in heart rate and metabolic output for immediate mobilization through the parasympathetic nervous system without the participation of the sympathetic nervous system or adrenal system.” (Stephen Porges, Parasympathetic Function, from www.macses.ucsf.edu)

SENSORY DEVELOPMENT, MOTOR DEVELOPMENT, AND THE THREAT RESPONSE

GENERAL OVERVIEW

Development of our sense of self, and boundaries of self, is intertwined with our physical and physiological development. Ideally, our physical and physiological capacities develop in concert with our emotional and psychological capacities so that each supports the other. An example would be the development of bowel and bladder control, which ideally coincides with the autonomy stage of development.

A critical aspect of our early physical development has to do with developing our capacities to orient to the environment and to protect ourselves from threat in that environment. The sensory and motor development required for more and more complex orientation and defense (and more and more complex interactions between self and others), are meant to develop in a hierarchical fashion, with the most basic reflexes developing first, then evolving into more complex responses that take into account our increasing physical and emotional capacities, and our accumulated learning.

However, as with psychological and emotional development, our sensory and motor development can be disrupted. This sometimes happens for fairly benign reasons, such as a simple lagging behind of a certain aspect of our development, or perhaps an illness during a critical developmental stage, which prevented us from interacting with our environment in the ways needed to fully integrate our responses. However, sensory and motor developmental disruption can also occur due to trauma, in which case there is likely to be a sensory/motor developmental disturbance intertwined with a traumatic stress response.

The body systems related to orienting and defense must have the appropriate level of function available in order to meet the challenges to those systems. If there has been serious physical damage, or severe developmental disturbance, to any of the systems of orienting and defense, there may be a limit to how fully the orienting and defensive responses can return to full function, even with the appropriate use of SE interventions.

THE PHYSICAL PROCESS OF ORIENTING

Orienting and protective processes are all of the processes by which we pay attention to our environment and then take care of ourselves based on the information we gather. The information gathering, or “paying attention” systems can be broken down into the following categories:

- **Vestibular System.** The vestibular system detects head acceleration, head position and the pull of gravity. Every time the head moves, the tiny receptors in the inner ear register the direction and rate of the motion. This is one of the earliest “paying attention” systems to develop.
- **Proprioceptive System.** Proprioceptors (proprio = self; ceptors = perception) are nerve endings that give information about where different parts of the body are in relation to each other, and how fast they are moving. While the proprioceptors are also found in the viscera, they primarily lie along muscle fibers in the tendons and ligaments that connect muscle to bone. The primary proprioceptive beds are located in the ankles, pelvis, and upper back. This system supports three main functions: muscle tone, body image, and control of effort.

- **Auditory and Visual Systems.** Our auditory and visual systems act as early warning systems about stimuli which may require our immediate attention. They help manage the “where is it, what is it, and what is its intention?” questions that are essential to self-protection.
- **Tactile System.** The skin is the largest organ of the body and registers some of our most basic sensations: touch, pressure, and temperature. It is what separates us from the rest of the world, giving us body boundaries that help us to tell “me” from “not me.” As such, it contributes to the formation of body image, the internal picture we have of our bodies.

Relevance for SE

Physical repair of these orienting systems is a common focus in body therapy modalities. It is standard practice, for example, to do proprioceptive repair and retraining in a classical physical therapy treatment, using hands-on techniques, balance boards and movement exercises. In a more classical SE environment, knowledge of the specific systems of orienting can help focus the practitioner’s awareness of disruption of these systems, and point them in the needed direction for restoration of good function.

The material in the Overview and Orienting sections above was excerpted from an article by Kathy Kain, “Orienting and Defensive Responses: A Bodywork Perspective.”

MOTOR DEVELOPMENT

As with the sensory systems, some aspects of motor development form the basis for our kinesthetic sense of self, and of our survival responses. As noted above, motor development is hierarchical, beginning first with reflexes and reactions, which then develop into more mature responses that become integrated into our normal gestures and functional movements.

Motor development happens in age ranges, rather than at specific ages. We begin by learning to roll (first incidentally, then purposefully), then progress to sitting upright, crawling on our belly, then creeping on all fours. Finally, we begin to make the transition to being fully upright and begin the process of learning independent ambulation. This stage of motor development usually coincides with the rapprochement and object permanence phases of psychological development.

As with the orienting systems described above, it can be helpful to have some basic knowledge of the development of motor skills when working from the SE perspective. This can help focus observation skills, as well as the repair and restoration of protective responses that accompanies a trauma renegotiation process. As with the orienting systems, if there is severe injury (such as a brain injury), which causes motor reflex disturbance, or there has been severe developmental disturbance, complete restoration of protective responses may not be possible, in spite of good SE work. If you have done otherwise-effective SE work, and the orienting and defensive responses are still disrupted, you might consider getting additional support for your client for more focused repair work.

Motor developmental reflexes and responses can be broken down into the following three categories:

Primitive Reflexes

These are stereotypical movements in response to a stimulus. There is no variability to the movement until it is integrated into a more mature nervous system. The three primitive reflexes noted below underlie the trauma response:

- **Startle Reflex.** From birth, lasts throughout life. In response to a loud noise, an infant's movement arrests, opening and extending of arms and hands, followed by crying.
- **Moro Reflex.** 0-7 months old. This is a two-stage startle reflex. In response to a sudden change in head posture, or in response to a loud noise:
 - Repeat of the startle reflex movement, followed by;
 - Flexion or folding of head and/or arms, drawing arms across the body, embracing self, closing hands.

These reflexes are the basis for all opening and closing movements of the upper body, increasing holding or embracing of another person. In trauma renegotiation we will see some form of this in the brace, collapse, rebound sequence. The crying is a discharge of sympathetic activation.

- **Asymmetrical Tonic Neck Reflex (ATNR).** 0-6 months old. When the head is rotated left or right, the arm and leg on the face side will extend and the opposite arm and leg will flex. This underlies reaching out (for help, food, etc.), hand/eye coordination, and boundaries. It can emerge during times of high stress.

Primitive reflexes form a foundation for orienting, fight, and flight as movement patterns of flexion/extension or withdrawal/approach. Some righting reactions start in infancy and persist throughout life. Protective extension underlies our ability to protect ourselves during impact and a flexor withdrawal reflex underlies running. Other reflexes develop into more complex movements called postural reactions.

Postural Reactions

These are the automatic responses to a rapid loss of balance and shift of weight. They include a number of reactions that are commonly referred to as "righting reactions". They most typically have to do with keeping the head upright and in proper orientation with the trunk during changes in posture and position.

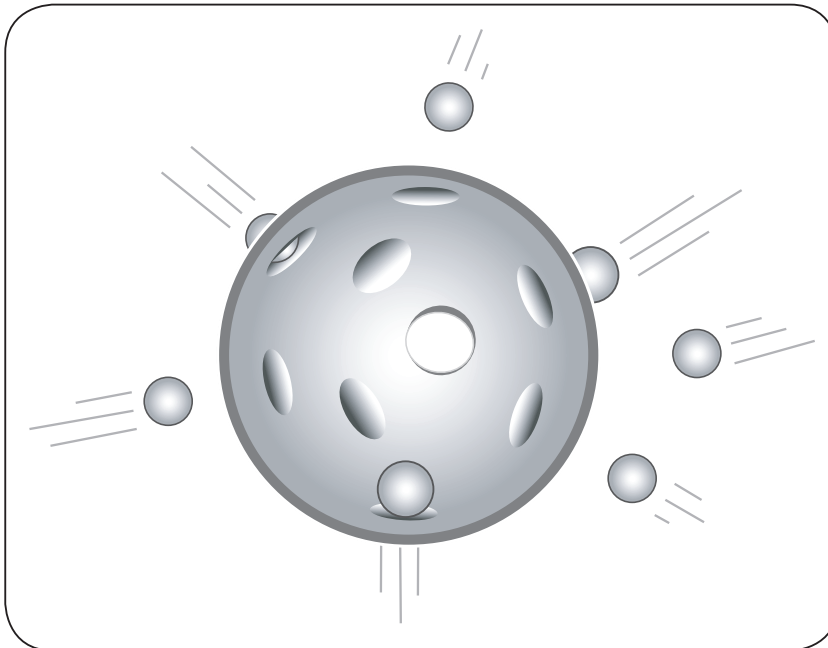
Equilibrium Responses

These are total body movements in response to slow shifts of the center of gravity out of the base of support. These generally begin at about six months of age and persist throughout life. Responses have more variable movement possibilities than a reflex or reaction.

(Thanks to Dave Berger for providing the information on motor development.)

BOUNDARIES AND BOUNDARY RUPTURE

"We all live in a small and safe world of our own defined by invisible but very real barriers, or boundaries. These boundaries are formed by our collective experiences with the world around us, some of which are positive or rewarding, some negative or punishing... All of our senses – smell, vision, hearing, vestibular input, taste, touch, nociception and proprioception – contribute to the formation of these boundaries that eventually tell us where we as a perceptual whole, and the rest of the world begins. Our unconscious awareness of these boundaries allows us to move about in the world without literally impacting obstacles that are not part of our own self. As a developing infant and child, we receive positive or negative information from sensory



experiences that contribute to our unconscious perception of our safe boundaries. Painful or unpleasant feedback leads us to avoid moving beyond the boundary created by that experience, whereas positive feedback stimulates us to explore that boundary area more. Based on this sensory feedback loop, we are continuously forming and reforming our boundaries based on our continuing life experiences and the

sensory messages associated with them. From these experiences, we form a very specific awareness of the safe extent to which we may challenge the world around us. Theoretically, the perceptual concept of our boundaries could be equated at least partly to our sense of self. Logically, the more positive our ongoing life experience is and the more intense the associated positive sensory experience is, the more solid our personal sense of boundary will become. The more solid that our boundaries are, the more safe, secure, and effective we will be in dealing with the world outside of us. In many respects, this concept of boundary envisions an almost tangible, physiologically and perceptually based entity.” —Bob Scaer, The Body Bears the Burden, pg. 3.

Symptoms of Ruptured Boundaries

- Ruptured boundaries are a universal symptom of shock trauma.
- Can feel like walking around without skin – raw, exaggerated reactivity.
- Shields or buffers to sound, light or any stimulus are disrupted and can result in hypersensitivity.
- Can alternate between rigidity and being flooded by stimuli.
- Can be unaware that their boundaries are ruptured until tracking sensations.
- Poor boundary enforcement with others.
- Poor perceptions of others' boundaries.

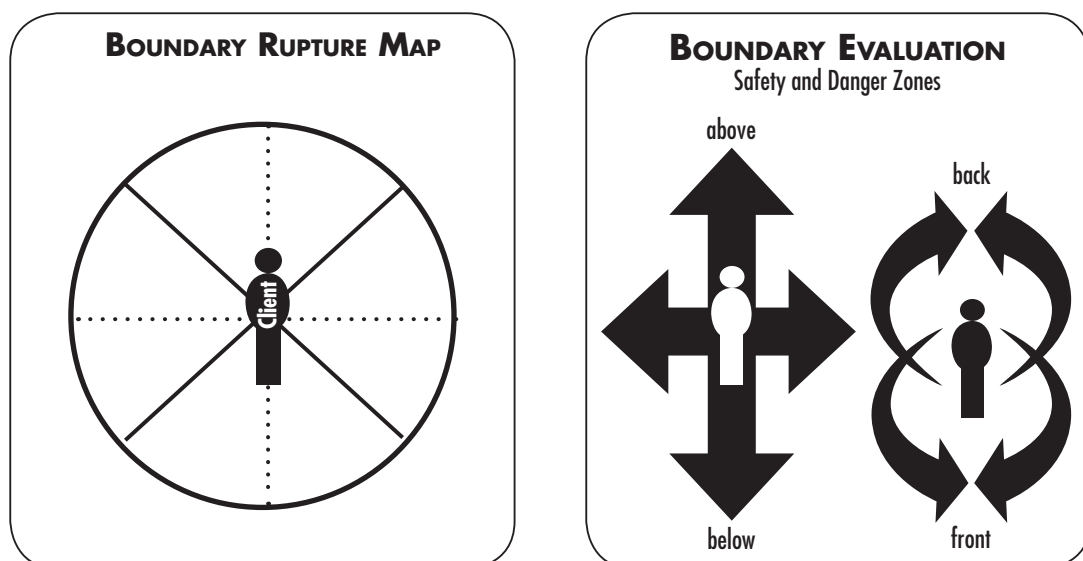
Evaluate Boundary Rupture

- Demonstrate how the protective energy bubble can be ruptured in a specific direction, and can set a person up for a cluster of injuries. Check for loss of orienting in this direction, which impairs a person's ability to perceive threat or to respond effectively to it.
- Note clusters and patterns of symptoms that may be stuck together, or overcoupled.
- Boundary rupture map: Ask for orientation, flooding, deficits and /or blank spots.

Note: Keep in mind that boundaries are three-dimensional, more like bubbles or spheres than a two-dimensional circle. It's important to assess boundaries in all dimensions for possible rupture or disturbance.

Restoring Boundaries

- Support the client through normalizing/validating rupture experience.
- Work the edge: Always start from where the boundaries are intact and build from strength. As you go into the boundary rupture "danger zone," there is higher activation. Never push through it.
- As activation subsides, the boundaries return. If a person is having difficulty experiencing any intact boundaries due to chronic or severe trauma, try to recreate or create an imagined experience. You can also import resources from other times in the person's life.



- Flooded and unboundaried clients can have difficulty in finding resources. You must establish some form of counter vortex before proceeding, and you might only be able to facilitate small glimpses of resource states initially. These will eventually build into a foundation from which to work. You might also need to help very under-resourced clients with basic life skills, and help them stabilize their current life situation so they have enough safety to start to clear trauma. Otherwise they will not be able to contain their work with you.
- Consider how you orient your body to best help your client. You shouldn't sit in a danger zone, or in a specific direction that doesn't work for them. Example: a client was kicked violently in the stomach from the left by an abusive brother. The left side brings up fear of the perpetrator. Sit in the most empowering position for the client. Where you locate in relationship to the client is where they feel the safest.

STUDENT SELF-ASSESSMENT QUESTIONNAIRE

BEGINNING: MODULE 2

This self-assessment questionnaire is intended as a review of the concepts and practical skills covered in each module, and as guidance for focusing your consultation sessions, and review questions of faculty in future modules. The concepts and skills listed below are those that you are expected to have learned in this module. For each of the listed skills or concepts, if you do not have at least a basic understanding, or feel at least somewhat proficient in being able to apply those skills, you should consider focusing more specifically on those topics in your consultations with faculty or approved consultation providers. Each module builds upon the knowledge gained in previous modules, so any gaps in your understanding will only make future material more challenging to learn.

You may want to return to the questionnaires for previous modules as you progress in the training, since your understanding of basic concepts will change as you gain in experience.

PART 1					
Circle one of the numbers on the scale to indicate your depth of understanding of each of the concepts listed below.					
	Don't Understand	Still Unclear on Some Aspects	Basic Understanding	Good Understanding	Understand Well
The Threat Response Cycle					
Arrest/startle	1	2	3	4	5
Defensive orienting response (DOR)	1	2	3	4	5
Fight	1	2	3	4	5
Flight	1	2	3	4	5
Freeze	1	2	3	4	5
Exploratory orienting response (EOR)	1	2	3	4	5
Brace/Collapse/Rebound	1	2	3	4	5
Beginning understanding of how immobility transitions to movement (completion of thwarted impulses)	1	2	3	4	5
Understanding the need to uncouple fear from immobility	1	2	3	4	5
Neurophysiology of the Threat Response					
Role of sympathetic system (SNS)	1	2	3	4	5
Role of parasympathetic system (PNS)	1	2	3	4	5
Basics of polyvagal theory	1	2	3	4	5
Role of motor developmental reflexes	1	2	3	4	5
Boundaries					
Symptoms of boundary rupture	1	2	3	4	5
Evaluation of boundary rupture	1	2	3	4	5
Understanding of the relationship between boundary repair and sense of personal safety	1	2	3	4	5
Other _____	1	2	3	4	5

PART 2

Circle one of the numbers on the scale to indicate how proficient you feel about being able to apply each of the skills or concepts listed below.

	Not at all Proficient	Lacking Proficiency	In the Middle	Somewhat Proficient	Very Proficient
Observation/recognition of:					
Freeze	1	2	3	4	5
Thwarted fight responses	1	2	3	4	5
Thwarted flight responses	1	2	3	4	5
Recognition of differences in reactions/ responses when threat response cycle is interrupted in different phases (orienting vs. defensive phase)	1	2	3	4	5
Restoring preparatory orienting	1	2	3	4	5
Restoring equilibrium in DOR	1	2	3	4	5
Restoring fight response	1	2	3	4	5
Restoring flight response	1	2	3	4	5
Can evoke and assist in client's completion of orienting and defensive responses in a contained and integrated way (at a basic level)	1	2	3	4	5
Capacity to assist client in uncoupling fear from immobility	1	2	3	4	5
Capacity for building client's containment of the energy mobilized as freeze moves toward completion of incomplete survival responses	1	2	3	4	5
Recognition of client's movement through brace/collapse/rebound	1	2	3	4	5
Working with dissociative/freeze responses	1	2	3	4	5
Determining boundary rupture	1	2	3	4	5
Restoring boundary rupture	1	2	3	4	5
Other _____	1	2	3	4	5

PART 3

Based on your responses above, on what areas would you like to focus during consultations?
(These, of course, do not have to be the only areas on which you will work in consultations.)
