

Post Traumatic Environmental Stress Disorder*

*(See shorter updated version of this article can be found on <http://ronparksmd.com/> - **Terror, Trauma and PTSD** – Diagnostic classification as cited in newer article is now DSM-5; also see links to newer reference material in the updated version of this article)

By Ronald R. Parks, MD

Post traumatic environmental stress disorder: a look at the role of integrative psychiatry, the definition and diagnosis of PTESD, the use of lab testing and ancillary modalities to uncover relative factors and to optimize effective treatment.

Integrated psychiatry attempts to bring the tools, practices and scope of integrative medicine together with the breath and scope of psychiatry and psychology for the assessment, diagnosis and treatment of people with complex problems with contributors as environmental, medical, emotional, behavioral, psychological, developmental, traumatic or genetic factors. The tools of integrated psychiatry include in-depth clinical history and psychosocial assessment, physical examination, psychological testing, consulting with significant others as family members, laboratory testing, and comprehensive treatment. Treatment may include lifestyle modifications; nutrition; reduction in psychosocial stresses; individual or group psychotherapies that address current, past developmental and trauma issues; and interventions as suggested by lab testing. Lab testing may lead to the treatment of vitamin, mineral, amino acid, essential fatty acid or hormone deficiencies. Problems with digestive function or of pathologic organisms in the gut, or environmental issues as allergies and food sensitivities, or toxic metal problems may also be included in treatment.

Post traumatic environmental stress disorder is used to describe a broader, more comprehensive view of the trauma spectrum and the resultant clinical presentations you may see in your office for evaluation and treatment. Using the term PTESD rather than PTSD is an attempt to be more inclusive rather than exclusive.

If you look at the American Psychiatric Association. (2000), Diagnostic and statistical manual of mental disorders DSM-IV-TR (Fourth ed.), Washington D.C., American Psychiatric Association*, the scope of PTSD would seem to mostly apply to the aftermath of "shock trauma" and the resulting symptoms. As examples, common traumatic occurrences that might result in PTSD would-be such things as traumatized battlefield soldiers, auto accident survivors, survivors of incest or rape, or earthquake or hurricane victims. Post traumatic environmental stress disorder also includes developmental traumas during the prenatal, natal and early life periods. Included examples: illnesses; losses as the death of significant others; the early exposure to a significantly dysfunctional or distraught parent or family; the stress and trauma from the psychophysiologic impact of environmental insults to the body, brain or organ systems -- as exposure to chemicals or toxic metals: mercury or lead. The resulting psychophysiologic dysfunction or illness from an environmental exposure could lead to symptoms, dysfunctional or maladaptive behavior, or disability similar to what is seen in severe trauma cases. Also consider genetic vulnerabilities that become expressed and result in traumatic, maladaptive or stressful life interfaces. *(author's note see updated DSM-5 - Diagnostic and Statistical Manual of Mental Disorders, 5th Edition: DSM-5 5th Edition by American Psychiatric Association (Author) - available through Amazon http://www.amazon.com/Diagnostic-Statistical-Manual-Disorders-Edition/dp/0890425558/ref=pd_bxgy_14_img_3?ie=UTF8&refRID=0VHDCQF6E9W5X3ZERZGK or American Psychiatric Association).

According to the DMS-IV-TR, it is estimated that the classical diagnostic criteria for PTSD occurs in about 3.6% adult Americans to about 5.2 million people during the course of a year. If we were able to count the number of people world wide who experienced PTSD at some point in their lives, the number would be staggering. It is estimated that 10 to 30% of war veterans will suffer from some form of PTSD. Women are more than 2.5 times as likely as men to develop PTSD. PTSD usually occurs within three months of the event; in some it might not occur until years later. Severity and duration of the disabling symptoms vary and recovery may take months or years depending on the recognition and proper treatment of the disorder. Shock, anger, nervousness, fear, guilt and other similar symptoms are common reactions after traumatic events; however, the PTSD sufferer becomes disabled with these symptoms with greater severity and duration.

Anxiety disorders are debilitating and are often presented with severe symptoms of anxiety, fear and phobia that affect upwards to 40 million American adults. Anxiety-related conditions -- even though they are of high prevalence -- are often under-recognized and under treated. These conditions, which result in the ensuing morbidity/mortality and impairment of the quality of life, occur from the compounding of a number of underlying factors including genetic susceptibility; neurobiological, psychosocial, environmental stressors and exposures; and prenatal or early life influences.

The following are the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)* criteria for PTSD (from the National Center for PTSD Fact Sheet): In 2000, the American Psychiatric Association revised the PTSD diagnostic criteria in the fourth edition DSM-IV-TR. The diagnostic criteria (Criterion A-F) below are specified. *(Authurs note: see more recent update DSM-V (

Diagnostic criteria for PTSD include a history of exposure to a traumatic event meeting two criteria and symptoms from each of three symptom clusters: intrusive recollections, avoidant/numbing symptoms, and hyper-arousal symptoms. A fifth criterion concerns duration of symptoms and a sixth assesses functioning.

Criterion A: stressor

The person has been exposed to a traumatic event in which both of the following have been present:

1. The person has experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others.
2. The person's response involved intense fear, helplessness, or horror. Note: in children, it may be expressed instead by disorganized or agitated behavior.

Criterion B: intrusive recollection

The traumatic event is persistently re-experienced in at least one of the following ways:

1. Recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. Note: in young children, repetitive play may occur in which themes or aspects of the trauma are expressed.
2. Recurrent distressing dreams of the event. Note: in children, there may be frightening dreams without recognizable content
3. Acting or feeling as if the traumatic event were recurring (includes a sense of reliving

the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur upon awakening or when intoxicated). Note: in children, trauma-specific reenactment may occur.

4. Intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

5. Physiologic reactivity upon exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event

Criterion C: avoidant/numbing

Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by at least three of the following:

1. Efforts to avoid thoughts, feelings, or conversations associated with the trauma
2. Efforts to avoid activities, places, or people that arouse recollections of the trauma
3. Inability to recall an important aspect of the trauma
4. Markedly diminished interest or participation in significant activities
5. Feeling of detachment or estrangement from others
6. Restricted range of affect (e.g., unable to have loving feelings)
7. Sense of foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)

Criterion D: hyper-arousal

Persistent symptoms of increasing arousal (not present before the trauma), indicated by at least two of the following:

1. Difficulty falling or staying asleep
2. Irritability or outbursts of anger
3. Difficulty concentrating
4. Hyper-vigilance
5. Exaggerated startle response

Criterion E: duration

Duration of the disturbance (symptoms in B, C, and D) is more than one month.

Criterion F: functional significance

The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:

Acute: if duration of symptoms is less than three months

Chronic: if duration of symptoms is three months or more

Specify if:

With or Without delay onset: Onset of symptoms at least six months after the stressor

References

American Psychiatric Association. (2000). Diagnostic and statistical manual of mental disorders DSM-IV-TR (Fourth ed.). Washington D.C.: American Psychiatric Association.

Symptoms of PTSD can be grouped into three main categories, including: (from www.medscape.com/viewarticle/472332 -- Post-Traumatic Stress Disorder From WebMD Health/The Cleveland Clinic)

* Re-living: People with PTSD repeatedly re-live the ordeal through thoughts and memories of the trauma. These may include flashbacks, hallucinations and nightmares. They also may feel great distress when certain things remind them of the trauma, such as the anniversary date of the event. Other symptoms include acting and feeling it as if the trauma were recurring; psychological distress upon confronting trauma cues; physiologic reactivity upon confronting trauma cues.

* Avoiding: The person may avoid people, places, thoughts or situations that may remind him or her of the trauma. This can lead to feelings of detachment and isolation from family and friends, as well as a loss of interest in activities that the person once enjoyed. Other symptoms include the inability to recall an important aspect of the trauma; diminished interest or participation in significant activities; feeling of detachment or estrangement from others; restricted range of affect; sense of foreshortened future.

* Increased arousal: These include excessive emotions; problems relating to others, including feeling or showing affection; difficulty falling or staying asleep; irritability; outbursts of anger; difficulty concentrating; hyper vigilant, exaggerated startle response, and being "jumpy" or easily startled. The person may also suffer physical symptoms, such as increased blood pressure and heart rate, rapid breathing, muscle tension, nausea and diarrhea.

Other intermittent or chronic symptoms (from the National Center for PTSD Fact Sheet) that may be a tipoff to any level of prior trauma or trauma exposure, may include:

- * Feeling hopeless about the future & detached or unconcerned about others
- * Having trouble concentrating, indecisiveness
- * Jumpy & startle easily at sudden noise
- * On guard and constantly alert
- * Having disturbing dreams/memories or flashbacks
- * Work or school problems
- * Feeling nervous, helpless, fearful, sad
- * Feeling shock, numb, unable to experience love or joy
- * Avoiding people, places, and things related to the event
- * Being irritable or outbursts of anger
- * Becoming easily upset or agitated
- * Self-blame or negative views of oneself or the world
- * Distrust of others, conflict, being over controlling
- * Withdrawal, feeling rejected or abandoned

- * Loss of intimacy or feeling detached

Physical reactions such as:

- * Stomach upset, trouble eating

- * Trouble sleeping & exhaustion

- * Pounding heart, rapid breathing, edginess

- * Severe headache if thinking of the event, sweating

- * Failure to engage in exercise, diet, safe sex, regular health care

- * Excess smoking, alcohol, drugs, food

- * Worsening of chronic medical problems

Why does trauma and environmental stressors lead to distressing and disabling symptoms, marked instability of the autonomic nervous system, disturbances of moods and sleep, the inability to relate to others, emotional and physical symptoms and conditions, and even to abnormal personality development and personality disorders?

Scientists, researchers, academics and clinicians have gone to great depths to unravel the mysteries and complexities of trauma, its aftermath and to help with understanding in order to develop better approaches to treatment. I will briefly review the works of John Briere, PhD, Robert Scaer, MD and Peter Levine, PhD. Briere's Self-Trauma Model incorporates aspects of trauma theory: cognitive, behavioral and self-psychology as well as aspects of psychodynamic therapy (see his article "Treating adult survivors of severe childhood abuse and neglect: Further development of an integrative model", found in J.E.B. Myers, L. Berliner, J. Briere, C.T. Hendrix, T. Reid, & C Jenny (Eds.) (2000). The APSAC handbook on child maltreatment, 2nd Edition. Newbury Park, CA: Sage Publications.).

Briere's work (as that of other writers) explores the area of deeply suppressed activated emotional cognitive complexes, which are stored in deeper areas of the memory system. These are referred to as implicit, instinctual or reflex memories, which are accessed only by external cues or stimulation (i.e., triggered by sensed danger or threat) that bypasses the cognitive or thinking parts of the brain for emergency or rapid response. These implicit memories are felt to be as important as our explicit memories (also called declarative memory or narrative biographical memory) and the emotions which are attached to them. Healthy or disruptive traumatic early childhood relationships and attachments with parents or caregivers, are the foundation for development of functional versus dysfunctional awarenesses, thoughts, feelings, relational skills and memories. The impacts of early maltreatment experiences in developing children are thought to vary according to such factors as temperament, biopsychological factors, family environment, security of parent-child attachment or relationship, and previous history of support or of abuse. The biosocial psychological factors would also include genetic influences; environmental exposures such as poor nutrition, allergies and toxic metals; and other food or environmental sensitivities as explored in the work of environmental and integrative medicine specialist. There is also the aspect of earlier trauma experiences and an adverse rearing environment contributing to or enhancing subsequent trauma experiences -- classically reinforcement.

Early life trauma or abuse is characterized as acts of omission or commission, according to Briere and others. Examples of omission or psychological neglect would be caregivers' non responsiveness; psychological and physical unavailability; and depriving the child of normal psychological stimulation, soothing and support. According to Briere, the neglected child would

lack the positive interactive experiences to help develop positive self-awareness, self security, positive view of others, and the development of regulated affective responses to interpersonal challenges. As a child is a social being with needs for contact, comfort, nurturance and love -- significant neglect could result in painful feelings of deprivation and abandonment. This may result in later life experiences of psychological emptiness, neediness and the tendency to be sensitive to the possibility of abandonment and rejection by others, according to Briere. Acts of commission -- such as physical, sexual or psychological abuse towards a developing child -- can lead to later patterns of interpersonal difficulties, distorted thinking patterns, emotional disturbance and post traumatic stress disorder. The maltreatment or trauma can lead to development of maladaptive behavioral patterns, avoidance or dissociative patterns when stimulated by reminders from the environment, or from internal or psychophysiological cues.

Core belief from early negative experience and maltreatment can develop a deeply imprinted self concept and feelings that carry on into later life as I'm bad, helpless, inadequate, weak, unlikable, unattractive, can't trust others (experiencing others as being dangerous, rejecting or unavailable). Negative core beliefs can lead to a personality that has a poor capacity to form and maintain meaningful relationships with other people. The person may end up having difficulty with issues around trust, safety, self-esteem, intimacy and control. When these deeply ingrained non-verbal feelings or imprints are triggered by environmental or internal cues -- primitive fight, flight, dissociative (freeze) or strongly negative emotional responses may occur. Conditioned emotional responses are an aspect of deeply ingrained fear complexes that may cause a spill-out or a reflex like release of strong negative emotions: rage, anger, panic, fear, sadness, or as an adenergic autonomic storm or release (fight-flight response and autonomic arousal).

Other aspects of what is consciously remembered or not are the deep suppressed cognitive structures (consisting of narrative or autobiographical memories of abuse or trauma) or the deep unconscious implicit or sensory memories. Both are complexed with conditioned emotional responses and can be associated with the poor development of autonomic, emotional or affect regulation and tolerance skills. The uncovering and attention to these existing deeply embedded memory emotional complexes is part of the needed therapy work for the post traumatized individual.

The deep unconscious implicit or sensory memory can occur when an unexpected intrusion of a sensation -- as a flashback of part of a sight or sound of an event that was retained in unconscious instinctual or reflex memory -- sets off an adenergic autonomic discharge. The lack of adequate emotional or affective regulatory skills leaves an individual impaired in regulating their emotions and moods. The tendency is to then be hyper-responsive; to over react to negative stimuli or stress; or to avoid, dissociate or act out in ways to bring distraction. Examples of this would be seeking a soothing or numbing approach through substance abuse, sexuality, self-injury or aggression. Without adequate affective regulatory skills -- or the ability to tolerate arising core beliefs, sensations, conscious and unconscious memories -- one is at a real deficit in trying to work through or heal from prior trauma experiences. The presentation and symptoms of PTSD display many of the characteristics discussed or outlined earlier -- intrusive reliving of experiences such as sensory flashbacks; intrusive thoughts; memories of abuse; nightmares; heightened emotional reactions to reminders of the original event; avoidance and numbing as the avoidance of associated places, situations and the appearance of constricted emotionality; poor autonomic regulation with hyper arousal and chronic activation of the sympathetic nervous system with startle responses, sleep disturbance, muscle tension and irritability (see list of symptoms noted above for PTSD and trauma).

The recovery from trauma -- especially in the psychological, emotional and behavioral aspects -- is to recognize that the body and mind (with its repetitive reactivation of symptoms) is making a healthy attempt to process the trauma experience and memories to the point that they lose there stress producing characteristics, emotions and behaviors. If successfully supported

and managed, these arising stimulated reminders of trauma can be better accommodated, regulated and healthily integrated.

Peter Levine in his book, *The Waking Tiger*, and Robert Scaer's book, *the Trauma Spectrum* examines trauma occurring during all life stages and finds some basic characteristics from observing the structure and function of our nervous system and its development. A number of the earlier studies done in this field have laid the foundation for their model. The early work of Freud, Pavlov and Selye are revisited to provide a deeper understanding of classical conditioning and developmental influences on the nervous system of trauma survivors and the general adaptation syndrome to severe and chronic stress. Emphasis is placed on the fight, flight or freeze response as seen in lower animals as a demonstration of how the human mind dissociates, makes unconscious, fragments, and then complexes trauma experiences with sensory or emotional content that is experienced at the time of trauma. The person when reminded or stimulated to recall or reactivate aspects of original trauma is attempting in a sense to unfreeze the conscious, unconscious and emotional components, so that they may be re negotiated, completed, released, accommodated or integrated so as not to be continually reactivated as dysfunctional emotions, behaviors or avoidances. By redeveloping awareness and connection to the often dissociated deep felt body sense in a safe and supportive environment, the other fragments or suppressed aspect of trauma can be recovered, integrated, transformed and healed.

Scaer in his book, *Trauma Spectrum* relates trauma associated diseases with the freeze/dissociation phenomena of trauma and divides them into the following categories: diseases of abnormal autonomic regulation, syndromes of procedural memory, diseases of somatic dissociation, disorders of endocrine and immune system regulation, and disorders of cognition and sleep. An example of a disease of abnormal autonomic regulation would be fibromyalgia as there is symptoms related to autonomic dysregulation with the muscle pain and tender points over the surface of the body, fatigue, interrupted and non-restorative sleep, scattered areas of numbness and tingling, hyper vigilance and emotional instability, cognitive impairment, dizziness, mottling of the skin, irritable bowel, multiple chemical sensitivities which all lead that to the brain and its regulatory systems. It has been noted to often follow injuries from severe illnesses and has been seen after Scaer's delayed recoveries from motor vehicle accidents. He sees this and other related diseases as examples of illnesses that are directly associated with and caused by trauma based alterations in brain function.

This recent study is an example of the importance of better understanding trauma and its sequel. This study has been done on 1,946 older male veterans and suggests that prolonged stress and significant levels of PTSD symptoms increase the risk of coronary artery disease as well as increase the risk for serious mental health problems. The risk of all coronary heart disease outcomes that have been studied including nonfatal MI, fatal coronary artery disease and angina, rose by 21% for each increase in PTSD levels using standard PTSD scales.

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The neurophysiology of threat is thoroughly reviewed by Scaer in his book, *Trauma Spectrum* (Robert Scaer. (2005). *The Trauma Spectrum*. New York: W.W.Norton Company. pg. 51-52). The frontal and central areas of the right cerebral hemisphere are the regions of the brain that process the arousal response to threatening information. The frontal and central areas of the left cerebral hemisphere, the executive functioning part of the brain, for thinking, planning and communicating, which organized speech, uses symbols, and higher thought processes, are initially bypassed, so that there can be an immediate response to threat. The primary senses of smell, vision and hearing are the earliest warning system of threat and information from these sense organs are sent to an area of the brain called the locus ceruleus. The neurotransmitter norepinephrine is the primary chemical messenger that stimulates reactions in the brain centers. Processed information here is then sent to the amygdala, which is the center for memory of

emotionally charged information. From here, information is sent to the hippocampus. Memory information here is connected to the threat based message along with its emotional importance and then is sent to the orbitofrontal cortex which coordinates the regulation of survival behavior, conscious and unconscious, and then in turn sends the information to areas of the brain that organize and initiate necessary survival behaviors. It importantly activates the body's endocrine response through the hypothalamic/pituitary/adrenal (HPA) axes. The hypothalamus regulate the autonomic nervous system as well as functions like sleep and appetite. With threat, there is up regulation of the sympathetic and down regulation of the parasympathetic system. The pituitary gland -- when activated -- releases the adrenocorticotrophic hormone, ACTH, leading the adrenal glands to release cortisol which effects norepinephrine and the brains body arousal response. Cortisol also down regulates melatonin release and sleep, helping to maintain hypervigilance and wakefulness. Cortisol also helps mediate the ongoing stress response as in the regulation of circulation, metabolism and the immune response. Walter Cannon and later Hans Selye contributed much in terms of understanding stress, trauma and homeostasis. Selye's work showed the the response and the adaptation of the body to stress, the general adaptation syndrome, but also showed the relationship of chronic stress, the learned and chronic associated stress response and suggested relationship to chronic disease.

An example of an environmental assault on the bodies organ systems -- including the brain and the body's regulatory systems -- is the work presented Dr. Richie Shoemaker's in his excellent book, *The Mold Warrior*. He presents his research and case histories of people severely affected by mold toxins when exposed in sick buildings. The 25% or so of people affected is relates to their genetic vulnerability of not being able to clear the mold neurotoxins. I wouldn't be surprised if there wasn't a higher incidence of prior significant life trauma in the affected individuals. The mold toxins create havoc in the vulnerable individuals, impacting negatively on multiple body organ systems, including the central nervous system and immune system. Many of the array of symptoms seen in post traumatic environmental stress syndrome are characteristically also seen in this population of mold affected people.

Learned helplessness versus learned resiliency is also discussed as an important part of trauma by Scaer in his book *Trauma Spectrum* (Robert Scaer. (2005). *The Trauma Spectrum*. New York: W.W.Norton Company. pg. 54-57).

When situation, reminders or triggers of prior trauma occur -- where there has been lack of completion or working through of the original experiences, especially of the dissociative or freeze aspect of the trauma experience -- there is a repetitive attempt by the body/mind to discharge the locked in energy or emotional component as well as the need for cognitive completion in some satisfactory or ego syntonic way. If this continually falls short of successful completion or discharge, there is a constant attempt to do so by unconscious reenactment of similar situations as the original trauma -- the biological organism's healthy attempt to heal or to re-integrates itself for positive life enhancement, growth and security. An example would be an animal in the wild who is attacked by a predator and goes into a freeze response when it's life is threatened and to survive, it's system shuts down and it looks dead. Then when possible it unfreezes and goes into flight or fight and escapes. The experience is brought to successful completion and instead of retaining a pathologic trauma complex and later dysfunctional behavioral or an autonomic dysregulated system, the animal now has a another added reinforcement of positive survival skills. The human with repeated trauma and its reinforcement gets trapped in what has been called "learned helplessness" response with continued re-experiencing many normative life experiences as being like aspects of the original remembered trauma in the body, mind, emotions and poorly modulated autonomic nervous system.

A common life experience that has a slight resemblance to the above, would be the experience of having some bad and frustrating experiences at work, where a person feels unable to do anything about it -- experiencing the situation as being one, that in the moment, the individual can't change or be in control -- the learned helplessness response (no flight or flight or

options for successful negotiations here). The person's body feels activated and stressed; goes home from work frustrated and irritable towards significant others and complains about what happened at work; goes to bed, but has difficulty sleeping -- restless with very active dreaming, the minds attempt to re-enact some aspects of the emotion, thoughts and behavior in the colorful metaphors of dreams with many different fragments from the past or from the prior days events. This could be understood as the minds attempt at re-enactment to bring the prior day's "traumas" to some healthy completion. The individual wakes up tired in the morning, and may or may not remember some fragments of the dreams, but while in the shower a brilliant idea arises as how to resolve the prior days experience and the person feels relieved, shares this with significant others and then sets off to work with a feeling of confidence with a big smile. The trauma survivor on the other hand has nightmares and sleeps poorly most nights, lives most of the time in the learned helplessness mode, and everything seems to re-enforce the individual's negative prior experience and reactivity. The person then leaves for work everyday as if reentering the battle field. This individual would benefit from integrative psychiatry or trauma related therapy work. The therapist recognizes the adaptive mechanisms at work in the trauma survivor. There is an attempt to identify and manage the obstacles to recovery and to bring about the restoration of appropriate self-regulation responses. Failure to cope or seek resolution or treatment may lead to chronic reduction in one's ability to tolerate anxiety or to respond to stimuli in a normative way.

When a clinician uncovers the multiple symptoms and disturbances seen in the individual -- who has had major trauma and stress, which has impacted on multiple body organ and regulatory systems -- it calls for spending a little more time or doing serial visits to document as many current or past contributory factors. If there has been significant trauma, the clinician -- if lacking experience in this area, needs to consider referral to an experienced trauma therapist. Therapy may involve a number of different approaches depending on the experience and training of the therapist: individual psychotherapy, behavioral or cognitive behavioral therapy (CBT), body-mind therapies, somatic experiencing, eye movement desensitization and reprocessing (EMDR), group therapy, other natural alternative or medications. The role of the integrative medicine specialist is to create a safe and supportive environment when working with the patient. As there is often dysfunction or problems in multiple organ systems, plan a careful and thorough diagnostic evaluation. Any corrective interventions will help to alleviate symptoms or pathology as treating any infections, nutritional or hormonal deficiencies, allergies, addictions, personal or family stressors -- with the goal of improving comfort, sleep and restoration of improved autonomic regulation. Any of this will be helpful in assisting recovery, along with the assistance of a trauma therapist if needed. Do basic procedures or lab testing as elimination diets, thyroid function testing with free T4 and T3, TSH levels and thyroid antibodies if indicated, blood chemistries, CBC, lipids, sex hormones indicated, B12 and folic acid levels, vitamin D 25-hydroxy levels, CRP. The next level of testing might include such tests as hair analysis, toxic metals testing, amino acids on a 24 hour urine or plasma, RBC elements, comprehensive stool analysis -- it is best to initially do careful selection of diagnostic tests so as not to overwhelm the person who by the nature of the illness is especially prone to be over sensitive or reactive. If with treatment, the person is able to become more relaxed, have more restorative sleep, to be more free of pain and discomfort, be relieved of environmental exposures, toxins and allergies and to have better hormonal balance -- to mention a few areas -- there will be more possibilities for the body, mind and spirit to recover from the deep wounds of trauma.

Hair analysis is an inexpensive screening test for toxic metal exposure and for mineral deficiencies. If there is any evidence of intestinal yeast or Candida symptoms -- such as depression, fatigue, irritable bowel, gas, bloating, digestive or nutritional problems -- a comprehensive stool analysis and parasitology is invaluable for detection and guidance of treatment. As mineral deficiencies are often seen in mood or regulatory disturbances -- as zinc, copper, magnesium -- getting an accurate appraisal of mineral status with a red blood cell element test is recommended. If there is any possible current exposure to toxic metals as lead, mercury, cadmium or arsenic -- it will also show up in this test. To look for more chronic exposure of toxic elements and for the resulting elevated body burden levels, the recommendation would be to do a DMSA or DMPS chelation provocation test followed by a six hour urine test for toxic elements.

A 24 hour urine amino acid test is one of the best tests to evaluate nutritional factors contributing to psychophysiological problems or sequel seen in the trauma sufferer. If this is not feasible, a first morning urine collection or a plasma amino acid done fasting in the AM would be alternatives. The urine amino acid will reflect digestive issues in the gut that are interfering with proper digestion of protein and the absorption and assimilation of amino acids. "Comprehensive stool analysis and parasitology" is a good companion test when digestive problems become apparent by an abnormal urine amino acid pattern. The finding of other abnormal amino acid patterns can be a guide to the identification and treatment of vitamin and mineral deficiencies, which can be causal to metabolic and cellular biochemistry impairments. Looking for deficiencies in amino acid precursors of neurotransmitters can be of great value, such as L-Tryptophan, which makes 5-HTP, which in turn makes the important neurotransmitter Serotonin. Common signs of Serotonin deficiencies are restless or impaired sleep, depressed mood most of the day, reduced pleasure in activities, fatigue, negative and obsessive thoughts, irritability, anxiety, difficulty concentrating and making decisions, feelings of worthlessness and guilt, suicidal thoughts, and carbohydrate craving. L-Tyrosine can also be measured. This forms the Catecholamines (Dopamine, Nor-Epinephrine and Epinephrine) and thyroid hormone. Common signs of Catecholamine deficiencies are feeling easily bored, apathetic, low energy most of time, difficulty focusing and poor concentration, tendency to put on weight easily, drawn to uppers as caffeine for energy, loss of enthusiasm, and depressed mood. The amino acid analysis report comes with a suggested amino acid replacement formula that can be compounded for the patient by using easily absorbed crystalline amino acids. If levels of amino acids fall in the normal range, but the patient presents with evidence of Serotonin or Catecholamine deficiencies, one can add additional amounts of L-Tyrosine, L-Tryptophan or 5-HTP to the formula. A larger percentage of 5-HTP gets to the brain and is converted to Serotonin; whereas the larger percentage of L-Tryptophan is utilized outside of the brain. As there appears to be a reciprocal relationship between neurotransmitters in maintaining a balance and equilibrium, to help build up Serotonin you may need to also add Catecholamine precursors as they seem to be needed to help the body retain Serotonin. Adequate Serotonin levels are also needed to regulate Catecholamine levels. Much depends on the patient's symptoms and presentation in making these decisions. If there are signs of catecholamine excess -- as increased anxiety, sleep difficulties or excessive stimulation -- GABA enhancers as Taurine and Glutamine along with necessary vitamin and mineral co-factors can be added.

Other tests currently available or that are in research and development are beyond the limited scope and intent of this paper. Correcting neurotransmitter imbalances with amino acids -- alone, or in combination with the correction of other identified contributing factors or sometimes in conjunction with medication -- has the potential for relief of other symptoms and conditions in addition to those associated with trauma, anxiety and depression such as obesity, migraines, insomnia, obsessive-compulsive problems, PMS, attention deficit disorder (ADD), fatigue and fibromyalgia.

This article is limited and can't go into all the details of the various treatment models and the different mind-body therapies and psychotherapy models helpful in trauma recovery. If interested, I would encourage reading some of the material referenced at the end of this article. Be aware of the importance of this topic when working with anybody that you may have the opportunity to evaluate or treat.

Ronald R. Parks, MD, MPH specializes in Integrative Psychiatry and Medicine and directs macrohealthmedicine.com. He is specialty trained in Psychiatry, Internal, Family & Preventive Medicine, with a background in nutrition, and other natural healing arts. He acts as a bridge between the best of conventional Western medicine and the innovative approaches of Integrative Medicine and Psychiatry.

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