WHY IT'S IMPORTANT FOR WOMEN TO LEARN AND USE STRESS REDUCTION SKILLS BEFORE AND DURING PREGNANCY

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Supporting a Healthy Environment for Conception and Prenatal Development

One way women can begin to create an optimal environment for conception and the growth of their developing baby during pregnancy is by recognizing their own needs, compassionately accepting them, and seeking support in meeting them in healthy ways. Making a priority of compassionately caring for oneself during the preconception and prenatal period supports a healthy transition to parenthood.

Stress

Stress is a part of living. Finding healthy ways to cope with and reduce stress is an essential part of cultivating a nurturing environment for conception, pregnancy and parenting.

Health and mental health practitioners can support women in learning and using stress reduction skills during the preconception, prenatal and early parenting period.

A wealth of knowledge and research now suggests that maternal prenatal stress plays a role in the health and development of women's offspring over their lifespan.

Many women report experiencing high levels of stress in their lives and feel they have little time and limited resources they can use to fulfill their needs in healthy ways. Researchers Wadwha, Entringer, Buss and Lu, (2011) explain **stress is a *"'person-environment interaction,' in which there is a perceived discrepancy between environmental demands and the individual's psychological, social or biological resources."***

The "perceived" discrepancy between environmental demands and an individual's resources often leads to a variety of psychophysiological symptoms and behaviors, and feelings of overwhelm.

Severe Stress and Trauma

We've all experienced various levels of stress. Some of us have experienced severe stress and trauma. Robert Scaer, an expert in the field of trauma notes that during a traumatic experience, **severe stress escalates to the point where an individual feels their life is threatened. A feeling of helplessness is also a key component of traumatic experience** (Scaer, 2007, 2012).

Another expert in the field of trauma, Bessel van der Kolk explains, ***"While the mind usually shuts down during a traumatizing experience, the bodily sensations associated with immobilization and helplessness carry the memories of having absolutely no control over the outcome of your life"*** (in Emerson & Hopper, 2011).

The psychophysiological imprints of traumatic experience and the resulting bodily memories are part of an individual's internal environment and influence their experience of themself, as well as their interactions with their external environment, including their relationships with others.

The psychophysiology of stress and trauma may also influence a woman's experience of conception, pregnancy, and birth, and may shape the quality of a woman's interactions with her developing baby during the prenatal and early postnatal period.

The quality of parent-infant interactions, influence the infant's and child's neurobehavioral and social-emotional development and the establishment of their attachment relationship (Navarez, Panksepp, Schore, & Gleason, 2013; Schore, 1994, Tronick, 2007).

The research literature on women's experiences of trauma demonstrates that a substantial number of women are survivors of violent experiences, in particular rape or sexual assault, child sexual and/or physical abuse and partner violence. Many survivors suffer from traumatic stress symptoms, which result from a single or multiple traumatic events and can lead to the development of the chronic psychophysiological symptoms of posttraumatic stress disorder (PTSD) for years following these experiences.

Estimates of the prevalence of lifetime PTSD among women of all ages range from 10.4 percent to 12.3 percent, with rates of 25-50 percent among women exposed to abuse or assault trauma (Seng, Oakley, Sampselle, Killion, Graham-Bermann, et. al., 2001).

The majority of women who have been victims of violence were exposed to trauma well before or during their childbearing years and many to trauma that breached their body boundaries and involved the parts of their bodies involved in reproductive processes (Elliot, Mok & Briere, 2004; Kilpatrick, Edmunds & Seymour, 1992; Plichta & Falik, 2001; Tjaden & Thoennes, 2000)**.**

These statistics highlight the fact that many women carry the imprints of past trauma into their reproductive experiences. When trauma has impacted the parts of women's bodies involved in reproductive processes, they may find experiences of conception, pregnancy, birth, breastfeeding and early parenting stressful. For some women, memories of past trauma are triggered during reproductive experiences.

Stress and trauma may also be associated with difficult events that occur during women's reproductive experiences, even if women do not carry imprints of past trauma. Some women experience severe stress and traumatic stress related to: attempts to conceive; treatment for infertility; pregnancy losses; pregnancy terminations; pregnancy complications and their treatment; labor and birth; birth complications and their treatment; giving birth prematurely; infant feeding; parenting a baby in the neonatal intensive care unit; and parenting a baby with health and/or developmental issues who does not require care in the neonatal intensive care unit.

Stress and Trauma May Negatively Impact Women's Health During the Preconception and Prenatal Period

When a person experiences stress or trauma, different systems in their body may be affected in many ways. These include their nervous, endocrine, immune and vascular systems. All these systems also play crucial roles in conceiving a child and sustaining a pregnancy to term. Recent research has shown that stress and traumatic stress may negatively impact these systems when a woman is attempting to conceive or is pregnant. (Boivin & Schmidt, 2005; Dobson, Ghuman, Prabhakar, & Smith, 2003; Ferin, 1990; Issokson, 2004; Khashan, McNamee, Abel, Mortensen, Kenny et. al., 2009; Kirkengen, 2001; Kloneff-Cohen, Chu, Natarajan, & Sieber, 2001; Seng, Oakley, Sampselle, Killion, Graham-Bermann, & Liberzon, 2001; Seng, Rauch, Resnick, Reed, King et. al., 2010; Simkin & Klaus, 2004).

Maternal Stress May Impact the Embryo and Fetus

Recent research suggests there is cause for concern about the impacts of prenatal maternal stress on developing babies. (Amiel-Tison, Cabrol, Denver, Jarreau, Papiernik et. al., 2004; Davis, Glynn, Waffarn & Sandman, 2011; Davis & Sandman, 2010; Kinsella & Monk, 2009; Lupien, McEwen, Gunnar, & Heim, 2009; O'Connor, Bergman, Sarkar, & Glover, 2012; Sandman & Davis, 2012; Wadhwa, Entringer, Buss & Lu, 2011).

The intentional use of stress reduction skills at this crucial time may minimize the potential negative effects of stress on parents-to-be and support a healthy environment for the optimal growth and development of their baby.

The Good News

Stress is not just another worrisome issue over which parents and parents-to-be have no control during the preconception, prenatal and early parenting period. **Women** (and their partners if they have them) **can become aware of how stress is affecting them and learn to use simple stress reduction tools before and during pregnancy. These tools can be valuable resources when facing challenges throughout the transition to parenting.**

Recent research has provided us with a deep understanding of:

- *The nature of stress and the role of an individual's reactivity to stress;*
- *How stress affects women during the preconception and prenatal period;*
- *The ways stress may impact women's developing babies; and*
- *How the use of simple tools to reduce stress may prevent the negative impacts of stress on women and their babies.*

It is important for health and mental health practitioners who provide care to women in the preconception, prenatal and early parenting period to help them recognize how stress is affecting them *and* potentially their developing babies, and support women in learning to use stress reduction tools.

Important Factors That Influence How We Experience Our Environment

Our **perceptions** of our environment shape our experiences and contribute to feelings of stress or comfort. We have all noticed that people are stressed by different experiences, just as people find comfort and ease in different environments.

Past trauma may influence perceptions in the present. As mentioned above, people who have had traumatic experiences any time over their lifespan, including during their earliest experiences before birth, may experience psychophysiological symptoms and behaviors long after the traumatic experience has passed. Their perceptions of the environment in the present, may be shaped by the imprints of their past traumatic experiences.

If a woman is pregnant and reacts to experiences of perceived or actual stress, her stress response system may trigger changes in the systems in her body that may affect the growth, health and behavior of her developing baby during pregnancy and over her child's lifespan.

As explained by researchers DiPietro, Costigan, Nelson, Gurewitsch and Landenslager (2008), ***"There are no direct neural connections between mother and fetus, but maternal experiences generate a cascade of physiological and neurochemical consequences that may alter the intrauterine milieu either directly or indirectly and thereby generate a fetal response"*** (p. 11).

Sandman and Davis (2012) note, ***"developing organisms play an active role in their own construction".*** Research has demonstrated that ***"a remarkable surveillance and response system has evolved so that the human fetus can detect threats to survival and adjust its developmental trajectory"***. This supports

the theory that there is a fetal "predictive adaptive response" to stress in which the developing organism prepares for future environments based on its experience during gestation.

There is an *adaptive* increase in stress hormones throughout pregnancy. Recent research has shown that **fetal exposures to *abnormally* elevated stress hormones resulting from activation of the maternal stress response system in fight/flight reactions during pregnancy are related to an increased risk for adverse birth outcomes and other health risks in the fetus, infant and child** (Sandman & Davis, 2012).

Important Factors that Influence the Impacts of Stress During the Prenatal Period

Sandman and Davis (2012) describe three factors that influence the impact of stress on developing babies during the prenatal period:

- The timing of the *abnormal* elevation of stress hormones as it relates to the development of fetal organs and systems;
- Changes in maternal stress physiology over the course of the pregnancy; and
- Changes in the physiology of the placenta during gestation.

The most important factor in whether a person's stress response system is activated is whether he or she ***perceives*** their experience to be stressful. We may agree that some events are very likely to be stressful for almost everyone. We may differ in our perception of stress in many environments, including interpersonal interactions.

Our perception of our environment (including interpersonal interactions) is not something that happens only in our minds. Our neuroendocrine system evaluates and reacts to our environment, without us even having to think about it.

Perception and "Neuroception": Why It's Important To Understand How Stress Affects Us

Stephen Porges (2004, 2011) coined the term **"neuroception"** to describe **the way our nervous system continuously evaluates our environment for safety, risk or threat.** It is through our senses that we perceive our environment and our nervous system uses the information we take in to make these assessments. **Our past experiences also influence how we perceive our environment in the present, especially those experiences that evoked a strong sense of safety, danger or life threat.**

This process occurs very rapidly, beneath the level of our conscious awareness. In his explanation of the concept of neuroception, Porges describes the circuits in our nervous system that are involved when our organism makes distinctions between environments that are safe, dangerous, or life threatening.

The perception of danger or life threat triggers a cascade of events in the brain and body that are expressed in different behaviors. It is important to note that **the body and its sensory system usually initiate *adaptive* defensive behaviors, such as fight, flight and freeze/dissociative reactions based on our perception of the environment as dangerous or life threatening**.

If we perceive the environment as safe, we may initiate or be receptive to social engagement behaviors with others. The beneficial psychophysiological states that are evoked during experiences of social support require a neuroception of the environment as safe. A felt-sense of safety also nurtures and supports conception, pregnancy, birth, breastfeeding, and early parent-infant interactions (Porges, 2004).

In addition to a neuroception of safety, the neuropeptide oxytocin supports the social engagement behaviors of reproduction, breastfeeding and the formation of strong pair bonds (Uvnas Moberg, 2003)**.**

These social engagement behaviors require immobilization without fear. Oxytocin makes immobilization without fear possible by blocking defensive freezing behaviors. (Porges, 2004).

A feeling of *safety* is crucial in supporting the establishment of the parent-infant attachment relationship.

Our neuroception of the environment as safe, dangerous, or life threatening **may be triggered from signals in the external environment, but also from our internal environment,** such as our experience of sickness, pain or fever. Even a very flat facial expression of a person in an individual's environment can prompt a neuroception of danger (Porges, 2004).

Sometimes our neuroception is not accurately evaluating the present environment. Neuroception is linked to survival behaviors that are designed to protect us in dangerous or threatening environments. Past environments in which we experienced a sense of danger or life threat, are recorded in our systems. Present environments are scanned (beneath conscious awareness), for any similarities to those environments.

If we become aware that our neuroception of the environment has activated our stress response system based on similarities between the present environment and past experiences of danger or life threat, we can try pausing

to consciously notice whether the current environment truly poses a danger or life threat NOW.

If it doesn't, and **we are able to make that distinction between the past and present, we then have the opportunity to use stress reduction tools to calm our stress response system.**

It is important to recognize that ***adaptive*** **behaviors that were necessary and protective in past situations may not be necessary or appropriate in the present,** even though our systems are reacting to our present environment as if it was similar to a past environment in which we felt a sense of danger or life threat.

Learning to Notice When Our Stress Response System is Becoming Activated

Individuals who are attempting to conceive or are pregnant can learn how to reduce their reactivity to stress and increase their capacity to recover from stress more quickly.

They can learn to use their breath to calm their stress response systems and minimize potential negative impacts of stress on their health and the health of their developing baby. Bringing awareness to our breath allows us to use this accessible, vital resource in intentional ways. There are a variety of other stress reduction tools that may also calm the stress response system that will be discussed in future reports.

An important first step is to learn ways to become aware of what it feels like when your stress response system is triggered. Richard Brown MD and Patricia Gerbarg MD (2004) describe symptoms and behaviors that are indicators that an individual's stress response system is activated. **The number, intensity and frequency of the symptoms and behaviors listed below can provide us with an understanding of whether our stress response system is mildly, moderately, highly or severely activated**. These symptoms and behaviors include:

Feeling tense and under pressure
Feeling pain, tightness, tension or a knot in your stomach
Feeling pain or tension in your neck, shoulders and back
Having tension headaches

Feeling irritable
Overreacting to people or when something goes wrong
Startling easily to loud noises
Feeling anxious
Feeling overwhelmed and not able to get things done
Feeling frightened by certain people or situations
Becoming paralyzed with fear
Feeling so nervous you can't speak

Getting so angry you lose control
Yelling and saying things you regret
Always feeling like you need to be in complete control
Not trusting people in general
Feeling threatened
Feeling your heart pounding or beating fast when you're anxious
Taking rapid, shallow breaths, or holding your breath
Not adjusting well to change
Having a tendency to imagine the worst

Having a weak short term memory
Feeling like you're moving in slow motion
Feeling hopeless
Sometimes feeling like life is not worth living
Getting sick often

Symptoms and Behaviors Associated with Stress and Trauma Are Signs of Imbalance in the Autonomic Nervous System

Psychophysiological symptoms and behaviors associated with stress and traumatic stress are signs that our **autonomic nervous system is unbalanced.** The word **"dysregulated"** is sometimes used to describe how our nervous and endocrine systems are affected by stress and trauma. Our central nervous system has two subsystems--the **autonomic** and the **somatic**. The **autonomic nervous system controls automatic functions** that affect our organs, glands and internal processes including circulation, digestion, metabolism, endocrine function, and breathing. It is in many ways, our body's engine.

The autonomic nervous system is continually responding to the needs of the body and **"*operates in a rhythmic, cyclical fashion. When that function is optimally stable, we are in a state of 'homestasis'*"** (Scaer, 2012)**.**

The **somatic subsystem allows us to have conscious control over skeletal muscles and body movements** (Elliot & Edmonson, 2006).

Some functions are dual controlled by both autonomic and somatic subsystems. These include breathing, chewing, blinking, swallowing and excretory control. **For the most part, we have no direct conscious access to the autonomic nervous system, except through the points of dual control, for example breathing.**

Dual control points act as bridges between the autonomic and somatic subsystems and **provide us with opportunities to consciously influence the state of our autonomic nervous system, a function of which is our *stress response system.***

Most of the time, our autonomic nervous system controls our breathing. But we can also consciously change the frequency and depth of our breathing and by doing so, achieve a state of homeostasis, or autonomic nervous system optimal stability.

The autonomic nervous system has both activating and deactivating functions. The *activating branch* of the autonomic subsystem is the **sympathetic branch**, which acts like an accelerator, **speeding up processes**. It is usually activated in experiences of stress and both positive and negative states that require effort.

The *deactivating branch* is the **parasympathetic branch**, which acts like a brake, **slowing down processes**. It is usually activated in states of rest and relaxation. It is also activated in experiences of trauma when there is no escape or fight and flight responses are ineffective.

As mentioned above, **homeostasis is associated with smooth, rhythmic cycling between sympathetic and parasympathetic branches of the autonomic nervous system.**

The frequency and depth of our breathing impacts the balance between the sympathetic and parasympathetic branches of our autonomic nervous system.

An increase in the frequency of breathing increases the sympathetic influence of the autonomic subsystem.

A decrease in the frequency of breathing AND increase in the depth of breathing, increase the parasympathetic influence of the autonomic subsystem.

One measure of the stability of our autonomic nervous system and optimal health is our heart rate variability (HRV). When you inhale, you experience a slight increase in your heart rate. When you exhale, your heart rate decreases slightly. A high *variation* in heart rate during inhalation and exhalation is an indicator that our autonomic nervous system is cycling smoothly and rhythmically between sympathetic and parasympathetic dominance. Heart rate variability has been shown to respond positively to paced breath practices such as coherent breathing (Brown, Gerbarg & Muench, 2013).

Our Response to a Neuroception of Danger vs. Safety

As mentioned above, the autonomic nervous system is designed both to protect us in dangerous or life threatening environments and allow us to engage socially with others in safe environments. We use our neuroception to evaluate our environment.

What do we experience when we perceive danger?

Most often, **when our neuroception perceives the environment as dangerous, our sympathetic nervous system is activated** and, as described by Rothschild (2000), we experience:

Accelerated heart rate (pulse)
Faster breathing
Decreased depth of breathing
Raised blood pressure
Boosted energy production
Tensed skeletal muscles
Pale skin color
Dilated pupils
Slowed digestion
Feelings of anxiety, panic, desperation, rage, or terror

Fight and flight behaviors are associated with sympathetic nervous system activation.

Sexual orgasm is also associated with sympathetic nervous system activation.

What do we experience when we feel safe?

Most often, **when our neuroception perceives the environment as safe**, **our parasympathetic nervous system** is activated and as described by Rothschild (2000), we experience:

Slower heart rate (pulse)
Slower breathing
Increased depth of breathing
Lower blood pressure
Increased digestion
Flushed skin color
Constricted pupils
States of relaxation and rest
Feelings of happiness
Feelings of anger, sadness and grief

Sexual arousal is also associated with parasympathetic nervous system activation.

Our Response to a Neuroception of Life Threat and Helplessness

In experiences perceived as life threatening, that also evoke feelings of helplessness, our parasympathetic nervous system dominates, evoking the "freeze/dissociative" response (Scaer, 2012). Allan Schore (2012) calls this reaction "**freeze and paralysis".** Emerson & Hopper (2011) call this **the "submit" response**.

During the **freeze/dissociative response**, **the body shuts down its active defenses and produces endogenous opioids that affect our perception of pain and alter our sense of time, place, and reality. The mind shifts from being focused and alert to numb and dissociated.** Emerson & Hopper explain that the purpose of reduction in pain perception is to disconnect from the experience of pain associated with (a perceived imminent) attack.

The freeze response may also be observed when the parasympathetic nervous system is activated at the same time as the sympathetic nervous system. This occurs when the sympathetic nervous system is highly activated and fight/flight behaviors are impossible or unsuccessful.

The organism's last resort in this situation is the activation of the parasympathetic dominant freeze/dissociative response. **Signs of parasympathetic activation may mask signs of sympathetic activation, or signs of both may be observed during the freeze/dissociative response** (Rothschild, 2000).

When environmental cues in the present are similar to environmental cues from a past traumatic experience, intrusive visual, auditory and/or sensory memories of the past traumatic experience may be triggered and fight, flight and freeze/dissociative responses may be activated.

Scaer (2012) observes that **experiences that evoke approach/avoidance conflict may also trigger the freeze response.** In addition, he explains that the physiology of both the freeze response and the emotion of shame are closely related. **An experience in which we feel humiliation or shame, may trigger the freeze/dissociative response.**

How can we stabilize our autonomic nervous system when it becomes highly activated and dysregulated in stressful experiences?

Stress reduction tools are designed to help us optimally stabilize our autonomic nervous system by reducing frequent, cyclical high activation of both sympathetic and parasympathetic branches often resulting from chronic stress and trauma.

Becoming aware of our breathing and using simple tools such as coherent breathing (Brown & Gerbarg, 2012; Elliot & Edmonson, 2006), **allow us to consciously and intentionally influence our autonomic nervous system and calm our stress response system.**

The Role of an Individual's Psychobiological Reactivity to Stress

The likelihood that a person will have an adverse health outcome from perceived or actual stressful experiences is related not only to the amount of stress they are exposed to, but to their tendency to respond to stress. Each person has an individual psychobiological reactivity to stress.

Over the course of pregnancy, it has been shown that women's psychobiological reactivity to stress varies, usually decreasing as the pregnancy progresses to term. Researchers are beginning to evaluate the differences in the responsivity of the stress response systems in pregnant women and their developing babies throughout gestation.

Studies are now being conducted to explore whether there are critical or sensitive periods in prenatal development when developing babies are more vulnerable to prenatal stress. These sensitive periods may be connected to certain events in embryo and fetal development, or to variations in the pregnant woman's or developing baby's physiological responses to stress over the course of the pregnancy (Sandman & Davis, 2012).

Adverse Outcomes Associated with Maternal Stress are Related to Multiple Factors and the Interactions Between Them

Research suggests that the adverse outcomes of stress on women and their babies during pregnancy are not related to any single effect of stress, but to multiple factors and the interactions between them (Wadwha, Entringer, Buss & Lu, 2011)**.**

The systems and tissues of the mother, the placenta and the fetus may all react to a woman's experience of stress, each affecting the other. Stress evokes changes in the unique physiology of each pregnant woman, which triggers physiological reactions in her placenta and her developing baby. Reactions in the placenta and developing baby in turn trigger physiological changes in the woman's body that may initiate additional changes in the placenta and fetus. **This describes what is now believed to be a "bi-directional physiological relationship" between the woman, the placenta and her developing baby** (Wadwha et. al., 2011).

Some of the psychophysiological changes associated with maternal stress during pregnancy may negatively impact women's offspring during gestation, after birth, and over the course of their child's lifespan. (Amiel-Tison, Cabrol, Denver, Jarreau, Papiernik et. al., 2004; Kinsella & Monk, 2009; Laplante, Barr, Brunet, Fort, Meaney, et al., 2004; Lupien, McEwen, Gunnar, & Heim, 2009; Monk, Fifer, Myers, Bagiella, Duong et al., 2010; O'Connor, Ben-Shlomo, Heron, Golding, Adam, & Glover, 2005; O'Connor, Bergman, Sarkar, & Glover, 2012; Tollenaar, Beijers, Jansen, Riksen-Walraven & De Weerth, 2011; Van Den Bergh, Van Calster, Smits, Van Huffel, & Lagae, 2008).

How A "Life-Course Perspective" Helps Us Understand the Effects of Stress On Women and Their Developing Babies Across Generations

Researchers have suggested that a **"life-course perspective"** be considered to enhance our understanding of the relationship between stress and its negative effects on pregnant women and their developing babies (Enlow, Kullowatz, Staudenmayer, Spasojevic, Ritz, et. al.; Wadwha et al., 2011). The term "life-course" refers to the entire life of the mother from her own conception onward (possibly even before her own conception), up to her current pregnancy (Wadwha et. al, 2011). Researchers have proposed two ways experiences before a woman becomes pregnant, may affect her pregnancy and developing baby.

One way is the **"early programming model",** which describes how stress that occurs during a critical or sensitive period in the development of the fetus can result in permanent long-term effects on the structure or function of the tissues and systems in the developing fetus. These changes may result in health and disease risks later in the child's life.

Studies have shown that exposure to maternal stress during pregnancy can program the stress reactivity of a woman's child. These studies suggest that stress reactivity can be passed from one generation to another. When a woman becomes pregnant who was exposed to stress during gestation in her own mother's womb, her reactivity to stress programmed during her mother's pregnancy with her (and/or during her own early childhood experiences) may impact the stress reactivity of the baby developing in her own womb (Wadwha et al., 2011).

The **"cumulative pathways model"** suggests that over an individual's life-course, the accumulation of incidents of illness or injury, exposures to adverse environmental conditions and risky behaviors lead to wear and tear, which takes a physiological toll on the body's regulatory systems and processes that maintain health. **When a woman becomes pregnant, the accumulated life-course wear and tear she's experienced on her psychophysiological systems may impact the health and well being of her developing baby and its stress reactivity** (Wadwha et al., 2011)**.**

One Simple Activity That Can Calm Our Stress Response System and Rebalance Our Autonomic Nervous System

As mentioned above, **breathing provides one opportunity for us to consciously and intentionally influence and regulate our autonomic nervous system**, **and** in doing so, **our stress response system**. Recent research by Brown, Gerbarg and Muench (2013) provides evidence that simple breath practices, especially **coherent breathing, can be effective in optimally balancing the autonomic nervous system and reducing feelings of stress and anxiety.** Coherent breathing is based on paced yoga breath practices, the benefits of which are now being demonstrated in formal research studies.

Richard Brown, M.D. and Patricia Gerbarg, M.D. have also written a book, "The Healing Power of the Breath" (2012) which introduces readers to coherent breathing and other simple breath practices.

Stephen Elliot and Dee Edmonson have written a book "The New Science of Breath: Coherent Breathing for Autonomic Nervous System Balance, Health, and Well Being" (2006) that explains the physiology of coherent breathing and its relationship to optimal autonomic nervous system balance.

Summary

- Women (and their partners if they have them) who are on the way towards parenting might greatly benefit from developing an awareness of the symptoms and behaviors they experience when their stress response systems are activated.

- Frequent or chronic activation of the stress response system may lead to psychophysiological symptoms and behaviors that are signs of autonomic nervous system imbalance.

- Autonomic nervous system imbalance may affect women's health before conception, and during pregnancy and birth. It may also impact their developing babies during gestation and after birth.

- The state of a parent's autonomic nervous system impacts the quality of their early interactions with their child after birth. These early interactions influence their emerging attachment relationship. The quality of the parent-child attachment relationship shapes early childhood neurobehavioral and social-emotional development (Navarez, Panksepp, Schore, & Gleason, 2013; Schore, 1994, 2012; Tronick, 2007).

- When parents-to-be develop skills that reduce stress and support autonomic nervous system balance in their own systems from the preconception through early parenting period, they are cultivating an environment that supports their own health and in turn, the healthy development of their children.

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