

The Wounding Womb

Healing Prenatal Trauma

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ABSTRACT

This paper provides information about external stressors that affect fetuses in the womb, such as war or parental abuse, and internal stressors, such as a rise in the mother's blood pressure, or fear of childbirth. Research shows that stress during the prenatal period can change the protein inside the fetuses' genes, leading to more mental illness and serious health issues when adulthood is reached than in those who did not experience prenatal stress. Body therapy methodologies have been helpful in regulating fetal stress, decreasing PTSD symptoms, creating a healthy energy flow in the body, reversing epigenetic mistakes, and creating new circuitry in the body. Corrective exercises include the repetition of fetal movements in the womb, unblocking tight muscles in the body, energizing collapsed body segments, and engaging in experiences that trigger right brain, out-of-awareness memories, such as guided imagery, meditation, hypnosis, and dance.

Keywords: fetal trauma, maternal depression, fetal origins, holistic counseling, somatics

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People don't have perfect babies. Internal events, such as anxiety, or the mother's blood pressure rising to a dangerous level, and external events, such as smoking, spouse abuse, or lack of an adequate supply of food, can impact the fetus and even change the DNA (Amblagan *et al.*, 2013; Bosch, 2010; Janus, 2001; Paul, 2010; Schulz, 2010). On "Chopped," a popular cooking show, excellent chefs compete to prepare a meal before the timer pings. Even the best chefs make mistakes and present the judges with food that is overdone, tough, or bitter. Similarly, during the nine months in the womb, fetuses are subjected to undesirable consequences. Because they share a bloodstream with their mothers, they absorb toxins like nicotine, biochemicals such as adrenaline, over-the-counter or prescribed medicines – some of which can cause birth defects, and they experience loud noises, noxious fumes, food with little nutritional value, violent behavior, and strong emotions, such as rage and anger (Amblagen *et al.*, 2013; Boadella, 1987; Bosch, 2010; Meany, 2018; Netherton & Rohr, 2019; Paul, 2010; Schulz, 2010; White, 2010; Zhou *et al.*, 2018). Given these factors, psychotherapists and counselors need to understand how nine months in the womb can affect mental health, and they need to incorporate methods and techniques into their practices to use with clients who have experienced gestational trauma (Ball, 2011; Hunter & Struve, 1998; Janus, 2001, van der Kolk, 2014; Levine, 2010; Lipton, 2005; Masters & Houston, 1978).

*The science of fetal origins
shows how prenatal experiences
determine one's destiny.*

Epidemiological data cited by Netherton and Rohr (2019) show that physical abuse is experienced more often by pregnant than by non-pregnant women. Physical abuse during pregnancy correlates highly with miscarriage, low birth weight, and infant mortality (Muzik *et al.*, 2016; Paul, 2010; Seng *et al.*, 2001). I saw

this firsthand in my practice when my client, Jennifer, began living with her boyfriend after learning she was pregnant. Although they looked forward to having a baby together, neither parent-to-be had experienced a stable family as a child. Jennifer's alcoholic mother continued to drink throughout her childhood, and her father, diagnosed with schizophrenia, lived either with his sister or on the street. Therefore, when Bob came home late after drinking with his buddies, his use of alcohol triggered Jennifer's long-suppressed rage. She asked him to stop drinking in a sarcastic, angry, and demeaning tone of voice. In response, he threatened her, threw food, put his hands around her neck as if to strangle her, and stomped out of the apartment. Her body responded with rising blood pressure and an anxiety attack. Cortisol flowed into the bloodstream she shared with her baby. This pattern continued throughout the pregnancy.

Research shows that many substances pass through the placenta; it is no longer considered to be a strong barrier that keeps a baby safe (Dunn *et al.*, 2019; Paul, 2010; Sapolsky, 2017). Using data from the Avon Longitudinal Study of mother and child pairs, Dunn *et al.*, (2019) discovered 38 sites with methylation distortions in children prior to age seven following prebirth and birth trauma and adversity. Exposure to maternal cortisol during pregnancy was found to slow development one year after birth, as measured by the Baily Scale of Infant Development (Davis & Sandman, 2010). Because growing fetuses are affected by the chaotic lives their parents live and by the medicines their parents take, they respond symptomatically to the external and internal stress they experience – if not immediately, years later (Netherton & Rohr, 2019; Paul, 2010). More mental and physical illness and dysfunctional behavior patterns are found in those whose fetal life was colored by traumatic events, such as the Dutch Hunger Winter Study described by Schulz (2010).

From her review and analysis of hundreds of academic journal articles involving epidemiological research, as well as empirical studies of the fetus, Paul (2010) determined that life in the womb can predict one's future life on earth. The science of fetal origins shows how prenatal experiences determine one's destiny (Lange, 2011; Paul, 2010). Lange's (2011) findings from a review of numerous animal studies show that primates who experienced prenatal stress suffered later life consequences. Somatic therapists have opportunities to make interventions prior to pregnancy, during pregnancy, immediately after the child is born, and into adulthood to reverse these negative effects. Janus (2001) reports that dream analysis helps clients resolve trauma that occurred prior to birth and during birth. According to many clinicians, a holistic approach that integrates work with mind, body, spirit, and emotion, and is designed to heal trauma experienced before conscious memory, has been found to help clients suffering from traumatic prenatal or birthing experiences (Ball, 2011; Boadella, 1998; van der Kolk, 2014; Levine, 2010; Rand & Caldwell, 2004; Wilner, 1999).

DNA, Genetics, and the Environment

Humans receive a recipe for life while still in the womb. Genetics, external stressors, and events internal to the mother's physical body shape the personality, behavior, belief systems, values, fears, and sexuality of the person the fetus becomes (Amblagan *et al.*, 2013; Dunn *et al.*, 2019; Meany, 2018; Paul, 2010; Sapolsky, 2017). Research supports the theory that genetic, epigenetic, and biochemical programs fetuses download in the womb can be rewritten; bodies, personalities, and belief systems can change (Hunter & Struve, 1998; van der Kolk, 2014; Levine, 2010; Lipton, 2005; Masters & Houston, 1978). Our goal as body therapists is to help our clients rewrite prenatal programs by working through the richness of the body, the senses, emotions, and the mind (Boadella, 1987; van der Kolk, 2014; Levine, 2010; Pierrakos, 1990).

John C. Pierrakos, M.D. (1998), my mentor in Core Energetics, used the word "plastic" to describe the body and the cells that make it up. He believed that by applying techniques that helped clients free up energy that was blocked in the muscles and the connective tissue of their bodies, prohibiting natural movement, he could help them achieve healthier outcomes, experience pleasure, and replace negative, self-defeating behaviors with positive ones (Pierrakos, 1990). Current research results support this theory, demonstrating mind-body plasticity. For instance, stroke patients who lose one pathway in the brain can, with practice, open new pathways in their brains (Cozolino, 2002). Cozolino's (2002) research on brain development integrated findings from ecological studies, his clinical practice, attachment theory, developmental psychology, and neuroscience. If the plasticity he describes did not exist, people would be locked into a rigid system of being, unable to change. Somatic therapists can approach their clients knowing that cells are flexible, and that movement will create positive pathways into the future (Boadella, 1998; van der Kolk, 2014; Levine, 2010; Masters & Houston, 1978; Pierrakos, 1990).

Bruce Lipton's (2015) research shows that inherited DNA does not define one's future as once thought. Studies from the field of epigenetics conclude that the stressful situations people and fetuses are exposed to change the protein inside their genes. The behaviors supported by those genes then change, in some cases for the better and in others for the worse (Lipton, 2015). Fetal trauma results in changes in the personality, behavior, and body of the adult who the fetus becomes, leading to more mental health and behavior problems (Lange, 2011; Paul, 2010).

Women, Despair, and Pregnancy

Many women experience ambivalence upon learning they are pregnant (Bibring, 1961). The new mother looks at her baby and realizes that her life has changed in ways

over which she has no control. Grete Lehner Bibring (1961), a psychiatrist at Beth Israel Hospital in Boston, wrote that a woman's inner and outer life changed along with her body during pregnancy: unresolved issues from the past emerged, old coping skills no longer worked, new and unfamiliar roles arose, unexpected issues with partners created stress, and changes at work became necessary.

Women from the ages of 20 through 40 experience more depression and anxiety than do women at any other phase of life (Netherton & Rohr, 2019), and they experience depression and anxiety during the period that they are most likely to give birth (Meany, 2018). Empirical studies show that twenty percent of pregnant women are moody or anxious, ten percent develop major depression, and pregnant mothers diagnosed with depression are two times more likely to have premature births (Paul, 2010). Their babies display more depressive symptoms and have lower birth weights than those of non-depressed mothers (Paul, 2010). Meany (2018) reports that biochemical imbalances found in pregnant, depressed women cross the placenta and compromise fetal brain and nervous system development, shaping how emotions will be experienced in the future. New babies of depressed mothers have been found to be irritable, hard to soothe, impulsive, and emotional (Meany, 2018).

Ambivalent parenting affected one of my clients as well. Louis's body showed signs of receiving a dose of hate while still in the womb. He was thin and wiry, with a bony chest and ribs that stuck out. Scoliosis twisted his spine, and his eyes appeared vacant. These physical attributes can indicate that he experienced rejection in the perinatal or prenatal period (Pierrakos, 1990). When the fetus does not receive maternal love, nourishment, and safety, the lack of affection or its loss can manifest in psychological disorders: schizoid responses, depersonalization, fragmented energy, and depression can result (Janus, 2001; Lowen, 1976; Pierrakos, 1990).

Louis' biological mother abandoned him, and the woman who adopted him wanted a baby girl. She never missed an opportunity to let him know about her disappointment. Not feeling loved or welcomed by either his birth or adoptive families, deep within Louis's unconscious lurked a terror of life, and strong hate for those who abandoned and betrayed him. Ignoring the body that housed these feelings, he distanced himself from the physical structure below his neck.

The mother of another client, Linda, complained that her life would have been much better if Linda had never been born. This woman suffered domestic abuse for many years, even during her pregnancy with Linda. Born prematurely, Linda was diagnosed with both arthritis and lupus by age seventeen. Emotionally over-reactive as an adult, she is easily hurt and quick to anger, experiencing a loss of control and erupting into violence at times.

Techniques to Promote Healing Fetal Trauma

As fetuses, our clients had no control over their experience, but now as adults who are choosing to let go of the negative story their bodies carry, they are able to create a new script (Lipton, 2005; Wilner, 1999). Bodies, personality, behavior, and belief systems can all change by using techniques designed for the treatment of prenatal injuries or trauma (Boadella, 1987; van der Kolk, 2014; Levine, 2010; Lipton, 2005; Pierrakos, 1990, Rand & Caldwell, 2004). Therapists who work with wounds received during one's sojourn in the womb use techniques to bring into conscious awareness experiences from the earliest time. These experiences are locked in the body (Boadella, 1987; van der Kolk, 2014; Levine, 2010; Pierrakos, 1990, Wilner, 1999). Some researchers and psychotherapists believe that psychological pain and illnesses are caused not by trauma alone, but by the victim's inability to provide words and language to describe what their body experienced (White, 2010). The following exercises are designed by the author to elicit a verbal description and increase conscious awareness:

1. Knowing what you know about yourself, in your notebook write a paragraph or a poem, describing what you were like as a fetus.
2. Sit back, relax, and shut your eyes. Imagine that you are a fetus, and the environment is warm and nurturing. You float gracefully in your amniotic fluid. You love touching yourself as you float, and you wiggle your tongue. Notice how you feel and what you experience in your body. Now the scenario changes. Imagine that you are floating in a hostile, unwelcoming environment, and you don't have enough room to move. You are pushed up against the walls of the uterus. You hear loud noises and your fetal body contracts. You feel like you are receiving something toxic through the placenta, and you contract even more. Your fetal heartbeat quickens. Again, notice how you feel and what you experience in your fetal body. In your notebook compare these two experiences.
3. Finish the following sentence in three different ways. Write in your notebook "When I was in my mother's womb, I experienced..." three times, and then finish each sentence in three different ways. If you know what happened because your mother or someone else told you, use that material. If you don't know what happened to you in the womb, make up three events that could have happened according to your memory concerning what your mother may have been like at that time, where she worked, and with whom she lived.

Because the right side of the brain that governs emotion and feeling develops before birth, fetal healing involves revealing suppressed emotions, and employing exercises that tap into the right brain (Ball, 2011; Janus, 2001; Malhotra & Sahoo, 2017). Guided visualizations, dance,

and art therapy are useful tools because they work with images rather than words (van der Kolk, 2014). Furthermore, early right-brain memories can be addressed by exploring dreams and symbols through role-playing, hypnosis, and active imagination (Janus, 2001).

When I adopted my daughter from China, she played a game I called “being born.” In the game, she would slide down my body as if she were coming down the birth canal. She would play the game over and over again until one or the other of us would tire. Your clients can create similar experiences for themselves that will help them reenact a happier and healthier time in the womb or during birth. I suggest that they initiate their unique healing processes by creating a birth drama that can be reenacted in an individual session or a group process.

Because the fetal brain operates at a low vibration – theta – Paul (2010) reports that it mixes imagination and reality to make meaning, whereas mature consciousness occurs at a higher vibration. Before your clients can accept reality, Pierrakos (1990) suggests that they need to bring the images shaped by their fetal brain into conscious awareness. Additionally, Solm’s (2014) work with brainstem mechanisms reports their association with affective consciousness, another indication of mental activity prior to birth. Therefore, consciousness can emerge through fetal memories that make themselves known in dreams and through visions (Janus, 2001). Dreams about boating and water are particularly relevant (Freud, 1913). Using crayons, pastels, pencil, or charcoal drawings, clients can bring meaningful dream images to life and consciousness.

Many of the interventions that somatic therapists use to heal trauma that occurred in the womb involve movement (van der Kolk, 2014; Masters & Houston, 1978; Pierrakos, 1990). Although fetuses sleep between 85 and 95 percent of the time depending on the trimester, they move as they float in the amniotic sac (Paul, 2010). Healing involves having your clients engage in simple movements reminiscent of those made in the womb. Based on my studies with John C. Pierrakos (1990), I suggest that your clients mirror you as you model the following fetal behaviors, and then they do the exercises alone attending to their bodies’ sensations and reactions.

- The fetus hiccups by nine weeks.
Mirror hiccupping; you hiccup, the client hiccups.
- The fetus reacts to loud noises by nine weeks.
*Make a variety of loud noises (drumming, horn honking, breaking a glass).
React to the noise spontaneously, allowing the body’s impulses to respond.*
- The fetus bends its body by nine weeks.
*Bending exercises; bend in and out of the fetal position.
Stand up and do a forward bend exercise, bending at the waist and touching the floor.*

The fetus moves its arms by ten weeks.

Arm exercises; bending the arms, pushing away with the arms and hands, pulling toward you with the arms and hands, stretching the arms up and down.

- The fetus breathes in and out by ten weeks.
Breathing in and out exercises. Slow deep breath in, slow deep breath out; staccato breathing exercise, yoga breathing.
- The fetus opens its jaw by ten weeks.
Stretch your jaw, open and close it, move it up and down, move it right and left.
- The fetus stretches by ten weeks.
Full body stretch, stretch different body parts, a leg, an arm, the neck.
- The fetus yawns at twelve weeks.
Yawning practice.
- The fetus sucks at twelve weeks.
Sucking; place the fatty part of the thumb in your mouth and suck; make sucking sounds with your lips.
- The fetus swallows at twelve weeks.
Practice swallowing.
- The fetus feels at twelve weeks.
*Roll around and feel the fabric or the carpet with your body and your hands.
Put yourself in a tight space and explore it with your hands and feet.*
- The fetus smells at twelve weeks.
Smell essential oils such as pine, lavender, or lemon.
- The fetus can taste the food of its culture by thirteen to fifteen weeks.
Client brings in food that was most likely eaten by their pregnant mother; share and taste the food together.
- The fetus moves its tongue at eighteen weeks.
Tongue exercises; stick out your tongue, move it from side to side, move it in circles, touch the soft palate with the tip of your tongue.
- The fetus touches itself.
Touch hand to face, touch one hand with the other, clasp your feet, touch the opposite leg with the foot, place a hand on your belly button.
- The fetus hears at the end of the second trimester.
*The client selects womb music and you listen together.
Client moves their body to the rhythm of their mother’s speech (therapist mimics the mother’s speech patterns and tone of voice).*

Ask your clients to spend a few minutes doing each of these exercises, being aware of what they feel in their bodies, and writing down or discussing the material that arises – emotions, images, and thoughts – in their sessions. The exercises should be done slowly and repeated later as homework.

John Pierrakos (1998) suggested engaging in exercises that emphasize movement so as to enhance the plasticity of the human body. One such exercise, designed for clients who experienced fetal trauma, begins by having them walk around the room. Abruptly, they are told to stop walking, to freeze, and to shift their awareness to their bodies. At this moment in time, their bodies are still locked into a current program, one that may have been set forth in the womb. Now, suggest they do something different with their bodies, such as opening their arms with their palms turned outward, tilting their head to one side, or walking on their heels. Have them walk around in this new posture, and experience how it feels.

Bring movement and dance into the therapeutic process (Rand & Caldwell, 2004; Shealy, 2011). Have your clients create a dance that expresses their feelings about their nine months in the womb. The dance can reflect their emotional experience during each trimester, and the movements can lead them on their journey through the birth canal.

In your work with fetal wounding, integrate touch when the person is ready to receive it (Boadella, 1987; Hunter & Struve, 1998) and meditation (Wilber, 2016) when they are able to focus. Pleasant fetal experiences, based on warmth and oxytocin, involve a reciprocal relationship with the mother (Bosch, 2010). Incorporate the reciprocal dance between mother and child into your therapy; the fetus healing the mother and the mother healing the fetus (Bosch, 2010, Stern, 1990).

To help clients who experienced fetal trauma accept touch, place a large pillow between your body and their bodies, and hold them (Hunter & Struve, 1998). If they experienced terror *in utero*, and lost touch with their bodies, more than a few seconds of contact can be stressful. Hunter and Struve (1998) explain that clients who were not touched as infants often find that receiving touch as adults is uncomfortable. These clients need to learn to experience physical sensations and emotions without dissociating (van der Kolk, 2014; Levine, 2010; Pierrakos, 1990).

Because the right brain is predominant at birth and for the first two years of life, the affective emotional brain forms the foundation from which the personality and beliefs develop (Ball, 2011; Janus, 2001; Lipton, 2005; Malhotra & Saboo, 2017; Solms, 2014). Each person starts life with a connection to the core self, even if that connection lasts only a few moments before early trauma distorts it (Ball, 2011, Pierrakos, 1990). Pierrakos (1990) theorizes that under attack by maternal stressors, both internal and external, this core self may get buried deeply and become forgotten or lost. The role of body therapists is to help people uncover, recover, and rediscover their core selves, raising their energy levels and returning their bodies to a more natural state (Boadella, 1987; van der Kolk, 2014; Levine, 2010; Lowen, 1976; Pierrakos, 1990).

Somatic therapists can help those who carry deep within them the scars of fetal wounding by holding clients, building warm and loving wombs with them, and moving and dancing with them (Hunter & Struve, 1998; van der Kolk, 2014; Levine, 2010; Masters & Houston, 1978). Similarly, they can also confront and release the blocked rage and anger with strong movements and verbal expressions that encourage being in one's truth (Lowen, 1976; Pierrakos, 1990). When energy that is no longer blocked or suppressed is free to circulate through tissues and organs naturally, it flows and vibrates, encouraging people to unfreeze old and unproductive patterns and reshape themselves (Lowen, 1976; Pierrakos, 1990).

Appendix

Here are some findings from Paul's (2010) review of the research on fetal origins.

- The seeds for psychopathy and sociopathy are planted during gestation if parents use drugs, alcohol, or other substances. Once grown, the fetus can become involved in criminal activity or antisocial behavior.
- Similarly, seeds for schizophrenia, masochism, sadism, orality, and even suicide are planted prior to birth. Genes associated with mental illness express themselves in the fetus before birth – some at levels higher than those found in adults. There is a higher risk of developing schizophrenia after severe maternal malnutrition and after maternal infections, such as a respiratory infection. During wartime, twice as many babies are born who later develop schizophrenia than during periods of peace.
- When food is scarce, low birthweights and energetically collapsed bodies result. Undernutrition at critical periods in the womb changes cardiovascular, metabolic, and endocrine functions. Heart disease develops as the little food there is must support the brain, such that the heart does not get enough. In 1959, when China suffered a terrible famine killing 30 million people, the widespread starvation affected fetuses in the womb. They were twice as likely to develop schizophrenia than those born during more normal years.
- The story of the Dutch winter of 1944 emphasizes the impact of war and hunger on the fragile patterns of DNA during the prenatal period. German troops turned away all shipments of food that were meant for western Holland in the fall of 1944. A severe winter followed, and some people survived on as little as 500 calories a day. Of the 40,000 fetuses *in utero*, there were a large number of stillbirths, birth defects, and infant deaths. An examination of the adults – then in their sixties – who were fetuses at the time found more obesity, diabetes, and heart disease than among those born during other periods. In addition, the amount of schizophrenia doubled.

- Scarcity of food can program fetuses to expect a world filled with hunger. Babies are born prepared to eat less, but instead they receive too much food after birth. Because their bodies are not accustomed to receiving so many calories, many struggle with obesity, diabetes, and heart disease.
- Maternal weight gain during pregnancy can lead to overcharged muscles, body fat, obesity, diabetes, and other health issues in the developing child. Birth defects are two times higher among babies born to obese mothers. Findings also show the intergenerational transmission of obesity; the more weight gained during pregnancy, the heavier the child is at age three. A woman's weight gain in pregnancy predicts her child's future size.
- The environment also affects developing fetuses. According to Yawea Zhang's study in the *International Journal of Epidemiology*, among eight thousand mothers living in Lanzhou, China who experienced high levels of air pollution, more birth defects, such as larger heads, and more complications giving birth were found, as well as obesity and breast cancer among those who had been fetuses at the time.
- In a 2008 UCLA study that looked at partner abuse and violence, Christine Dunkel Schetter, Ph.D., found that women who reported high aggression and physical and emotional abuse in their relationships had higher cortisol levels prior to pregnancy, resulting in lower birthweight in their infants. Low birthweight correlates with illness and disease in adults and is related to problems in development.
- Some studies report that fetuses inherit the wounds of their ancestors. Trauma causes a chemical change in cells and cell behavior that can be passed on to each new member of the family. Wolynn's book *It Didn't Start With You* supports this theory.
- Dr. Gerhard Rottman identified four types of pregnant women: a) ideal mothers who want their babies and generally have healthy offspring; b) catastrophic mothers who reject the idea of motherhood, have medical issues, and give birth to premature, low birthweight, and emotionally disturbed infants; c) ambivalent mothers who doubt their ability to mother, and have infants with behavioral and gastrointestinal problems; and d) cool mothers who believe pregnancy may cause them to lose their jobs and are unprepared to raise their babies have apathetic, lethargic, and confused babies (research from the University of Salzburg, Austria).
- Fetuses share their mother's blood, and because blood carries the mother's body chemistry, it shares her emotional state. If she feels love, the fetus glows. But if she experiences fear, as many expectant mothers do, a different set of chemicals is released, and the fetus may contract.
- Healthy, resilient fetuses become healthy babies and healthy adults when mothers do yoga, meditate, exercise, eat well, keep their weight down, attend therapy sessions, and have social support.
- Moderate levels of stress benefit the fetus, toning the nervous system and accelerating development. Babies show faster neural development and better motor development by age two when stress is not extreme.
- Fetuses of pregnant women who exercise have better heart rates and cardiovascular health, and bigger brains that could correlate with higher intelligence when grown.
- Women who ate lots of fish and omega-3 fatty acids produced smarter kids with higher verbal IQs, superior motor skills, and better social and communication skills.
- Pregnant women who ate chocolate every day had babies who showed less fear and smiled and laughed more often at six months of age.
- In the growing fetus, the right side of the brain, which governs affect, feeling, and creativity, develops more fully than the left side, which emphasizes language, prior to birth. The left side remains dormant until the child reaches age two. Therefore, feelings control fetal thought and have a strong impact on later personality and behavior.
- Maternal hormones influence sex determination and differentiation in the prenatal period. All fetuses display female genitalia until approximately seven weeks of age. At that point, a gene on the Y chromosome leads to development of the testes, and the production of testosterone. This process can be sabotaged if the mother has hormonal issues. In that case, masculine factors fail to activate, and embryos of both sexes feminize. When a killer fog hit London in 1952, the stress created by that event caused fewer male births – 144 females to 109 males, versus the normal 105 boys to 100 girls.
- The placenta does not protect the fetus from as many toxic substances as was originally thought. People are more vulnerable to these environmental toxins during the prenatal period than at any other time in life. Two tragedies that have occurred include thalidomide, which caused deformed bodies, and DES, which led to aggressive cancers and fetal alcohol syndrome.
- Smoking is also a concern. When pregnant women smoke, blood vessels contract, and their fetuses receive less oxygen. Nicotine crosses over the placenta, increasing the risk of cancer and disease in later life. Smoking has been tied to miscarriage, stillbirth, preterm delivery, low birthweight, and sudden death syndrome





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REFERENCES

- Amblagan, D., Jones, N. W., & Costiagen, C. (2013, July 3).** Maternal smoking during pregnancy and fetal organ growth: A magnetic resonance. Retrieved from *Plos One Published Online*. doi:10.1371/journal.pone.0067224
- Ball, K. (2011).** *Return to self: The experience of one's core self in prenatal and perinatal psychotherapy* [Unpublished doctoral dissertation]. Retrieved from Santa Barbara Graduate Institute.
- Boadella, D. (1987).** *Lifestreams: An introduction to Biosynthesis*. London & New York: Routledge & Kegan Paul.
- Bibring, G. L. (1961).** A study of the psychological processes in pregnancy and the earliest mother-child relationship. *The Psychoanalytic Study of the Child* (16) 9-24.
- Bosch, O. J. (2010).** Maternal nurturing is dependent on her innate anxiety: The behavioral roles of brain oxytocin and vasopressin. Retrieved November 20, 2010 from Department of Behavioral and Molecular Neuroendocrinology, University of Regensburg, 93040 Regensburg, Germany. <https://doi.org/10.1016/j.yhbeh.2010.11.012>
- Cozolino, L. (2002).** *Building and rebuilding the human brain*. New York: W. W. Norton & Company.
- Davis, E.P. & Sandman, C.A. (2010).** The timing of prenatal exposure to maternal cortisol and psychosocial stress is associated with human infant cognitive development. *Child Development* 81(1), 131-148.
- Dunn, E. C., Soare, T. W., & Zhu, Y. (2019).** Sensitive periods for the effect of childhood adversity on DNA methylation: Results from a prospective, longitudinal study. *Biological Psychiatry* 85 (10), 838-849.
- Freud, S. (1913).** *The Interpretation of dreams*, Third Edition (A. A. Brill, Trans). New York: The Macmillan Company.
- Hunter, M., & Struve, J. (1998).** *The ethical use of touch in psychotherapy*. London, New Delhi: Sage Publications.
- Janus, L. (2001).** *The enduring effects of prenatal experiencing: Echoes from the womb*. (T. Dowling, Trans.). Heidelberg, Germany: Mattes Verlag.
- Lange, A. (2011).** Prenatal maternal stress and developing fetus and infant: A review of animal models as restated to human research. *Journal of Infant, Child, and Adolescent Psychotherapy* (10), 326-340.
- Levine, P. (2010).** *In an unspoken voice: How the body releases trauma and restores goodness*. Berkeley, CA: North Atlantic Books.
- Lipton, H. B., (2005, updated 2015).** *The biology of belief: Unleashing the power of consciousness, matter, and miracles*. Carlsbad, CA: Hay House.
- Lowen, A. (1976).** *Bioenergetics*. New York: Penguin Books.
- Mahler, M. S., Pine, F., & Bergman, A. (1975).** *The psychological birth of the human infant: Symbiosis and individuation*. New York: Basic Books, Harper Collins.
- Malhotra, S. & Sahoo, S. (2017).** Rebuilding the brain with psychotherapy. *Indian Journal of Psychiatry* 59 (4), 411-419.
- Masters, R., & Houston, J., (1978).** *Listening to the body: The psychophysical way to health and awareness*. New York: Dell Publishing Company.
- Meany, M. (2018).** Prenatal maternal depressive symptoms as an issue for population health. *American Journal of Psychiatry* 175 (11) 1084-1093.

- Musick, M. McGinnis, W.E., et al. (2016).** PTSD symptoms across pregnancy and early postpartum among women with lifetime PTSD diagnosis. *Depression and Anxiety* (33), 584-591.
- Netherton, E., & Rohr, J. (2019, June 5).** *The interplay of trauma and pregnancy* [Webinar]. Menninger Clinic.
- Paul, A. M. (2010).** *Origins: How the nine months before birth shape the rest of our lives*. New York: Free Press.
- Pierrakos, J. C. (1990).** *Core energetics: Developing the capacity to love and heal*. Mendocino, CA: Life Rhythm Publications.
- Pierrakos, J. C. (1998, May 21).** *Personal communication. Plasticity*. New York: Institute of Core Energetics.
- Rand, M. L., & Caldwell, C. (2004).** Integrating pre and perinatal psychology and body-oriented psychotherapy. *The USA Body Psychotherapy Journal* (3)2.
- Sapolsky, R. M., (2017).** *Behave: The biology of humans at our best and worst*. New York: Penguin Press.
- Schulz, L.C. (2010).** The Dutch hunger winter and the developmental origins of health and disease. *PNAS* 107 (39), 16757-16758.
- Seng, J.S., Oakley, D.J., Sampsel, C.M., Killion, C., Graham-Bermann, S., & Liberzon, I. (2001).** Posttraumatic stress disorder and pregnancy complications. *Obstetrics and Gynecology* 97, 17-22.
- Shealy, C. N. (2011).** *Energy medicine: Practical applications and scientific proof*. Virginia Beach, VA: 4th Dimension Press.
- Solms, M. (2013).** The conscious id. *Neuropsychoanalysis: An Interdisciplinary Journal for Psychoanalysis and the Neurosciences* 15 (1), 5-19.
- Stern, D. N. (1990).** *Diary of a baby*. New York: Basic Books, Harper Collins.
- van der Kolk, B. A. (2014).** *The body keeps the score: Brain, mind, and body in the healing of trauma*. New York: Viking Penguin.
- Verny, T., & Kelly, J. (1981).** *The secret life of the unborn child*. New York: Dell Publishing.
- White, K. (2010, November 3).** Trauma and PTSD: So Much to Tell You, and I Can't Say a Word, HealthyPlace. Retrieved on July 31, 2019, from <https://www.healthyplace.com/blogs/treatinganxiety/2010/11/ptsd-so-much-to-tell-you-and-i-cant-say-a-word>
- Wilber, K. (2016).** *Integral meditation: Mindfulness as a path to grow up, wake up, and show up in your life*. Boulder, CO: Shambhala Publications.
- Wilner, K. (1999).** Core energetics: Action methods for bodily energy and consciousness. In D. J. Wiener, (ed.), *Beyond talk therapy: Using movement and expressive techniques in clinical practice* (pp 183-203). Washington, D.C.: American Psychological Association Publications.
- Wolynn, M. (2016).** *It didn't start with you: How inherited family trauma shapes who we are and how to end the cycle*. New York: Penguin Books.
- Zhao, N., Qiu, J., Shuagge, M., Zhang, Y.** Effects of prenatal exposure to ambient air pollutant PM10 on ultrasound measured fetal growth. *International Journal of Epidemiology* 47 (4), 1072-1081.