DESIGN VERONIQUE®

MATERNITY

THE ROLE OF SUPPORT GARMENTS FOR THE CHANGING PHYSIOLOGY OF THE PREGNANT AND POSTPARTUM BODY

July 2009

EXECUTIVE SUMMARY

Pregnancy and childbirth represent two of the greatest health transitions that women may face in their lifetime. Although the quality of reproductive health care continues to improve, the primary focus is on family planning, fertility, prenatal care, and delivery. Once a child is born, the mother is typically given 2 to 4 days of hospital recovery time before she is expected to care both for herself and her child at home. Given the dramatic changes a woman's body endures throughout her pregnancy, and the potential trauma inflicted by either cesarean or vaginal birth, a woman could greatly benefit from the additional support provided by a postpartum support garment.

Labor and Birth Trauma

After labor and delivery, a woman faces tremendous transitions with her postpartum body.

Cesarean Delivery

If a woman has experienced a Cesarean delivery, the body area affected most by the procedure is the abdomen. The Cesarean incision, typically located horizontally between the hips, is stitched and requires time to heal. Furthermore, because a birth by Cesarean section typically mitigates the need for pushing by the mother, the location of her internal organs and general body structure, for the most part, are unaltered from their pregnancy state. Once a woman metabolizes the anesthesia from her system, she will be asked to begin moving around. The transition from lying in a hospital bed to walking can be incredibly painful for a woman who has undergone a Cesarean birth. Not only will the incision area be painful, but the sensation of shifting organs may be uncomfortable.

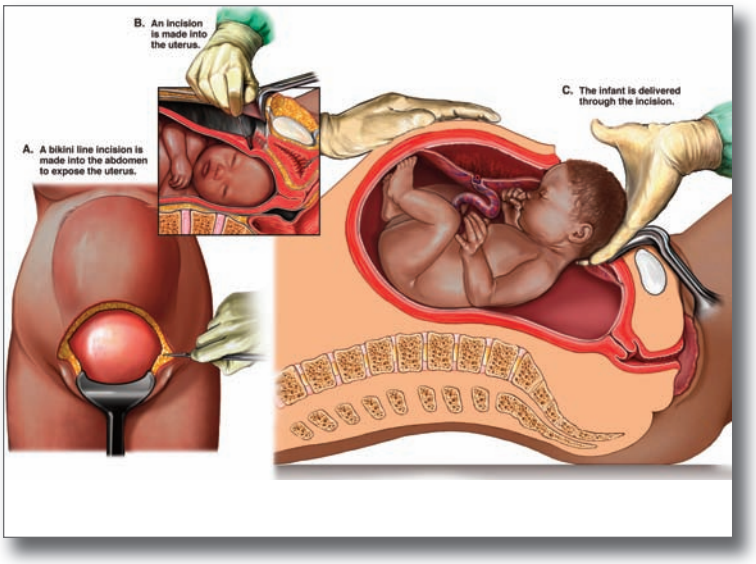

Figure 1
Cesarean Delivery

Of great concern to many women is the scarring that can occur after a Cesarean birth. To lessen the possibility of a noticeable Cesarean incision scar, a form of pressure therapy can be applied. Skin is made up of 2 layers, one directly below the other, called the dermis and the epidermis. When the epidermis (outer layer of skin) is damaged, the dermis produces skin cells that can result in raised scar tissue. Pressure therapy can prevent the overproduction of skin cells, reducing the possibility of unattractive raised scarring.

Figure 2
Cesarean Incision

Garment Benefits

A woman usually receives an abdominal binder from the hospital immediately after a Cesarean birth. The binder is typically worn during the time that a new mother is recuperating in the hospital. A well made binder can provide adjustable support and protect the cesarean incision during the first few days of recovery. However, once the immediate postpartum swelling begins to subside, a postpartum body support garment can provide constant and consistent 360 degree pressure to assist in keeping the incision stable.

Women leaving the hospital after a Cesarean birth are encouraged to avoid lifting anything over 10 pounds and limit activity to reduce unnecessary trauma to the incision site. Muscle tissue underneath the incision, which was separated to allow for the baby's birth, will take several weeks to mend. While a binder is a good choice for a woman during her hospital stay, a body garment provides superior support and stabilization. A body garment protects the incision area, keeps the abdomen flat on either side of the incision to reduce the severity of scarring, and provides light compression to mitigate fluid accumulation.

A postpartum body garment that specifically addresses the needs of a woman who has undergone a Cesarean birth offers support to the entire torso, abdominal wall, and assists in incision healing. Furthermore, a body garment stabilizes the pelvic floor and supports the spine, giving a woman greater body stability and confidence that she can care for her child as she transitions back to her daily life.

Vaginal Delivery

Women who give birth vaginally face an entirely different set of challenges than women who give birth by Cesarean Section. During pregnancy, labor, and birth, the symphysis pubis, where the right and left sides of the hips meet near the vaginal area, separates to varying degrees with the ultimate goal of passing a child from the uterus through the birth canal. Postpartum, some women can suffer a longer term, abnormal separation of the symphysis pubis resulting in pelvic girdle pain.

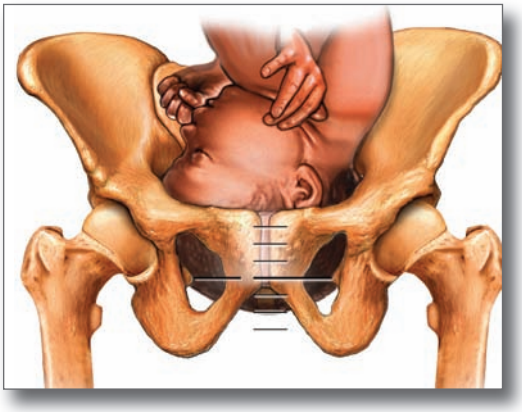

Figure 3
Symphysis Pubis

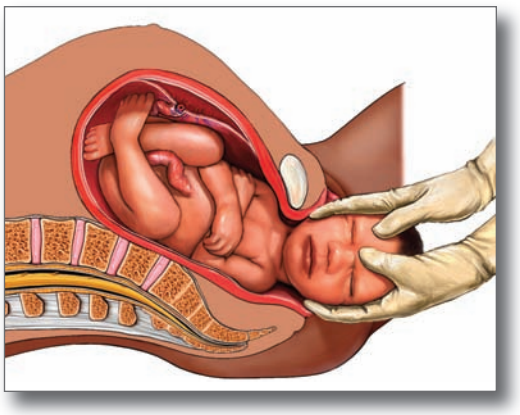

Figure 4
Vaginal Delivery

Pain in the pelvic girdle, lower back, buttocks, hips, knees, and ankles may also be caused by a variety of postpartum misalignment issues in the pelvic floor. During pregnancy and birth, a woman's pelvic floor support system endures immense stress. Ligament bands that tightly control the normal movements of the pelvis are loosened by hormones secreted during pregnancy and the body's center of gravity shifts, which can cause general body instability and weakness.

Depending on her strength and postural alignment Pre-pregnancy, a woman's body may experience difficulties in regaining optimum body alignment. Proper alignment of a woman's pelvic structure ensures that her internal organ system is protected and supported. If a woman's pelvis becomes misaligned and her pelvic floor strength is compromised, due to massive exertion during labor and birth, there is a possibility that her internal organ support could be compromised. If this scenario occurs, a woman may suffer varying degrees of urinary or fecal incontinence, pain, and a reduced level of physicality.

Garment Benefits

A support garment can offer greater stability to a woman's body after a vaginal delivery. The garment acts to retract the body by drawing in stretched muscles and providing structure to the torso, subsequently reducing strain on ligaments and joints in the lower back, pelvis, and buttocks. Reducing stress in these areas enhances the body's ability to return to its pre-pregnancy alignment and shape. Additionally, a garment can offer support to the abdominal wall as the muscles retract to their pre-pregnancy position.

During pregnancy, the body endures tremendous biomechanical changes that affect the musculoskeletal system. The degree to which these musculoskeletal changes occur is based upon each woman's unique body structure and shape, genetic predisposition, and lifestyle choices. Postpartum, the musculoskeletal system can take up to 12 months to return to its normal state.

Musculoskeletal system

As the fetus grows and the uterus expands upward into the abdominal cavity, hormones secreted during pregnancy including estrogen, progesterone, and relaxin loosen abdominal muscles, the pelvic structure, and supporting ligaments and joints. The structural changes that occur as a result of hormone secretion and the new uterine position include:

Abdominal Wall Expansion, Abdominal Separation (Diastasis Recti), and Organ Repositioning

The growing fetus can stretch the rectus abdominus, muscles that run vertically on either side of the abdomen, as much as 50 percent. The muscles of the rectus abdominus are joined by a narrow fibrous strip that thins as it stretches. It is vital that these muscles return to their pre-pregnancy location to protect internal organs and properly support the torso.

In some cases, the rectus abdominus does not return to its pre-pregnancy positioning, a condition known as Diastatis Recti. Diastatis Recti requires treatment by a physician.

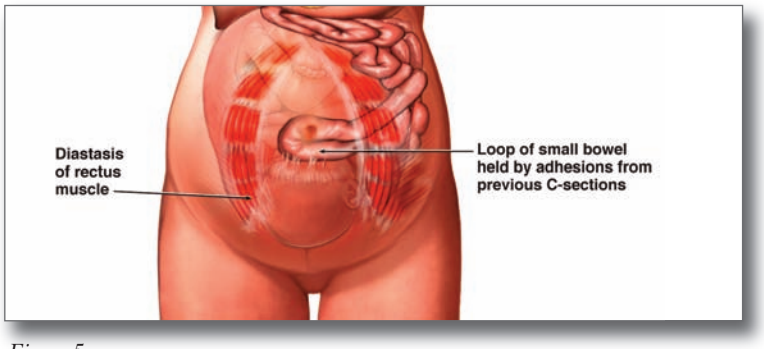

Figure 5
Rectus Abdominus, 40 Weeks Pregnant

In addition to outward expansion in the front of the body that affects the rectus abdominus muscles, the growing fetus pushes inward on a woman's organ system. As the fetus claims additional room in her body, the organ system becomes cramped.

Figure 6
Organ Repositioning

Garment Benefits

A support garment can assist in the process of returning the rectus abdominus muscles to their pre-pregnancy state by providing structure to the torso and light compression to the abdominal wall. Additionally, as shifted and constrained organs return to their pre-pregnancy locations, the wearer of a postpartum support garment will feel held in place and more confident in her body movements.

Spine and Posture Realignment

Postural alignment is greatly affected as a baby grows larger in the womb. The pelvis tips forward to counterbalance the baby's weight, which causes the pubic bones and tailbone to move backward, increasing the arch in the lower spine and creating a lordotic posture. The upper spine simultaneously responds to this structural change by increasing its curvature, which rounds the shoulders forward, collapses the chest inward, and slides the head forward, creating a kyphotic posture. The combination of the kyphotic/lordotic posture results in the classic "S" shaped spine of a pregnant woman and is a direct result of a shifting center of gravity.

This shifting of a woman's center of gravity and spinal structure can lead to pain associated with disturbance of the nervous system. Aching, weakness, and numbness in the body are all symptoms of nervous system disruption.

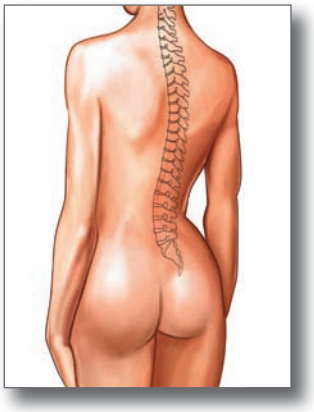

Figure 7
Spinal Alignment, Pre-Pregnancy

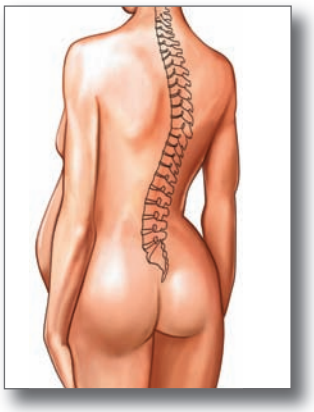

Figure 8
Spinal Alignment, 40 Weeks Pregnant

Garment Benefits

Postpartum, a support garment can assist in returning the spine to its natural pre-pregnancy alignment by providing support to the trunk and lumbar area thereby encouraging proper posture in the wearer. Proper posture lengthens the spine and assists in the return of the body's center of gravity to its pre-pregnancy position. A postpartum support garment also provides the wearer with a feeling of confidence and can reduce back pain associated with poor posture.

Pelvic Floor Relaxation

The pelvic floor is possibly the most impacted body structure during pregnancy. In the human body, the pelvic floor provides balance, structural stabilization, and vital organ support. The pelvic floor makes up the base of the core muscle system, attaching to the abdominal muscle group and the sacroiliac joints. During pregnancy, hormones cause ligaments to stretch, loosening the pelvic floor structure. This natural realignment of the body's core structure, which can trigger gait unsteadiness, allows the pelvic bones to open for the baby's birth.

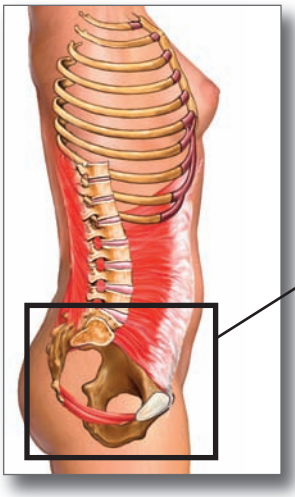

Figure 9
Muscles of the Outer Core

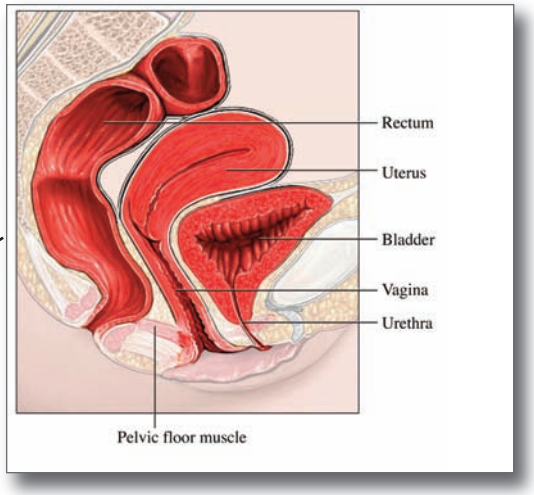

Figure 10
Pelvic Floor Supports Vital Organs

Postpartum, hormones secreted during pregnancy, which are responsible for the loosening of ligaments and joints, persist in the body for 3 to 5 months. As a result, the pelvic floor remains loose and unstable. Because the pelvic floor acts as the support system for the lower intestine, colon, and bladder, these vital organs may be less supported for a few months immediately postpartum. This lack of organ support is the primary reason why women suffer incontinence when coughing, sneezing, or laughing after giving birth.

Garment Benefits

A support garment can offer greater stability to the pelvic floor, postpartum. The garment acts to retract the body inward thereby reducing strain on ligaments and joints that support the pelvic floor. Reducing stress and providing support to the pelvic floor results in improved balance and enhances the body's ability to return to its pre-pregnancy alignment and shape thereby returning vital organ support.

Breasts

The physiological changes most commonly addressed by support garments during pregnancy and nursing are changes that occur to the breasts, which include dramatic size fluctuations and lactation.

Breast Size Fluctuations

Hormone changes associated with pregnancy cause rapid and noticeable changes to a woman's breasts. Estrogen, progesterone, and increased blood flow to the breasts supports the expansion of glandular tissue and blood vessels, and the activation of lactation ducts to sustain eventual breastfeeding. These changes cause the breasts to enlarge up to 2 cup sizes, retain fluid, and feel painful and tender.

Lactation

Around the 8th week of pregnancy, the pituitary gland begins to secrete prolactin, one of the hormones responsible for milk production. Due to release of lactation hormones during pregnancy, some women will find their breasts begin to leak colostrum, a nutrient rich fluid intended for a newborn baby. Soon after the baby is born, a woman's body will transition from producing colostrum to producing breast milk. During the last half of pregnancy and postpartum, women may need to prepare for unexpected fluid expression from their breasts and possible pain associated with engorgement.

A complication associated with lactation and nursing is mastitis. Mastitis is an infection of the breast caused, in some cases, by not fully draining the breast at each feeding or by wearing a tight fitting bra, which may restrict milk flow. This condition causes flu-like symptoms and requires treatment by a doctor.

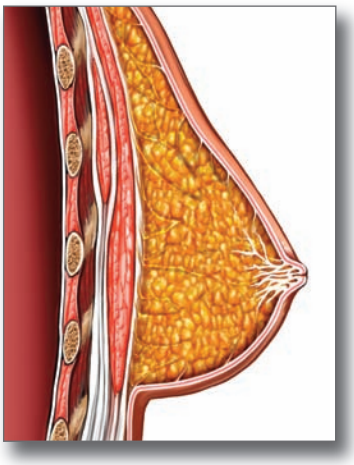

Figure 11
Breast, Pre-Pregnancy

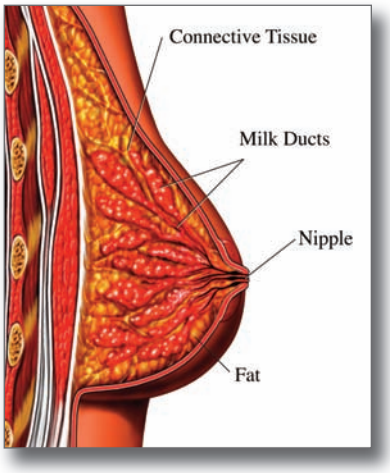

Figure 12
Breast, 40 Weeks Pregnant

Garment Benefits

A supportive bra with a wide under bust band and shoulder straps can minimize discomfort and back pain associated with larger, heavier breasts. Wireless cup support encourages proper circulation and promotes optimal milk flow. Proper circulation reduces the chances of clogged milk ducts that can lead to mastitis. Soft, seamless, breathable cotton cups alleviate itching associated with tender, swollen skin. Adjustable closures and self-adjusting cups ensure proper fit during breast size fluctuations associated with engorgement, and accommodate nursing pads to absorb unexpected fluid expression.

CONCLUSION

The changing physiology in the pregnant and postpartum body does present, in some cases, significant challenges to new mothers. Musculoskeletal and hormonal changes affect nearly every body system. Postpartum care is typically limited to a single follow up doctor visit. Clearly women need additional support for their bodies during these momentous transitions. A maternity or postpartum support garment can provide stability and greatly benefit a woman's physical and emotional well being during her transition into motherhood.

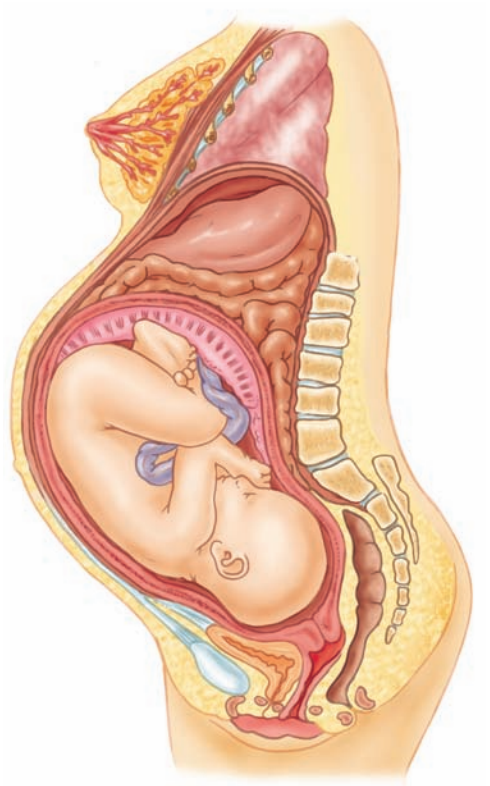

Figure 13
40 Weeks Pregnant, Full Term

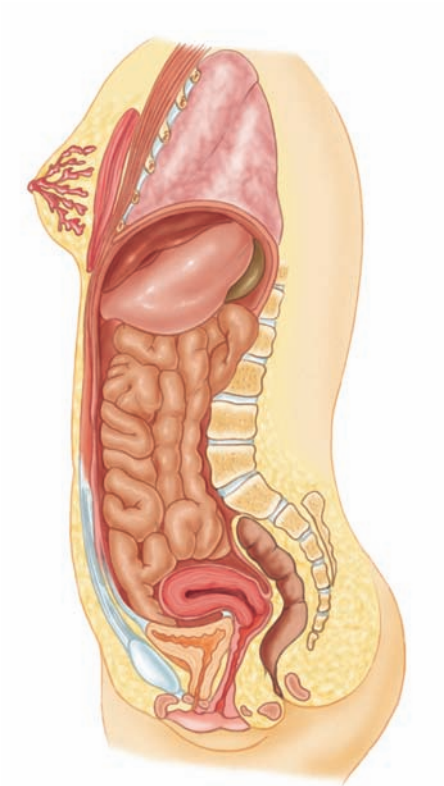

Figure 14
Postpartum, 6 Weeks

DESIGN VERONIQUE®

999 Marina Way South
Richmond, CA 94804
877.970.7996
510.970.7990
www.DesignVeronique.com
info@designveronique.com

V-2MWP709