Pregnancy should be a time of joy for the expectant mother. However, it’s also a virtually unparalleled period of rapid change in one’s morphology. The stresses placed on a human’s anatomy and physiology result in compensatory altered biomechanics and gait to perform even the most basic activities of daily living. These changes to an individual often result in the onset of a myriad of musculoskeletal issues that can develop during pregnancy. This article details the current explanations of these changes as well as the potential role of chiropractic therapy for the pregnant woman.

Low Back Pain and Physiologic Changes in the Pregnant Patient

Low back pain is a common complaint of the pregnant woman (Ritchie 2003). Research has demonstrated that between 50% and 80% of pregnant patients report low back pain (Skaggs et al. 2004), the majority when the mother is between 20 and 40 weeks pregnant (Kristiansson, Svärdudd and von Schoultz 1996).

An estimated 25% of women with low back pain during pregnancy have a severity of pain categorized as temporarily disabling (Borg-Stein, Dugan and Gruber 2005). A portion of this back pain can be attributed to the release of the hormones progesterone, estrogen and relaxin during the beginning stages of pregnancy (Borg-Stein, Dugan and Gruber 2005). These hormones primarily cause decreased muscle tone, changes in connective tissue integrity, retention of water and laxity of ligaments. Ligamentous laxity (looseness of the ligaments) in the pelvis can cause hypermobility of the pubic symphysis or the sacroiliac joints, thus affecting lumbar spine stability (Bogduk 1997). This laxity, along with changes in posture, may be the main components of low back pain in the pregnant population. Postural changes in the pregnant patient include: increased lumbar lordosis (leading to shortened lumbar musculature), increased sacral base angle, increased extremity pronation, possible transient reversal of the cervical lordosis, a shift of the plumb line posteriorly and a change in the sacrococcygeal angle (Benizzi DiMarco 2003). These changes in posture cause an increased load on the posterior aspects of the vertebral column including the zygapophyseal joints; intervertebral discs; supraspinous, intraspinous and intertransverse ligaments along with the ligamentum flavum and muscles including the deep spinal muscles; the erectors; the psoas and the muscles of the pelvis.

(Editor’s Note: For a better understanding of the psoas in relation to pregnancy, see “Birth- ing Fear: The Iliopsoas Muscle,” Midwifery Today, Issue 74.) In addition, anterior structures are not spared; stretching of the anterior longitudinal ligament also occurs, yielding spinal instability (Ibid).

Although lumbar disc herniations are uncommon in pregnant women, they do appear in approximately one of 10,000 cases of lumbosacral pain during pregnancy (LaBan et al. 1995). Weight gain, coupled with the previously mentioned hormonal and postural changes, alters biomechanics, which may contribute to disc herniations. Weight gain further increases loads on the joints of the lumbar spine. A weight gain of 20%, which is adequate, increases the load on the zygapophysial joints by as much as 100% (Ritchie 2003). The morphology and biomechanical strain on a pregnant woman are not unlike that of the man with a pendulous protuberant abdomen or “beer belly.” Differences between the two would be, most notably, the slow onset of weight in males and the lack of hormonally-induced ligamentous laxity. An empirical comparison of these populations in terms of lordosis, stability and response to intervention needs further study.

Another contribution to low back pain in pregnant women is anterior pelvic rotation and subsequent muscle hypertonicity, because pelvic rotation leads to increased lumbar lordosis (Borg-Stein, Dugan and Gruber 2005). Asymmetrically taut hamstring muscles may also affect pelvic rotation. If one side is more hypertonic than the other it will pull the pelvis toward it (Anonymous 2003).

Beyond Low Back Pain—the Role of the Chiropractor in the Evaluation and Management of the Pregnant Patient

Besides low back pain, other conditions that occur during pregnancy are within a chiropractic scope of practice for management or evaluation. These include peripheral nerve entrapments, headaches, transient osteoporosis or osteonecrosis and pubic pain. Common nerve entrapments at the carpal tunnel (median nerve) and the inguinal region (lateral femoral cutaneous nerve) lead to carpal tunnel symptoms or meralgia paresthetica (numbness in the outer thigh) respectively (Borg-Stein, Dugan and Gruber 2005). Nerve entrapments during pregnancy can be attributed to hormonal changes causing possible edema around a nerve, compression or traction to the nerve itself. Edema around the extensor pollicis brevis and abductor pollicis longus can cause DeQuervain’s syndrome (stenosing tenosynovitis) (Ibid).

The pregnant patient also may present with headache. Melhado, Macial and Guerreiro (2007) found that the majority of women with headaches during pregnancy presented with migraine headaches, which the women had prior to conception. Most disappeared by the second or third trimester (Melhado, Macial and Guerreiro 2007).

Although rare, transient osteoporosis of the femuracetabular joint can develop during pregnancy. This condition presents with weight-bearing hip pain, usually in the third trimester (Borg-Stein, Dugan and Gruber 2005). The etiology for this condition is unknown (Ritchie 2003). A possibility of osteonecrosis of the femoral head also exists. Causes for the condition are unknown, but some theorize that the higher cortisol levels combined with increased stress of the joint from weight gain may be responsible (Cheng, Burssens and Muller 1982). Another hypothesis is that the higher levels of estrogen and progesterone along with increased intraosseous pressure may contribute to the develop-
Depression, Pain and Pregnancy

The associations between pain and depression have been studied extensively. Pain is found to be strongly associated with anxiety as well as with depressive disorders (Von Korff and Simon 1996). One study found a relationship between the severity of the pain, the duration/frequency of the pain and the gross number of pains (Fishbain et al. 1997). The extent to which pain interferes with daily activity is correlated with an increase in the likelihood and severity of depression (Von Korff and Simon 1996). As discussed previously, pregnant women may spend nine months or longer with several different pain presentations, ranging from morning sickness to postoperative pain following cesarean delivery. Such pains are likely to interfere with daily activities (25%), thus pregnant women may have a higher likelihood than non pregnant women of developing depression. Depression among pregnant women ranges from 10–25%. Not all cases are due to pain, but with any case of depression, pain may play a role (Wisner et al. 2000).

Why is this important? Depression in a gravid woman can lead to effects on the developing fetus and also may affect the woman’s labor. Chung et al. (2001) showed that women with depression late in the pregnancy were more likely to receive epidural anesthesia and have operative deliveries (cesarean section and instrument-assisted vaginal delivery). This presents an obvious problem for women who want a natural birth, and it increases the risk for both mother and baby of other complications from pain-relieving drugs and instruments.

Pregnant women who are clinically depressed in the early parts of pregnancy also have an increased risk of developing pre-eclampsia (Kurki et al. 2000). In addition, the risk of bleeding during gestation, prematurity (<37 weeks), low Apgar scores, neonatal unit admissions, neonatal growth retardation, elevated fetal heart rate and low birth weight (<2500 g) also are associated with maternal depression (Preti et al. 2000; Steer et al. 1992; Allister et al. 2001; Chung et al. 2001; Zax, Sameroff and Babigian 1997). According to the National Center for Health Statistics (NCHS), nearly half of all infant deaths are related to low birth weight (National Vital Statistics Report 2004).

Women with depression also are less likely to take care of themselves and are more likely to engage in self-destructive behavior—including using cigarettes, drugs and alcohol, to show poor weight gain and to be less likely to seek prenatal care or use prenatal vitamins (Allister et al. 2001; Zuckerman et al. 1989; Bonari et al. 2004). Clearly, mother and baby may experience many complications when depression is involved. If chiropractic therapy can help decrease pain, that reduction in pain may reduce or decrease associated depression.

Effective Treatment Based on Peer-Reviewed Research

Although chiropractic care cannot alter the physiological endocrine changes related to pregnancy, it may make those nine months more comfortable by helping to relieve some of the patient’s pain. Chiropractors need to change the way in which they adjust pregnant patients, to accommodate patient comfort. In a case series study by Lisi (2006), chiropractic care including advice on body mechanics, exercise instruction, myofascial release, joint mobilization and manipulation was determined to help alleviate low back pain in 94.1% of the cases examined. The average decrease in pain, as indicated by a numerical rating scale (NRS) changed from 5.9 to 1.5, which exceeds a minimally clinically important difference. Patients noted this improvement after only an average of 1.8 visits to their chiropractor. No reports indicated adverse side effects from the treatments (Lisi 2006). This suggests that not only is chiropractic care effective, but it is also safe.

Contraindications to Chiropractic Intervention

According to Benizzi DiMarco (2003) there are contraindications to adjusting a pregnant woman (Table 1). If any of these conditions are noticed by or reported to a chiropractor, rapid referral to an obstetrician/gynecologist would be clinically warranted (Benizzi DiMarco 2003). In addition, common physical modalities (ultrasound, electrical stimulation, diathermy, etc.) are contraindicated over the abdomen, low back and pelvic girdle in the pregnant patient (Borg-Stein, Dugan and Gruber 2005). Aside from cryotherapy, which can be used on a patient with acute low back pain, chiropractors should focus on joint manipulation, soft tissue mobilization and prescriptive exercise (Anonymous 2003).

Appropriate Treatment for the Pregnant Patient

When applying joint manipulation to a pregnant patient, a chiropractor may alter the delivery of treatment to maximize patient comfort. Due to the ligamentous laxity brought about during pregnancy, low velocity, low amplitude mobilization/manipulation such as flexion/distraction, may be substituted for high velocity low amplitude delivery. For patient comfort, the chiropractor can use pregnancy pillows or a table where the abdominal area lowers, while the patient is prone. Other alterations in the delivery of care for comfort may incorporate instrument-assisted delivery (Activator, Graston Technique),
in my best interest. Instead of complaining or lecturing, she worked with the situation. Throughout the entire experience, she was upbeat and reassuring.

In the two weeks that followed, Polly and Eric stayed with us—cooking, cleaning, caring and advising—as Mark and I learned how to become parents. Polly wore many hats during this time: doula, nurse, babysitter, lactation consultant, Grandma. A thousand times I asked her, “Is this normal? Is this supposed to happen?” As long as she said yes, which she always did, I knew that everything was fine.

From the moment she arrived, our daughter has opened new horizons for us all, and on that February evening she confirmed things that I could only hope were true. That having a baby isn’t a physical impossibility, after all. That drugs and interventions aren’t always necessary, despite what a doctor recommends, and that childbirth doesn’t always have to be managed or expedited. Perhaps most important of all, I got to witness firsthand the power that is Mother Nature. I, like Polly, had trusted in birth.

Paulina (Polly) Gandy Perez received her nursing degree from Texas Woman’s University. She is president of CFE, Inc., of Johnson, Vermont. She consults with hospitals, universities and corporations on health-care-related issues. She also has authored numerous articles and books. Polly has four grandchildren.

Jamie D. Perez is a full-time mother and freelance writer in Los Angeles, California.

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special tables (knee-chest), or treatment of the patient in a seated position or decubitus (reclining) position, instead of prone.

In regard to flexion-distraction, the chiropractor can position the patient in the lateral decubitus posture and use the lateral flexion component of the table to distract the spine. If a course of care doesn’t improve pain, the patient may be referred to her primary care physician or obstetrician/gynecologist. As with any patient-clinician relationship, open discussion and good communication with the other members of the health care team are essential (Anonymous 2003).

Another technique commonly used by chiropractors is the Webster Technique. The Webster Technique is based on the theoretical principle that joint manipulation and soft tissue mobilization may alleviate musculoskeletal intrauterine constraints on fetal positioning if a breech presentation is suspected (Pistolese 2002). While this technique has not been scrutinized or supported by randomized clinical control trials, some women try this and other forms of complementary and alternative medicine techniques in an attempt to avoid a cesarean (Founds 2005). According to preliminary results of a practice-based study done by the International Chiropractic Pediatric Association (ICPA), the Webster Technique was found to be 69% effective, although further research is needed in this area (Alcantara and Ohm 2008).

A Final Note

In summary, the pregnant patient may suffer from a variety of conditions that are manageable through chiropractic intervention. Today’s practicing chiropractor must have a thorough awareness of the presentation, common diagnoses and appropriate delivery of treatment (which may require alterations of traditional techniques) to deliver optimal care to their pregnant patients.

To better comprehend the impact of joint manipulation and chiropractic care on pregnancy, more research is needed regarding appropriate treatment scheduling, mechanisms that describe intervention and quantitative outcome measures. This research is needed to further add to the chiropractors’, other health practitioners’ and patients’ understanding of the breadth and limitations of chiropractic care for the pregnant patient.

The doctor of chiropractic is responsible for remaining proactive in the quest for ongoing research and continuing education on this topic. Through education and assertiveness, the chiropractic profession can maximize its ability to deliver the highest quality of health care possible, while empowering the patient to make healthy lifestyle choices to provide a safe environment for her unborn child.

Lindsey Zerdecki, DC, BS, is a chiropractor in Williamsport, Pennsylvania. Dr. Zerdecki is a member of the International Chiropractic Pediatric Association (ICPA) and is currently working on her Chiropractic Pediatric Certification.

Steven R. Passmore, DC, MS, is a kinesiology PhD candidate at McMaster University and Veterans Affairs WNY Healthcare System chiropractor.

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Sahexaenoic acid (DHA) content. Studies show that this not only prevents postpartum depression and premature rupture of membranes (PROM) by strengthening amniotic membranes, but also enhances fetal brain development. If the woman has no history of miscarriage, one cup of Rubus idaeus tea per day is introduced at 20 weeks.

The third trimester involves preparing for labor and birth, as well as preventing issues that may arise from an overloaded metabolic and hepatobiliary system. Clients who have been through a previous detoxification program find this stage of pregnancy far less demanding. Mother's Cordial, a botanical formulation dating back from the 1920s in the American naturopathic tradition, is taken at 36 weeks. The formula is adjusted every two weeks to support the normal softening of the cervix. NDs will often perform a weekly pre-birth acupuncture protocol, beginning at 36 weeks. These protocols result in fewer post-dates, fewer SROMs and fewer transfers of care. The emotional and spiritual health of clients is taken into account, especially because they become emotionally vulnerable and spiritually receptive towards the end of gestation. NDs are trained in lifestyle counseling and classical homeopathy. These modalities give clients tools to improve their health and outlook more effectively by providing insight into areas where different attitudes can help and psychological relief as a result of a successful homeopathic prescription.

Naturopathic Support during Labor and Birth

Some naturopathic physicians attend births—either as part of the birth team or as a perinatal ND. Naturopathic physicians honor the historical and present role of the midwife as well as the great benefits of a drug-free labor and gentle birth for both women and their babies. Throughout a woman's labor, the ND's role is to observe closely and to work with the woman's body as she labors in her own way, with her own wisdom and strength. By understanding that both mind and body work together in an unmedicated labor to create an important state where the woman has a unique and deep focus within herself to birth her baby, naturopathic physicians and midwives are able to support women as they do the hard work of labor. NDs are also able to observe subtle changes in the woman's state and provide positive support, remove obstacles to progress and employ customized treatments, such as acupuncture for pain relief or homeopathy and botanicals to address fears, discomforts and pain. In this way NDs are able to help women overcome and avoid many of the issues commonly seen in obstetrical care today that result in stalled labor, failure to progress or very long second stage labors.

Naturopathic Support at Birth and Immediate Postpartum

Positive birth experiences that arise from optimal preconception health, prenatal health and careful and informed prenatal decision-making regarding care providers, birth team and place of birth, provide for a positive immediate postpartum period where mother and infant are able to have their needs met completely. Mother and infant are able to bond appropriately; breastfeeding can be initiated immediately; skin-to-skin contact is maintained for a long period and both mother and infant feel aware and awake to meet each other and share in the ecstatic mind-body-spirit experiences of the first gaze and the first loving touch. Many women who have experienced a midwifery-led birth, in which they were unmedicated, will describe the experience as a rite of passage and an important step in their transformation to the demands of motherhood.

They feel confident as mothers, able to make decisions for their infants, able to negotiate the normal postpartum challenges of little sleep, recovery from labor and birth, hormonal changes and learning to breastfeed and care for their infants. It is a shame this experience is taken from so many women.

Naturopathic physicians are able to support and protect this immediate postpartum period by assisting with perineal healing, providing support for breastfeeding initiation and challenges, and using homeopathy, nutrition and botanical medicine to assist with maternal recovery. NDs have many tools at hand to help the postpartum woman and her infant achieve a smooth transition from womb to birth and beyond.

Conclusion

NDs are bilingual medical practitioners who are fluent in both Western and complementary medicine. NDs are grateful that the midwifery model is gaining widespread acceptance. In some urban settings, due to undersupply and over-demand, thousands of women are turned away from midwifery services. Six out of ten women in Ontario are unable to obtain midwifery services. Together naturopathic physicians and midwives can ensure optimum health for families.

Lisa Doran, BSc, ND, is a licensed naturopathic doctor in private practice in Toronto, Ontario, with a special interest in women's and children's health. Lisa is the founder of the Association of Perinatal Naturopathic Doctors, past teacher of obstetrics at the Canadian College of Naturopathic Medicine, and attends births as a doula and naturopathic doctor.

Nora Jane Pope, BA, ND, practices naturopathic medicine in Toronto. She uses clinical nutrition, herbal medicine (Western, Chinese and Ayurvedic), acupuncture, classical homeopathy and counseling. She has a special interest in drug-herb interactions, pediatrics, neurology, fertility, pregnancy, homebirth and women's health.

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and I went to the bathroom. While I was in there, the phone rang again and Lorenzo said on the machine, “The baby’s here.”

Seven-and-a-half pound Christopher Leonardo was born at 11:01 pm. When Aide said that he was coming, Lorenzo tried to call and had to drop the phone to catch his son.

Lorenzo was calm on my arrival nine minutes later, although he hadn’t even witnessed the births of his other two sons. He’d covered the baby with the blankets I had out and suctioned some mucus with the bulb syringe.

Only a little over one and a half hours had elapsed from a tight 4 cm to birth.

Two more births enhanced by the grace of homeopathy.

Diane is the mother of four children and grandmother of two. She has had an independent midwifery practice for over 20 years. Diane has two books of birth stories published and is at work on the third. Homeopathy is one of her passions. www.inspiringbirthstories.com She welcomes comments.