Osteopathic Manipulative Treatment in Pregnant Women

Journal of the American Osteopathic Association
June 2012; Vol. 112; No. 6; pp. 343-346

John M. Lavelle, DO, Chief Resident, Department of Physical Medicine and Rehabilitation, Boston University Medical Center

1) The philosophy of osteopathy is that body structure and function are interrelated. “Our body systems depend upon one another to function, and that maintenance of the body in its proper alignment improves the body’s function and its ability to maintain health.”

2) “During pregnancy, the maternal body undergoes various structural changes to accommodate the growing fetus. As pregnancy progresses, these changes have a profound effect on the daily functioning of the pregnant patient.” “The release of such hormones as relaxin and progesterone changes the body’s physiology, which can exaggerate anatomic stresses in the maternal body.”

3) As the pelvis begins to tilt anteriorly, the lumbar lordosis increases, placing increased stretch on the back extensor muscles and on the sacroiliac joints, leading to increased low back and pelvic pain.

4) As the fetus descends into the pelvis, there is increased pressure on the lumbosacral plexus, which can induce sciatic pain and paresthesia in the leg.

5) “The addition of [spinal manipulation] to the standard care of pregnant women has been hypothesized to enhance homeostasis and improve quality of life as the body adapts to these changes.”

6) “[Spinal manipulation] can ease pain in pregnant women by eliminating somatic dysfunction and maintaining proper structure.”

7) “The application of [spinal manipulation] may improve and optimize physiologic function, which can alleviate somatic dysfunctions and improve quality of life for pregnant women.”

8) Sensory afferent neurons from the viscera convey impulses through the spinal cord to the efferent motor nerves to the paraspinal muscles. [Consequently, visceral irritations, as can occur in the uterus during pregnancy, can cause contractions of the reference zone muscles. Likewise, sensory afferent neurons from the paraspinal muscles can influence the uterine cervix visceral muscles via similar spinal cord reflexes.] Through these reflexes may shortening labor time.
9) “During pregnancy, [spinal manipulation] to the lower lumbar vertebrae can affect the pelvic viscera.”

10) In a study involving 223 pregnant women “showed a decrease in the duration of labor in pregnant women who received [spinal manipulation] compared with pregnant women who did not receive [spinal manipulation].”

<table>
<thead>
<tr>
<th></th>
<th>First Pregnancy</th>
<th>Second+ Pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES spinal manipulation</td>
<td>9 hrs. 54 mins.</td>
<td>6 hrs. 19 mins.</td>
</tr>
<tr>
<td>NO spinal manipulation</td>
<td>21 hrs. 6 mins.</td>
<td>11 hrs. 41 mins.</td>
</tr>
</tbody>
</table>

[Whiting LM. Can the length of labor be shortened by osteopathic treatment? J Am Osteopath Assoc. 1911;11:917-921.]

11) Another study involving 100 pregnant women also showed a decrease in labor time in women who received [spinal manipulation] to the lumbar vertebrae compared with those who did not:

<table>
<thead>
<tr>
<th></th>
<th>First Pregnancy</th>
<th>Second+ Pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES spinal manipulation</td>
<td>9 hrs. 20 mins.</td>
<td>5 hrs.</td>
</tr>
<tr>
<td>NO spinal manipulation</td>
<td>15 hrs.</td>
<td>9 hrs.</td>
</tr>
</tbody>
</table>


“These studies suggest that by manipulating the lumbar spine, it is possible through viscerosomatic feedback to affect the pelvic viscera and possibly induce uterine contractions.” There is a viscerosomatic connection between the lumbar spine and the uterus.

12) “The effects of [spinal manipulation] are not limited to musculoskeletal complaints but can also induce change within the viscera through the viscerosomatic connection.”

13) A retrospective study showed that the use of [spinal manipulation] in pregnant patients “significantly decreased the probability of meconium-stained amniotic fluid, use of forceps during delivery, and likelihood of preterm delivery.”

14) The thoracic sympathetic nerves (SNS) innervate the chest viscera and upper extremities. “[Spinal manipulation] to the thoracic spine can affect the cardiovascular system of the upper extremities and the heart by stimulating or inhibiting the SNS.” Spinal manipulation to the thoracic vertebrae can help reduce the activation of the SNS, which can help alleviate systemic vasoconstriction.

15) Spinal manipulation to the thoracic spine can help regulate blood pressure.

16) “[Spinal manipulation] of the cervical spine, especially from the atlas to C3, can regulate the symptoms of overstimulation of the vagus on the heart.”
17) “Through the viscerosomatic connection, the hemodynamic changes of the maternal body can be controlled, the duration of labor reduced, and the complications of labor avoided.”

18) When [spinal manipulation] “is applied from the beginning of pregnancy through delivery, these hemodynamic changes can be controlled so that they may continue to provide benefits to the fetus but also be cultivated to avoid harm to the pregnant patient.”

19) Physical changes in a pregnant woman’s lumbar lordosis and thoracic kyphosis cause venous and lymphatic congestion, which can cause nausea, headache, and light-headedness. “[Spinal manipulation] to the low back and sacroiliac joint can help alleviate some of the discomfort that occurs because of these maternal physiologic changes.”

20) There is a “statistically significant reduction of degree of back pain during labor in women who received spinal manipulative therapy during pregnancy.”

21) “The data reviewed support the theory that [spinal] manipulation can have a beneficial effect on back pain in pregnancy.”

22) Many physical discomforts of pregnancy can be alleviated by using spinal manipulation “at each patient encounter through the duration of pregnancy.”

23) Increased progesterone levels during pregnancy cause increases in fluid retention, leading to swelling of the extremities and carpal tunnel syndrome. Spinal manipulation to the “transverse carpal ligament and thoracic spine can relieve somatic dysfunction and reduce upper extremity complaints such as carpel tunnel syndrome by decreasing upper extremity fluid retention.”

24) About 75% of women report back pain at some time during pregnancy.

25) “Manipulative treatment can alleviate musculoskeletal complaints that arise during pregnancy.”

26) A 1982 study of 500 pregnant women showed that manipulation to the lumbar spine not only decreased pain during labor, but also “reduced the need for major narcotic pain medication.” [Guthrie RA, Martin RH. Effect of pressure applied to the upper thoracic (placebo) versus lumbar areas (osteopathic manipulative treatment) for inhibition of lumbar myalgia during labor. J Am Osteopath Assoc. 1982;82(4):247-251.]

27) A 1991 study showed that 91% of pregnant patients with sacroiliac dysfunction had alleviation of their low back pain after receiving manipulation. [Daly JM, Frame PS, Rapoza PA. Sacroiliac subluxation: a common, treatable cause of low-back pain in pregnancy. Fam Pract Res J. 1991;11(2):149-159.]
28) “Treatment of somatic dysfunction in pregnant women can enhance homeostasis and improve comfort and quality of life as the maternal body adapts to the physiologic and structural changes of pregnancy.”

29) “[Spinal manipulation] in pregnant women alleviates somatic dysfunctions and improves their quality of life.” “Through the application of [spinal manipulation], osteopathic physicians can dramatically improve the lives of women during pregnancy.”

30) In summary, Dr. Lavell cites studies showing these benefits of spinal manipulative treatment in pregnant women:
   • Decreased probability of having meconium-stained amniotic fluid
   • Decreased use of forceps during delivery
   • Decreased likelihood of having a preterm delivery
   • Decreased duration of labor
   • Decreased blood pressure
   • Decreased fluid overload
   • Decreased sacroiliac dysfunction
   • Decreased low back pain
   • Decreased carpal tunnel symptoms

COMMENTS FROM DAN MURPHY

The author of this study is Dr. John M. Lavelle, an osteopath. In his discussion of the physiological benefits of spinal manipulation for the pregnant patient, he does not limit himself solely to the musculoskeletal (pain) benefits, but he also elaborates on visceral and neuro-hemodynamic benefits as well. His explanation of the visceral and neuro-hemodynamic benefits of spinal manipulation include somato-visceral and viscero-somatic reflexes as mediated through the sympathetic and parasympathetic (vagus) nervous systems. It is clear that Dr. Lavelle believes that spinal manipulation influences systemic physiology and improves the quality of life. I agree and I think this is a good message for the chiropractic profession.