

Pregnancy and Back Pain

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As a woman progresses through pregnancy, her body goes through many biochemical, structural and functional changes. These changes include increased body weight, increased abdominal size, increased curve in the low back, increased breast size, increased ligament flexibility and changes in the dimensions of the pelvis. As the fetus develops, adaptive postural compensation occurs to allow the woman to maintain her balance while standing or walking. This results in an increase of the forward curve (lordosis) in the low back. The combination of the increase curve and increased spinal joint flexibility can result in jamming of the spinal (facet) joints resulting in low back inflammation and pain. Back pain is very common in pregnancy and its likelihood increases with a prior history of back pain before becoming pregnant or back pain experienced during a prior pregnancy.

Stretched abdominal muscles result in less stability of the low back (facet) joints which can contribute to the development of inflammation. The supportive ligaments of the foot and ankle are affected during pregnancy. Weight gain and ligamentous laxity leads to dropping of the arch, widening of the foot and increased flexibility of the ankle. These are all conditions which favor the development of pronation which may result in foot pain. Severe pronation can increase mechanical stress on the low back.

During pregnancy the hormonal relationship in the body undergoes many changes. The body also produces a greater quantity of a hormone called relaxin. During pregnancy the concentration of relaxin raises more than tenfold. Relaxin stimulates ligaments to soften and become more flexible. It affects the entire body and has the ability to induce increased joint movement where stability is needed. Relaxin allows the pelvis to expand during pregnancy and the birthing process. Relaxin contributes to increased flexibility and motion in other joints of the body including the spine. This can lead to inflammation and pain.

There are other contributing factors which occur during pregnancy which include changes in the body's center of gravity and overstretching of the abdominal muscles which renders them less efficient thus mechanically destabilizing the spine. Relaxing uterine ligaments also contribute to forward shifts of the contents of the pelvis. All of these factors lead to changes in posture. These changes tend to take place a little earlier in subsequent pregnancies. One of the biggest predictors of back pain during pregnancy is the presence of back pain during a prior pregnancy.

As the baby gains in size, the mother's abdomen projects further forward and down. To compensate for this change in posture, the mother will typically lean her upper body backward, changing the body's center of gravity. This puts a tremendous amount of pressure on the low back, mid to low back transitional area and onto the pelvis. This weight-bearing shift also changes the biomechanics of gait and is one of the causes of the waddle noted during pregnancy.

Pregnant women commonly develop pain involving the sacroiliac joint, a joint which lies between the large pelvic bones and the sacrum (lower end of the spine). This joint is typically a very strong stable joint. The presence of the circulating hormone relaxin

increases joint flexibility and the likelihood that strain and inflammation may occur in combination with weight gains of pregnancy.