

## **Hip, Trunk, and Pelvic Floor Muscle Function During and After Pregnancy: Implications for Low Back and Pelvic Girdle Pain and Urinary Incontinence**

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Half of pregnant females report low back or pelvic girdle pain (LB/PGP) and half report urinary incontinence (UI). Both conditions continue to have increased prevalence post-partum. The frequent occurrence of both conditions during pregnancy may be the result of an inability to accommodate increased joint forces and increased weight on the pelvic floor. Adequate muscle strength and function are critical to the ability to adapt to increased demands. It is likely that critical impairments contributing to both LB/PGP and UI are related to trunk, hip, and pelvic floor muscle dysfunction. To date, no study has comprehensively evaluated trunk, hip, and pelvic floor muscle function in pregnant and post-partum females nor has the relationship between muscle function and LB/PGP or UI been defined in this population. Therefore, the purposes of this study are 1) to evaluate adaptations in trunk, hip, and pelvic floor muscle function during and after pregnancy and 2) to compare trunk, hip, and pelvic floor muscle function between pregnant females with and without LB/PGP and UI. Thirty-two pregnant females and 32 nulliparous matched females will be recruited. Pregnant females be tested on three occasions (second trimester, third trimester, and 4-6 months post-partum) and control females will be tested once. During each session, participants will complete health questionnaires, a clinical examination, motion and electromyographic analysis during single-leg squatting, and ultrasound assessment of hip muscle thickness and pelvic floor contractions. If modifiable differences in muscle activation/morphology or joint function that relate to LB/PGP or to UI can be identified, this knowledge will inform orthopedic evaluation and treatment of pregnant and post-partum females with LB/PGP and UI. Additionally, results from this study may facilitate the development of improved strategies to prevent LB/PGP and UI in pregnant and post-partum females.