

## Exercise during Pregnancy

This routine is designed for both clinicians and patients intending to build or maintain strength and promote wellness for both mother and baby throughout pregnancy. Specific intervention should be based on the needs of the individual and should consider exam findings and clinical decision making. If you have questions, contact the referring physician/obstetrician.

**Absolute contraindications** for exercise include preeclampsia/eclampsia, preterm premature rupture of the membranes, severe anemia, antepartum hemorrhage, placenta previa, vasa previa, preterm labor, incompetent cervix/cerclage, significant maternal cardiac disease, restrictive lung disease, growth-restricted fetus, chronic placental abruption, and multiple gestation.

Trimester	First	Second	Third
<b>Changes in the body</b>	<p><i>Relaxin levels peak at week 12</i></p> <p><i>Pubic symphysis widens week 10-12 <math>\leq 10</math> mm*</i></p> <p><i>Ligamentous laxity in sacroiliac joints, pubic symphysis, peripheral joints*</i></p>	<p><i>Relaxin levels decrease until week 17 and stabilize*</i></p> <p><i>Center of gravity shift*</i></p>	<p><i>Edema/fluid increase week 32+</i></p> <p><i>Weight gain</i></p> <p><i>Transient osteoporosis</i></p> <p><i>*continue through 2<sup>nd</sup>/3<sup>rd</sup> trimesters</i></p>
<b>Exercise positions</b>	<p>Hooklying</p> <p>Sidelying</p>	<p>Sidelying</p> <p>Quadruped</p> <p>Sitting</p> <p>Standing</p>	<p>Sidelying</p> <p>Quadruped</p> <p>Sitting</p> <p>Standing</p>
<b>Exercises</b>	<p>Transversus abdominus (TVA) activation</p> <p>Pelvic floor activation</p> <p>Deadbug</p> <p>Bridge</p> <p>Bridge on physioball</p> <p>Sidelying hip abduction*</p> <p>Side plank/modified side plank*</p> <p>Side plank with clam shell*</p> <p>Exercises in blue incorporate pelvic floor activation</p>	<p>Cat/cow</p> <p>Bird dog</p> <p>Quadruped plank</p> <p>Modified plank</p> <p>Seated alternating arm and leg on physioball</p> <p>Squat with band</p> <p>Wall squat with physioball and medicine ball</p> <p>Band walks</p> <p>*Continue with exercises from first trimester</p>	<p>Balance</p> <p>Single leg fire hydrant</p> <p>Step ups</p> <p>Continue with all exercises from second trimester and *starred first trimester</p>
<b>Exercise Videos</b>	<a href="#">First trimester exercises</a>	<a href="#">Second trimester exercises</a>	<a href="#">Third trimester exercises</a>
<b>Contact</b>	Please email <a href="mailto:MGHSportsPhysicalTherapy@partners.org">MGHSportsPhysicalTherapy@partners.org</a> with any questions specific to this guide		

## References

- Beetham KS, Giles C, Noetel M, Clifton V, Jones JC, Naughton G. The effects of vigorous intensity exercise in the third trimester of pregnancy: a systematic review and meta-analysis. *BMC Pregnancy Childbirth* 2019;19:281.
- Boissonnault, WG, Boissonnault, JS. Transient osteoporosis of the hip associated with pregnancy. *JOSPT*. 2001. 31 (7): 359-367
- Cherni Y, Desseauve D, Decatoire A, et al. Evaluation of ligament laxity during pregnancy. *Journal of Gynecology Obstetrics and Human Reproduction*. 2019. 48:351-357.
- DeMaio MD, M, Magann MD, EF. Exercise and pregnancy. *Journal of the American Academy of Orthopedic Surgeons*. 2009. 17 (8): 504-514
- Dumas, GA, Reid, JG. Laxity of knee cruciate ligaments during pregnancy. *JOSPT*. 1997. 26 (1): 2-6.
- El-shamy FF, Ribeiro AP, Gazia AA. Effectiveness of proprioceptive training on dynamic postural balance during pregnancy: a randomized controlled trial. *Physiotherapy Practice and Research*. 2019. 40:77-85
- Kim EY, Kim SY, Oh DW: Pelvic floor muscle exercises utilizing trunk stabilization for treating postpartum urinary incontinence: randomized controlled pilot trial of supervised versus unsupervised training. *Clin Rehabil* 2012;26:132-41
- Mota P, Pascoal, AG, Carita, AI, Bo, K. The immediate effects on inter-rectus distance of abdominal crunch and drawing-in exercises during pregnancy and the postpartum period. *JOSPT*. 2015. 45 (10): 781-788.
- Perales M, Artal R, Lucia A. Exercise during pregnancy. *JAMA*. 2017. 317(11): 1113-1114.
- Pivarnik JM, Szymanski LM, Conway MR. The elite athlete and strenuous exercise in pregnancy. *Clin Obstet Gynecol* 2016;59(3):613-9.
- Physical activity and exercise during pregnancy and the postpartum period: ACOG committee opinion, Number 804. [Miscellaneous Article] *Obstetrics&Gynecology*. 135(4):e178-e188. April 2020.
- Teymuri, Z, Hosseinifar, M, Sirousi, M. The effect of stabilization exercises on pain, disability, and pelvic floor muscle function in postpartum lumbopelvic pain: a randomized controlled trial. *American Journal of Physical Medicine & Rehabilitation*. 2018. 97 (12): 885-891.