Physical Activity Guidelines: Published in 2008 by the US DOH and Human Services for healthy pregnant and postpartum women.

- 150 minutes of moderate-intensity aerobic activity (i.e. Brisk walking) spread out over a week long period.
- Adjusted based on medical status.
- For healthy pregnant/postpartum women, vigorous-intensity aerobic activity (i.e. running or jogging) can be continued.

Where do these guidelines come from?

- Physical inactivity and excessive weight gain increase the risk for obesity and pregnancy complications such as gestational diabetes, cesarean and operative vaginal delivery, preeclampsia, and a longer postpartum recovery time.
- Physically, regular exercise can reduce back pain, pelvic girdle pain, ease constipation, decrease short-term risk of urinary incontinence, promote healthy weight gain, increase cardiovascular fitness, improve glucose control, and help with weight loss after delivery.
- Mentally, regular exercise can be useful in preventing postpartum depression, promoting better sleep, relieving stress, and improving mood.
- In otherwise healthy women, increased rates of miscarriage, IUGR, musculoskeletal injury, and prematurity were not seen in women who exercised according to the DOH guidelines.
- For women with complications, an individualized plan should be sought.
- A cohort study that assessed umbilical artery blood flow, fetal heart rate, and BPP score before and after 30 minutes of exercise was well tolerated by women and fetuses.
- Prolonged exercise beyond 45 minutes can lead to hypoglycemia.

What women should not participate in aerobic exercise during pregnancy?

- Hemodynamically significant heart disease
- Restrictive lung disease
- Incompetent cervix or cerclage
- Multiple gestation at risk for premature labor
- Persistent 2nd and 3rd trimester bleeding
- Placenta previa after 26 wks
- Premature labor in current pregnancy
- Ruptured membranes
- Preeclampsia/PIH
- Severe anemia

What factors must be considered (relative contraindications) when counseling women on exercise?

- Anemia
- Unevaluated maternal cardiac arrhythmia
- Chronic bronchitis
- Poorly controlled type 1 diabetes
- Extreme morbid obesity
What anatomical and physiologic changes occur during pregnancy that need to be taken into account before prescribing exercise?

- Weight gain itself causes increased forces across joints and the spine → low back pain during pregnancy.
- Hormone levels increase the laxity of joints making them more at risk for injury. Women should avoid jerky, bouncy, or high-impact motions.
- Weight-bearing exercises can increase these forces across joints and the spine, whereas exercises that strengthen abdominal and back muscles can decrease the risk of pain. Water exercise can also help with back pain.
- Blood volume, heart rate, stroke volume, and cardiac output increase while systemic vascular resistance decreases. Motionless postures such as certain yoga positions may result in decreased venous return and hypotension and should therefore, be avoided (standing in one position for long periods of time, lying on back for prolonged periods).
- The physiologic respiratory alkalosis due to increased minute ventilation may not be sufficient to compensate for the developing metabolic acidosis (lactic acid buildup) of strenuous exercise. As the pregnancy progresses and there is increased pressure of the uterus on the diaphragm, women’s ability to engage in strenuous exercise may be limited.
- Overall, the risk for injury is usually musculoskeletal and most often associated with lower extremity edema, joint laxity, and an increased risk of losing their balance.

What physical activities are considered safe for an uncomplicated pregnancy?

- Walking
- Swimming
- Stationary cycling
- Low-Impact aerobics
- Yoga (excluding positions that decrease VR or BP)
- Pilates
- Running, jogging, racquet sports, and strength training can be continued for those active prior to pregnancy (should not be initiated for exercise-naive women)

What physical activities should be avoided during pregnancy?

- Contact sports
- Activities with a high risk of falling (downhill skiing, surfing, off-road cycling, gymnastics, horseback riding)
- Scuba diving (fetal pulmonary circulation CANNOT filter bubble formation)
- Sky diving
- Activities performed above 6,000 feet (if you do not already live at a high altitude)
- Avoid exercises in temperatures exceeding 90 degrees Fahrenheit and pool temperatures above 95 degrees Fahrenheit.
- Weight-bearing exercises lifting more than 10 pounds repetitively

What tools can be used by providers to counsel pregnant women on healthy diet and exercise?

- Motivational Counseling
  - Ask
  - Advise
  - Assess
  - Assist
  - Arrange

- Individualized Exercise Program
  - Screen patients for medical issues that may affect decision to prescribe exercise
  - Evaluate patient to recommend specific exercise plan
  - Discuss with patients the level of exertion recommended → women should be able to carry on a conversation while exercising, should feel a raise in heart rate, and start sweating.
  - 150 minutes per week should be spread out such that women work out 30 minutes on 5 days of the week, or 20 minute workouts each day of the week.
  - A 5-10 minute warm up and stretching is recommended, ending with a 5-10 minute cool down.
  - Women who engage in high-intensity exercise prior to pregnancy can continue their program as long as there are no contraindications (running, swimming laps)
  - Recommend hydration, hydration, hydration
  - Recommend adequate caloric intake prior to exercising to those who perform high-intensity exercise and those who like to exercise more than 45 minutes
  - Increased body temps from hot tubs, saunas, and fever can increase the risk of neural tube defects in the first 4-6 weeks at a core body temperature of 102.2 degrees fahrenheit or higher. However, exercise does not increase the core body temperature into the range of concern. Women should however, be advised to avoid high heat/humidity days and wear loose clothing.
  - A belly support belt and sports bras may reduce discomfort with some exercises.

- Special Populations
  - Women on modified bed rest and physical activity such as those with preeclampsia and cervical insufficiency should still be encouraged to ambulate to decrease risk of VTE, bone demineralization, and deconditioning.
  - It is safe to prescribe a low-intensity, short duration exercise program to obese, pregnant women and women should be encouraged to gradually increase as able. Ultimately, this will decrease the amount of weight gain during pregnancy, decrease risk for GDM, preeclampsia, and increase the likelihood of a normal weight neonate. Women can start with 5-10 minutes per day and increase by 5 minutes each week OR start at 10-20 minutes three times per week and gradually increase duration and frequency.
  - Competitive athletes can continue to train throughout pregnancy and resume their program sooner than others during the postpartum period. The most sensitive periods appear to be the week after ovulation and heavy lifting during the first trimester should be discouraged. If these women lose or
fail to gain weight, they may be at increased risk for SGA. If SGA occurs, women should decrease or discontinue training.

- Women who are high risk for miscarriage and preterm birth should limit their level of exercise
- Women who are high risk for IUGR should limit level of exercise in the second and third trimesters.
- Women whose occupation entails heavy lifting should be encouraged to limit loads to decrease the risk of preterm birth.
- Specific guidelines are here:
  
  - In this guideline, the maximum permissible weight for a woman less than 20 weeks of gestation performing infrequent lifting is 36 pounds (16 kg) and the maximum permissible weight at ≥20 weeks is 26 pounds (12 kg). For repetitive lifting ≥1 hour/day, the maximum weights in the first and second half of pregnancy are 18 pounds (8 kg) and 13 pounds (6 kg), respectively, and for repetitive lifting <1 hour/day, the maximum weights are 30 pounds (14 kg) and 22 pounds (10 kg), respectively. Although not based on high-quality evidence, these guidelines are a reasonable reference for counseling pregnant women.

**When should women stop exercising?**

- Vaginal bleeding
- Feeling dizzy or faint
- Shortness of breath before starting exercise
- Chest pain
- Headache
- Muscle Weakness
- Calf pain and swelling
- Regular, painful contractions
- Leakage of fluid from vagina

**What are the guidelines for postpartum exercise?**

- Once women are considered safe to exercise, they can gradually resume their routine after delivery. However, rapid resumption of activities has not been found to result in adverse effects.
- In patients who are eager to resume physical activity after a c-section, the following should be established:
  - Symptom free with normal vital signs (*no pain, abnormal wound healing, mod-severe anemia)*
  - Ability to control muscle functions
  - Restored motor skills
- For the healthy pregnant woman who had an uncomplicated vaginal birth, they may be capable of resuming physical activity within days of delivery.
- Pelvic floor exercises such as kegels and pelvic tilts can be resumed immediately if possible. Encourage women to exercise with their baby, as this can improve bonding as well (*sit ups, bench press baby, use a stroller made for running/walking fast, buy a video designed for an exercise program with your baby, or take a class*).
- Exercise and healthy postpartum diet can decrease the risk of developing obesity, diabetes, hypertension, and postpartum depression.

**What are the recommendations for lactating women?**
- Regular exercise in lactating women improves cardiovascular fitness without affecting milk production, composition, and infant growth.
- To avoid engorgement, recommend nursing prior to exercising.
- Breastfeeding before exercising can also decrease the risk of lactic acid buildup in breast milk, which can avoid infant refusal of breastmilk.
- Hydration and adequate caloric intake is essential. Lactating women should consume 500 kcal more than their usual diet.

Future research?
- Effects of exercise on pregnancy-specific conditions and outcomes
- Optimal type, frequency, and intensity of exercise
- Effects of occupational physical activity on maternal-fetal health

REFERENCES:


Exercise After Pregnancy. ACOG FAQ131. Labor, Delivery, and Postpartum Care.


SAMPLE POSTPARTUM EXERCISE PRESCRIPTION

Week 1 to 2 after discharge:
- Start by walking 10 minutes a few times per day and work up in duration and frequency, as tolerated.

- Walk up and down stairs starting at a slow pace and work up in frequency, as tolerated.

- For vaginal deliveries, kegel exercises can be done several times per day, as tolerated. **Aim for 10-20 reps.** *(To locate these muscles, urinate and stop mid-stream, these are the muscles that should be used).*

- In general, after a c-section, lifting objects heavier than the newborn should not occur in the first two weeks.

**Week 3 and beyond:**

- Continue or start kegel exercises.

- **Pelvic Tilts** - Lie on a flat surface on your back, bend knees, put arms by sides, slowly push low back against the surface, and tighten abdominal wall. **Aim for 10-20 repetitions.**

- **Baby Dancing** - Can be done while baby is in a carrier or starting to stand up with assistance. Put on some music and keep that heart rate elevated. Make movements large and animated and maintain eye contact with your infant.

- **Curl-Ups** - Lie on your back and bend your knees while keeping your soles flat on the floor. Set your infant in a seating position on your pubic bone, facing you. While holding infant, lift your head, neck, and shoulder blades off the floor and curl up towards infant. Smile and maintain eye contact. **Try 15-20 reps, rest and play, and repeat one more set.**

- **Reverse Baby Curl** - Lie on your back and bring your knees toward your chest, while baby rests on your shins in the superman position. **Do 15-20 reps, rest and play, and repeat one more set.**

- **Baby Overhead Press** - Sit cross-legged, holding your baby in front of your chest with your elbows bent. Then, try to straighten your arms upward without locking your elbows. Pause, then lower your baby to the starting position. **Do 10 reps, rest and play, then repeat 2 more sets.**

- **Baby Bench Press** - Lie on your back and bend your knees while keeping your soles flat on the floor. Hold your infant in the superman position and bench press them. When lifting them up, contract your abdominal muscles, and bring your shoulder blades together when bringing them to your chest. **Do 10 reps, rest and play, then do 2 more sets.**

- **Baby Plies** - With baby in a carrier, stand with your feet farther than hip-width apart, turning your feet out slightly. Keeps abs drawn in and bend your knees, lowering your hips and pressing your weight into the heels. Slowly straighten your legs and squeeze your buttocks to return to standing. **Try doing plies for two minutes.**

- **Baby Walking Lunges** - With baby in a carrier, stand tall and look straight ahead. Take a large step forward with your right leg and bend both knees 90 degrees. Keep your front knee over your ankle as your back knee approaches the floor with heel lifted. Push off the back leg and step your feet together. Repeat with the opposite leg. **Try doing lunges for two minutes.**
- **Baby Leg Tilt's** - Lie on your side with your baby next to you laying on their back. Maintain eye contact with your baby and lift your right leg upwards as far as you are able to, hold for 5 seconds, then slowly bring leg back down. **Try 10 reps, rest and play, then repeat with your left leg.**

- **Baby Tummy Time** - While your baby is doing tummy time, lie next to them on your tummy. Pretend you are an airplane and lift your arms, legs, and chest off the ground and hold for 10 seconds. **Try to do 10 reps.**

**Week 6 and beyond:**

- Slowly and cautiously resume gym activities using low settings on the equipment and increase, as tolerated.

- Engage in at least 150 minutes of moderate-intensity physical activity per week (30 minutes each day).