



Wouldn't You Like to Know

by Barbara Bushman, Ph.D., FACSM

Pregnancy and Exercise

Q: I JUST FOUND OUT I'M PREGNANT, AND I WANT TO KNOW IF I SHOULD APPROACH MY EXERCISE ROUTINE DIFFERENTLY NOW. I'M NOT COMPETITIVE BUT ENJOY DOING VARIOUS AEROBIC ACTIVITIES, ALONG WITH SOME RESISTANCE TRAINING ON A REGULAR BASIS. CAN I STILL BE ACTIVE OR WILL I HURT MY BABY IF I CONTINUE TO EXERCISE?

A: Pregnancy is an exciting time but also is a period of significant anatomical and physiological changes. Exercise is an important consideration during pregnancy. Healthy pregnant women without contraindications to exercise can, and are encouraged to, exercise throughout pregnancy (4). The key is to listen to your body (and consult with your health care provider) as you individualize your exercise plan.

The American College of Sports Medicine (ACSM) endorses guidelines from the American College of Obstetricians and Gynecologists (ACOG), the Joint Committee of the Society of Obstetricians and Gynecologists of Canada, and the Canadian Society for Exercise Physiology (4). In general, accumulating 30 minutes or more of moderate exercise on most (if not all) days of the week is recommended (2). This recommendation is based on an absence of complications (2). A helpful tool that can be used to help assess one's readiness to exercise is the PARmed-X for Pregnancy (available at <http://www.csep.ca/cmfiles/publications/parq/parmed-xpreg.pdf>). You can use this checklist with your health care provider as a health screening tool before your participation in an exercise program.

SAFETY CONCERNS

Absolute contraindications to exercise during pregnancy include certain medical conditions (including hemodynamically significant heart disease and restrictive lung

disease) and pregnancy-specific conditions, including incompetent cervix/cerclage (procedure that temporarily stitches the cervix closed), multiple gestation (*e.g.*, twins, triplets) at risk for premature labor, persistent second or third trimester bleeding, placenta previa (placenta covers part or all of the cervix) after 26 weeks of gestation, premature labor during the current pregnancy, ruptured membranes, and preeclampsia/pregnancy-induced hypertension (2). If you have any of the absolute contraindications, you should not exercise until the condition(s) is (are) resolved.

Relative contraindications to exercise during pregnancy include severe anemia; unevaluated maternal heart rhythm disturbances; chronic bronchitis; various medical conditions, if uncontrolled (including type 1 diabetes mellitus, seizure disorders, hyperthyroidism, or hypertension); body weight concerns (extreme morbid obesity or extremely underweight); pattern of extremely sedentary lifestyle; intrauterine growth restriction in current pregnancy; heavy smoker; or orthopedic limitations (2). If you have any of the relative contraindications, you should discuss the situation(s) with your health care provider before being physically active because additional monitoring of you and/or your baby may be required.

EXERCISE GUIDELINES

The first guidelines for exercise during pregnancy were published by

ACOG in 1985 and were very conservative because of the limited evidence available at that time (1). For example, maternal heart rates were to be kept below $140 \text{ beats} \cdot \text{min}^{-1}$, and vigorous exercise was limited to less than 15 minutes at a time (1). In general, medical advice for exercising women was to reduce exertion levels and, for inactive women, to refrain from starting strenuous exercise programs (6). Unknown at the time were the effects on the fetus of changes in body temperature or increased oxygen/energy requirements caused by exercise. Without credible research studies, the guidelines erred on the side of caution (1).

Now, with additional research examining the influence of physical activity on both mother and fetus, the previous, rather restrictive, recommendations are replaced with a more encouraging perspective. Risks associated with moderate-intensity activity by healthy pregnant women are low, and such activity does not appear to increase the risk of low birth weight,





preterm delivery, or early pregnancy loss (11). Emerging evidence instead points to potential risk reduction for pregnancy complications (e.g., preeclampsia, gestational diabetes) (5,11) as well as helping prevent excessive weight gain (7). The recommended weight gain depends on the mother's prepregnancy body weight (underweight and normal-weight women are recommended to gain more weight than overweight or obese women) (10). The current viewpoint is that virtually all women (with uncomplicated pregnancies) can benefit from physical activity during pregnancy. In addition, clinical practice guidelines suggest that women consider the risks of not participating in exercise (see Box 1) (6). ACSM does recommend clearance from one's physician before beginning an exercise program for anyone who was sedentary before pregnancy or who has a medical condition (refer to the PARmed-X for pregnancy and absolute/relative contraindications) (4).

The recommended exercise prescription mirrors recommendations for the general population (11), however, remains cognizant of the importance of monitoring responses and adjusting the exercise prescription based on symptoms, discomforts, and changing abilities during pregnancy (4) (see Box 2 for some specific suggestions). The overarching concern

noted in the 1985 guidelines — safety of the mother and her infant — is still the top priority today. Individualized exercise programs should take into account previous activity levels along with current health status.

CARDIOVASCULAR ACTIVITY

Assuming no contraindications, women who previously were sedentary are encouraged to progressively increase their amount of physical activity (4). ACSM guidelines recommend at least 15 min · day⁻¹ of aerobic activity (e.g., walking, cycling), gradually increasing to at least 30 min · day⁻¹ of accumulated moderate-intensity physical activity, or a total of 150 min · week⁻¹ (4). Moderate-intensity exercise is considered to be 40% to 60% $\dot{V}O_{2\text{reserve}}$ or, more practically, a rating of perceived exertion (RPE) of 12 to 14 on an RPE scale of 6 to 20. The talk test also can be used to monitor intensity (*i.e.*, exercising to a level that still allows you to maintain a conversation) (4). For recreational and competitive athletes with uncomplicated pregnancies, ACOG suggests that women “can remain active during pregnancy and should modify their usual exercise routines as medically indicated” (2). Unfortunately, this is not a very specific guidance, underscoring the individuality of exercise prescription for pregnant active women. Keeping open lines of communication with your health care provider is important.

Box 1. Risks of Not Participating in Exercise Activities During Pregnancy (6)

- Loss of muscular fitness
- Loss of cardiovascular fitness
- Excessive maternal weight gain
- Higher risk of gestational diabetes or pregnancy-induced hypertension
- Development of varicose veins and deep vein thrombosis
- Higher incidence of physical complaints (e.g., low-back pain)
- Poor psychological adjustments to physical changes of pregnancy

Box 2. Special Considerations for Pregnant Women (2,4)

- Avoid contact sports or sports/activities that could cause loss of balance or trauma to the mother or her fetus (e.g., soccer, basketball, horse-back riding, downhill skiing, vigorous-intensity racquet sports).
- Avoid scuba diving because of increased risk of decompression sickness by the fetus.
- Care should be taken when exercising at higher elevations to avoid altitude sickness; avoid physical activities at altitudes more than 6,000 ft.
- After the first trimester, avoid supine-position exercises to avoid pressure/obstruction of blood flow returning to the mother's heart.
- Ensure adequate hydration and take care regarding environmental temperature to avoid heat stress.
- Terminate exercise and consult your health care provider if any of the following occur: vaginal bleeding, dyspnea before exertion, dizziness, headache, chest pain, muscle weakness, calf pain or swelling (need to rule out thrombophlebitis), preterm labor, decreased fetal movement, or amniotic fluid leakage.

RESISTANCE TRAINING

The guidance provided by ACOG focuses on cardiovascular (aerobic) activity (2). Resistance training is, however, another training modality of interest to many women. ACSM guidelines state that, “Pregnant women may participate in a strength-training program that incorporates all major muscle groups with a resistance that permits multiple repetitions (*i.e.*, 12 to 15 repetitions) to be performed to the point of moderate fatigue” (4). Isometric muscle actions (those in which a position is held for a period) and the Valsalva maneuver (breath holding) should be avoided (4). After the first trimester, activities involving the supine position (lying on your back) should be avoided because the weight and location of the fetus can impact the return

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of blood to your heart, potentially causing a drop in blood pressure (8). A practical consideration for resistance training during pregnancy is increased instability caused by changes in the center of gravity (*i.e.*, balance) and increased joint laxity (feeling of looseness) caused by hormonal changes (3). As a result, weight machines or resistance bands typically are recommended over free weights (8,9).

FLEXIBILITY EXERCISES

Flexibility exercises also should be part of a well-rounded exercise program (8). Because of greater joint laxity, pregnant women should take care not to stretch beyond the point of discomfort. Modifications in some exercises may be needed to avoid lying on your back as well as to account for changes in abdominal shape and size (3,8).

BENEFITS OF EXERCISE

For detailed information on the potential benefits of exercise, see the ACSM Roundtable Consensus Statement, Impact of Physical Activity During Pregnancy and Postpartum on Chronic Disease Risk (available at <http://www.acsm.org/access-public-information/roundtables>) (5). Although the research focus has expanded during the past 12 years, additional studies will provide valuable guidance for women and health care providers regarding options and optimal physical activity programs for women of varying fitness levels (12). You can be encouraged by current research that supports physical activity as an important step that healthy women can take to improve their own health and to provide a healthy start for their babies.

(Note: For detailed information on the recommended total and rate of weight gain during pregnancy, see page 2 in the 2009 “Weight Gain During Pregnancy: Re-examining the Guidelines.” The complete document can be found free of charge at <http://www.iom.edu/Reports/2009/Weight-Gain-During-Pregnancy-Reexamining-the-Guidelines.aspx>).

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