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Exercise during pregnancy and the postpartum period. ACOG Committee Opinion No. 267. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2002;99:171-173

Exercise During Pregnancy and the Postpartum Period

ABSTRACT: The physiologic and morphologic changes of pregnancy may interfere with the ability to engage safely in some forms of physical activity. A woman's overall health, including obstetric and medical risks, should be evaluated before prescribing an exercise program. Generally, participation in a wide range of recreational activities appears to be safe during pregnancy; however, each sport should be reviewed individually for its potential risk, and activities with a high risk of falling or those with a high risk of abdominal trauma should be avoided during pregnancy. Scuba diving also should be avoided throughout pregnancy because the fetus is at an increased risk for decompression sickness during this activity. In the absence of either medical or obstetric complications, 30 minutes or more of moderate exercise a day on most, if not all, days of the week is recommended for pregnant women.

The current Centers for Disease Control and Prevention and American College of Sports Medicine recommendation for exercise, aimed at improving the health and well-being of nonpregnant individuals, suggests that an accumulation of 30 minutes or more of moderate exercise a day should occur on most, if not all, days of the week (1). In the absence of either medical or obstetric complications, pregnant women also can adopt this recommendation.

Given the potential risks, albeit rare, thorough clinical evaluation of each pregnant woman should be conducted before recommending an exercise program. In the absence of contraindications (see boxes), pregnant women should be encouraged to engage in regular, moderate intensity physical activity to continue to derive the same associated health benefits during their pregnancies as they did prior to pregnancy.

Epidemiologic data suggest that exercise may be beneficial in the primary prevention of gestational diabetes, particularly in morbidly obese women (BMI >33) (2). The American Diabetes Association has endorsed exercise as "a helpful adjunctive therapy" for gestational diabetes mellitus when euglycemia is not achieved by diet alone (3, 4).

The cardiovascular changes associated with pregnancy are an important consideration for pregnant women both at rest and during exercise. After the

Absolute Contraindications to Aerobic Exercise During Pregnancy

- Hemodynamically significant heart disease
- Restrictive lung disease
- Incompetent cervix/cerclage
- Multiple gestation at risk for premature labor
- Persistent second- or third-trimester bleeding
- Placenta previa after 26 weeks of gestation
- Premature labor during the current pregnancy
- Ruptured membranes
- Preeclampsia/pregnancy-induced hypertension

Relative Contraindications to Aerobic Exercise During Pregnancy

- Severe anemia
- Unevaluated maternal cardiac arrhythmia
- Chronic bronchitis
- Poorly controlled type 1 diabetes
- Extreme morbid obesity
- Extreme underweight (BMI <12)
- History of extremely sedentary lifestyle
- Intrauterine growth restriction in current pregnancy
- Poorly controlled hypertension
- Orthopedic limitations
- Poorly controlled seizure disorder
- Poorly controlled hyperthyroidism
- Heavy smoker

first trimester, the supine position results in relative obstruction of venous return and, therefore, decreased cardiac output and orthostatic hypotension. For this reason, pregnant women should avoid supine positions during exercise as much as possible. Motionless standing also is associated with a significant decrease in cardiac output so this position should be avoided as much as possible (5).

Epidemiologic studies have long suggested that a link exists between strenuous physical activities, deficient diets, and the development of intrauterine growth restriction. This is particularly true for pregnant women engaged in physical work. It has been reported that pregnant women whose occupations require standing or repetitive, strenuous, physical work (eg, lifting) have a tendency to deliver earlier

and have small-for-gestational-age infants (6). However, other reports have failed to confirm these associations suggesting that several factors or conditions have to be present for strenuous activities to affect fetal growth or outcome (7, 8).

In general, participation in a wide range of recreational activities appears to be safe. The safety of each sport is determined largely by the specific movements required by that sport. Participation in recreational sports with a high potential for contact, such as ice hockey, soccer, and basketball, could result in trauma to both the woman and fetus. Similarly, recreational activities with an increased risk of falling, such as gymnastics, horseback riding, downhill skiing, and vigorous racquet sports, have an inherently high risk for trauma in pregnant and non-pregnant women. Those activities with a high risk of falling or for abdominal trauma should be avoided during pregnancy (9). Scuba diving should be avoided throughout pregnancy because during this activity the fetus is at increased risk for decompression sickness secondary to the inability of the fetal pulmonary circulation to filter bubble formation (10).

Exertion at altitudes of up to 6,000 feet appears to be safe; however, engaging in physical activities at higher altitudes carries various risks (11). All women who are recreationally active should be made aware of signs of altitude sickness for which they should stop the exercise, descend from the altitude, and seek medical attention.

Data regarding the effects of exercise on core temperature during pregnancy are limited (12, 13, 14). There have been no reports that hyperthermia associated with exercise is teratogenic.

Warning Signs to Terminate Exercise While Pregnant

- Vaginal bleeding
- Dyspnea prior to exertion
- Dizziness
- Headache
- Chest pain
- Muscle weakness
- Calf pain or swelling (need to rule out thrombophlebitis)
- Preterm labor
- Decreased fetal movement
- Amniotic fluid leakage

Competitive athletes are likely to encounter the same physiologic limitations during pregnancy faced by recreational athletes during pregnancy. The competitors tend to maintain a more strenuous training schedule throughout pregnancy and resume high intensity postpartum training sooner. The concerns of the pregnant, competitive athlete fall into two general categories: 1) the effects of pregnancy on competitive ability, and 2) the effects of strenuous training and competition on pregnancy and the fetus. Such athletes may require close obstetric supervision.

Many of the physiologic and morphologic changes of pregnancy persist 4–6 weeks postpartum. Thus, prepregnancy exercise routines may be resumed gradually as soon as it is physically and medically safe. This will vary from one individual to another with some women able to resume an exercise routine within days of delivery. There are no published studies to indicate that, in the absence of medical complications, rapid resumption of activities will result in adverse effects. Having undergone detraining, resumption of activities should be gradual. No known maternal complications are associated with resumption of training (15). Moderate weight reduction while nursing is safe and does not compromise neonatal weight gain (16). Finally, a return to physical activity after pregnancy has been associated with decreased incidence of postpartum depression, but only if the exercise is stress relieving and not stress provoking (17).

Conclusions and Recommendations

- Recreational and competitive athletes with uncomplicated pregnancies can remain active during pregnancy and should modify their usual exercise routines as medically indicated. The information on strenuous exercise is scarce; however, women who engage in such activities require close medical supervision.
- Previously inactive women and those with medical or obstetric complications should be evaluated before recommendations for physical activity during pregnancy are made. Exercise during pregnancy may provide additional health benefits to women with gestational diabetes.
- A physically active woman with a history of or risk for preterm labor or fetal growth restriction should be advised to reduce her activity in the second and third trimesters.

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