



Benefits of Exercise During Pregnancy

Exercise during pregnancy offers a number of benefits to the expecting mother. Cardiovascular benefits include an increased circulatory reserve with regular exercise, an improved ability to handle anticipated and unanticipated circulatory stress, increased stroke volume by 30 to 50 percent.

In regard to lung and gas transport functions, additional benefits are an improved ability of body tissues to take up and utilize oxygen, greater ease in removal of metabolic wastes, increased mitochondria for faster energy production, a small increase in maximum minute ventilation, and a probable improvement of maximal aerobic capacity by 5 to 10 percent. The improvement of maximal aerobic capacity is significant, as this allows the mother to push harder during workouts without feeling as much stress on her body as she would if she were not pregnant. Additional interesting benefits to exercise during pregnancy in this category are maintained peak ventilation, and a possibly improved VO₂max by 5 to 10 percent for six months to one year after the birth.

With regard to body temperature and sweating, exercise benefits during pregnancy includes an increased ability to stay cool and sweat less by dissipating heat effectively and storing it during her pregnancy. Her ability to tolerate heat stress improves 30 percent in early pregnancy, and increases to an incredible 70 percent by late pregnancy. This reduces risk of exercise noticeably for pregnant women.

In the categories of metabolic and hormonal responses to exercise during pregnancy, benefits include an increase in hormones that dilate blood vessels and thereby dermal blood flow. This further enables her to stay cool. An important metabolic change with exercise during pregnancy is an increase in the amount of energy a woman can generate and the amount of oxygen she can use. Regular exercise is shown to increase aerobic max capacity by approximately 20 percent. It also increases the weight of muscle and bone while reducing body fat percentage. The mother is therefore leaner and more efficient. This category also includes the benefits of increased fat energy utilization, suppressed hormonal and circulatory responses to stress, and reduced insulin resistance.

With regard to muscles, ligaments and bone adaptations during exercise for pregnant moms we see benefits of improved strength, maintained muscle tone, reduced ligament laxity effects from pregnancy, improved maintenance of back strength of, good posture, and abdominal muscle tone, and reduced incidence of low back pain and other musculoskeletal problems.

Specific physiological adaptations that take place during pregnancy include increased elasticity and volume of the entire circulatory system, (which can sometimes cause symptoms such as lightheadedness, nausea, fatigue,

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cravings, constipation, loading, frequent urination, a racing pulse, sweating, dizziness, sudden fatigue). By the 4th month, the body has usually adapted enough to vessel dilation and increased stroke volume by increasing plasma and blood volume. She also experiences a warm, flushed sense to the skin, increased waster removal by kidneys causing increase urine volume, and lower abdominal fullness due to an increased blood flow to the reproductive organs. Lungs during pregnancy adapt to increase uptake of oxygen by 40 to 50 percent or more (due to increased depth of each breath). Mothers may feel like they are “over breathing” due to increased respiratory sensitivity during mild exertion. Hormones respond to increase progesterone levels, lower basal temperature, and improve cooling through increased skin blood flow and metabolic changes. Pregnant women can expect a lower body temperature set point for sweating, increased metabolic rate by 15 to 20 percent, increased ability to store calories, progressively increased insulin resistance, greater maternal fat and muscle, increased fat utilization as energy in late pregnancy, and relaxation of ligaments.

During pregnancy, bone density easily maintained. It is known that intestinal obstruction of calcium becomes more efficient during pregnancy.

Exercise, Fertility and Early Pregnancy

Early pregnancy issues include miscarriage (voiding of a pregnancy early, normally happening in 15 to 20 percent of women with pregnancies), congenital defects in the baby, ectopic pregnancy which happen outside the womb, placenta previa where an egg implants in the mouth of the womb, a separation of the placenta from the womb before birth known as placental abruption, and pregnancy induced hypertension.

The effect of exercise on fertility is essentially none, for those that perform moderate amounts of exercise including weight-bearing exercise for 20 minutes or more three or more times per week, at an intensity that feels moderately hard to hard. Dr. Clapp suspects that “there is as threshold level of exercise above which infertility does become a problem”.

What could be done to improve the chances of becoming pregnant during exercise includes exercise at levels greater than the minimum exercise amount required for basic fitness (20 minutes three times a week, at a moderately hard-to-hard level of effort).

Exercise, Premature Labor

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The physiological effects of beginning a fitness program during pregnancy are mostly unstudied when beginning exercise at conception or early in pregnancy. However research does show that participation beginning in the fourth month and continued until term usually enables mothers to deliver much like a sedentary woman. Dr. Clapp's studies show that starting to exercise early in pregnancy and continuing to term does not increase chances of going into labor ahead of schedule but does increase chances of delivering at term before the due date is reached.

The association between regular exercise and premature birth is generally a factor only after the 37th week. A woman who continues regular sustained exercise until labor begins usually will deliver five to seven days earlier than women with an active lifestyle that do not exercise on a consistent basis.

Maternal Benefits of Regular Exercise

Dr. Clapp notes that weight gain averaged 8 pounds less in women who exercised throughout pregnancy. He graphs this finding in consistently apparent graphs of lower weight gain by exercising women throughout their pregnancies. He notes that while fat levels are lower for exercising women during pregnancy, that the exercised women are well within normal skinfold ranges for pregnancy. However, after the pregnancy, exercise has a minimal effect on weight change as long as caloric intake levels match the demands of daily life, exercise, and milk production.

Throughout pregnancy, women can continue to exercise.

Benefits of exercise during pregnancy include reduced maternal weight gain and fat accumulation, improved body image during pregnancy, less discomfort, decreased incidence of significant postpartum depression, easier, shorter, and less complicated labor, decreased need for pain relief, decreased incidence of maternal exhaustion, decreased incidence of artificially rupturing membranes, decreased need to stimulate labor with pitocin, decreased need to intervene because of abnormalities in the fetal heart rate, decreased need for the episiotomy, decreased need for operative intervention. Subtle benefits include a positive attitude, increased immune function, and higher energy levels.

While limitations of exercise during pregnancy are not emphasized in this chapter, general suggestions by Dr. Clapp are that three hours of exercise each week is the minimum needed to obtain benefits, that returning to exercise sooner than two weeks after delivery may show some vaginal bleeding, someone in returning to exercise even two weeks after delivery may find frequent urination taking place during exercise, though this does not last. Overall, limitations for exercise pregnancy are few.

Principles for Exercise Prescription



Positive points to implement during an exercise program are education about the benefits of exercise during pregnancy, consistency of workouts, an interactive component to fit lifestyle and changing needs and goals throughout pregnancy, instruction and safety needed for breast exercise and relaxation, monitoring exercise and reproduction with attention to feelings of well-being, hydration, weight, nutrition, and rest-activity cycling.

The four big contra-indications to exercise are significant physical injury, acute illness or chronic underlying disease, onset of persistent or recurrent localized pain, and abnormal or heavy vaginal bleeding.

Spontaneous patterns of exercise in late pregnancy discussed by the author are racquetball players decreasing sudden lateral motions required to return to wall shots, downhill skiers with more emphasis on control than speed, runners becoming more particular about shoes and running surfaces, and serious weight trainers approaching activity with caution and using more help.

Key points for exercise that should be implemented during the first 6 weeks after pregnancy are an interactive component that addresses issues such as whether or not exercise is enjoyable and what time of day is free, type of exercise which includes stretching, strength training, and minimum of 20 minutes of cardiovascular activity, exercise instruction and safety which focuses on intensity levels (how much, how fast) and individualized instruction, monitoring with emphasis on how her well-being is, if she's gaining weight etc.

Key rules to exercise after pregnancy are these; education should be focused on a balanced realistic approach, exercise types should be tailored to the individual, and monitoring of her health should be prevalent for situations such as breast-feeding, hydration and rest activity cycles.

Instructions and safety concerns that should be taught to a mother vary based on exercise levels. Equipment should be checked for all levels of exercisers, to ensure it is a good condition to work out. The environment should have the stable even surface and temperature should not be over 85 degrees Fahrenheit. Another important instruction and safety concern is being prepared and thinking before acting, as well as listening to her body and stopping when something doesn't feel good.

For beginning exercisers, instructions include making a list of necessary clothing and equipment and where to buy them, ensuring equipment is in good condition, coaching for correct biomechanics and safe environment, discovering how much to exercise and how fast, progressing in intensity and duration at a reasonable pace, and discussion of eating patterns, rest, activity frequency, hydration and temperature.

For recreational athletes, instructional focuses are on correct biomechanics, workout environments under 85 degrees, safe equipment, stable surfaces, biomechanical evaluation during workouts, preparation, thinking before acting, and common sense.

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For competitive athletes, safety checks and equipment checks are important. Worn equipment is a constant issue. Improved biomechanics, surveying of the training environment and additional instruction for safety are needed. In addition, preventing dehydration, hyperthermia, and physical injury are key. It is also recommended that pregnant mothers do not training altitudes higher than 7500 feet, don't in order symptoms that indicate significant problems like bleeding or pain, and emphasize consistency.

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