Introduction

The following information and exercises have been compiled for pregnant women. This handbook includes general information about body changes, posture, body mechanics and exercises. The exercises are general in nature and should be undertaken with initial supervision and monitoring by a health care provider. This allows evaluation of each exercise’s appropriateness and any indicated modifications.

Pregnancy and childbirth are an exciting, often tumultuous time. The goal of this booklet is to help prepare mothers, intellectually and physically, for pregnancy, delivery and post-partum recovery. Many types of exercise classes from stretching to aerobics are available. These exercises should be cleared by an obstetrician. These exercises specifically target areas affected by pregnancy and delivery although much of the posture and body mechanics information can be helpful throughout your life.

Many issues regarding pregnancy and exercise cannot be addressed in this booklet. If you have questions or need additional information, ask your obstetrician or a physical therapist.

Body Changes During Pregnancy

The following are normal changes that may occur during your pregnancy. Some of these changes can affect your posture and contribute to neck and back discomfort, knee pain, ankle pain, foot cramps and sacroiliac joint discomfort or instability.
Normal Maternal Changes During Pregnancy

- Constipation
- Swelling in Legs, Ankles or Face
- Varicose Veins
- Increase in Blood Volume
- Increase in Frequency of Urination
- Weight Gain
- Backache
- Change in Center of Gravity
- Increase in Low Back Curve
- Loose Ligaments
- Possible Joint Instability
- Changes in Hormonal Levels
- Forward Head Posture
- Stretching of Muscles
- Heartburn

**Muscles:**

*Abdominal Muscles:*
- A “split” or diastasis can form in the middle abdominal muscle, the rectus abdominus.
- It is important to have good muscle tone in this muscle before, during and after pregnancy.

*Pelvic Floor Muscles:*
- These are made up of two groups of muscles which form a “figure of eight.”
- One circle of muscles surrounds the urethra and vagina.
- The other circle of muscles surrounds the anus.
- Some of these muscle fibers surround the entire length of the vagina.
- All of these muscles are very fine and thin; they tire and stretch easily.
- These muscles act as a support structure for your uterus.
- It is important to keep these muscles strong to prevent stress incontinence and regain elasticity of the vagina sooner following birth.

*Diaphragm:*
- The large breathing muscle, the diaphragm, is pushed up by the baby during pregnancy. As the baby grows, there is an increase in oxygen demand on the mother. These two factors increase the rate of breathing of the mother and can cause shortness of breath.
Heart and vascular system:
- During pregnancy the amount of blood in your body increases. This can increase your heart rate and blood pressure. Also, more blood flows to your arms and legs. You may notice your hands and feet are redder. This is due to your blood vessels expanding during pregnancy.

Why Is Exercise Important During Pregnancy?
- Increase the ability to use and carry oxygen.
- Increase muscle strength, thereby reducing risk of injury to your joints.
- Decrease maternal heart rate and resting blood pressure.
- Decrease the amount of “work” the heart does to pump the same amount of blood.
- Decrease anxiety and/or stress.
- Increase self-esteem and self-confidence.
- “Keep fit” before and after pregnancy.
- Increase endurance for labor.
- Increase tone of abdominal and pelvic floor muscles for quicker recovery after delivery.

Effects of Exercise During Pregnancy on the Fetus

*Exercise has the following effects on the unborn baby when it is done within appropriate guidelines:*
- Usually fetal heart rate increases coincide with maternal heart rate increases during exercise.
- Exercise has shown no significant effect on fetal growth.
- There are no proven increases in neonatal morbidity or obstetric complications.
- Always find your resting heart rate, heart rate during exercise and heart rate following exercise.
- Check to make sure your heart rate decreases following exercise.
- ACOG (American College of Obstetrics and Gynecology) heart rate guidelines state that maternal heart rate should not exceed 140 beats per minute during peak exercise.
ACOG Guidelines for Exercise During Pregnancy

❑ Maternal heart rate should not exceed 140 beats per minute even during peak exercise.
❑ Strenuous activities should not exceed 15 minutes in duration.
❑ No exercise should be performed while lying on your back after the fourth month of gestation.
❑ Exercises that employ the Valsalva maneuver (bearing down while holding your breath) should be avoided.
❑ Caloric intake should be adequate to meet the extra energy demands not only of the pregnancy, but also of the exercise performed.

ACOG Guidelines for Exercise During Pregnancy and Post-partum

❑ Regular exercise (at least three times a week) is preferable to intermittent activity. Competitive activity should be discouraged.
❑ Vigorous exercise should not be performed in hot, humid weather or when you have a fever.
❑ Ballistic movements (jerky, bouncy motions) should be avoided. Exercise should be done on a wooden floor or a lightly carpeted surface to reduce shock and provide a sure footing.
❑ Deep flexion or extension of joints should be avoided because of connective tissue laxity. Activities that require jumping, jarring motions or rapid changes in direction should be avoided because of joint instability.
❑ Vigorous exercise should be preceded by a 5 minute period of muscle warm-up.
❑ Vigorous exercise should be followed by a period of gradually declining activity that includes gentle stationary stretching.
❑ Heart rate should be measured at times of peak activity.
❑ Care should be taken to gradually rise from the floor to avoid lightheadedness from changes in blood pressure. Some form of activity involving the legs should be continued for a brief period (i.e., walking).
❑ Liquids should be taken liberally before and after exercise to prevent dehydration.
❑ Women who have led sedentary lifestyles should begin with physical activity of a very low intensity and advance activity levels very gradually.
❑ Activity should be stopped and a physician consulted if any unusual symptoms occur such as vaginal bleeding, uterine contractions, persistent dizziness or persistently elevated heart rate.
Posture and Body Mechanics For Expectant Mothers

Proper posture and good body mechanics to maintain your balance will decrease fatigue, back strain and will help make your pregnancy more comfortable. Changes in your weight, body proportions and hormonal balance strains muscles, ligaments and joints.

Standing Posture

- Hold your head high, not forward
- Keep shoulders straight, not rounded forward
- Keep your pelvis in neutral position with a slight curve in your low back
- Bend your knees slightly, not locked
- Position feet under hips with weight evenly distributed over heels and balls of feet

Sitting Posture

**Do:**
- Maintain a slight hollow in your low back (this can be done by using a towel roll to support the back or under the buttocks)
- Avoid prolonged sitting or sitting with your legs straight, unsupported
- Sit with shoulders straight and head held high
- Rest your feet up on a stool to help decrease swelling

**Don’t:**
- Keep back unsupported with feet dangling off the ground or stool
- Keep your knees higher than your hips when sitting erect (this flattens your back and causes strain on it)
Resting Positions

Lying on your back-
- Keep your knees supported

Lying on your side-
- Keep knees bent with a pillow between them
- Place a towel roll under your waist
- Keep your spine straight
- Use a pillow to rest your arm on in front of your body

Lying Down/Getting Up

DOWN:
- Sit on the edge of the bed with your buttocks scooted back
- Lie on your side by lowering your upper body with both arms and at the same time raising your legs up off the floor onto the bed
- Roll into a comfortable position

UP:
- Scoot close to the edge of the bed and roll onto your side bending at your hips and knees
- Push your trunk up with your arms and at the same time lower your feet off the bed

Daily Activities

General Guidelines

Bending Forward (hip hinging)
- Start with a good base of support, with feet about hips-width apart
- Keep your back in an upright posture, bend at your hips (avoid rounding your spine forward during bending)
- If you need to be nearer to an object in front of you, do one of the following:
  - Step closer to the object
  - Bend your knees to lower your body
  - Step up on a stool to raise your body
- Avoid twisting your back

Lifting Light Objects (10-20 pounds)
- Think about your body mechanics and plan the lift carefully before starting.
- Turn and face the object you want to lift moving as close to the object as possible.
- Use a good base of support and place one foot forward, then kneel onto the other knee.
- Bring the object close to you, and then face it before lifting
- Tighten your abdominals, buttocks and pelvic floor before you lift
- Stand up using your legs rather than your back
- Reverse the sequence to lower objects
- To move objects, push, don’t pull or get help

**DO:**

- Bend at the hips and knees, not at the waist.
- Hold and carry objects close to you. If load is heavy, divide it and carry half in each hand.
- Bend forward at your hips and lower yourself by bending your knees.
- Keep buttocks tucked under as you reach. Use a stool and avoid unnecessary reaching.

**DON’T:**
Working at the Sink
- Stand close to the sink
- Rest one foot on the ledge under the sink or on a low stool.

Ironing
- Stand close to the ironing board
- Keep knees slightly bent
- Shift weight side to side
- Bend forward at hips if necessary

Vacuuming
- Lunge forward keeping back upright and shifting weight from leg to leg
- Hip hinge if you need to reach over or around objects
Home Exercises for Expectant Mothers

The following exercises are to be performed using a regular breathing pattern of inhalation through the mouth. Find a slow, easy breathing rhythm and stick to it. If you become short of breath or cannot maintain the rhythm STOP and rest. Resume when able. Do not hold your breath. Do not forcefully exhale. After reaching four or five months of pregnancy, keep a small pillow under your right hip throughout the exercise program.

I. Abdominal Strengthening Exercises

Pelvic Tilt
❑ Lie on your back with both knees bent and feet flat.
❑ Rotate your pelvis back to flatten your back against the floor.
❑ Tighten your stomach and buttock muscles.
❑ Hold 5 seconds.
❑ Do ____________ repetitions.
❑ This exercises can also be performed lying on your side, sitting or standing.

Straight Curl Up
❑ Lie on your back with both knees bent and feet flat.
❑ Perform a pelvic tilt. Tuck chin and lift shoulder blades up off the floor.
❑ Keep your back low on the floor.
❑ Breathe out as you perform this exercise.
❑ Slowly return to starting position.
❑ Do ____________ repetitions.
❑ If you are more than four months pregnant, perform this exercise turned slightly on your side with a pillow under your right hip.

If you have a diastasis, see Section VII.
Diagonal Curl Up
- Lie on your back with both knees bent and feet flat.
- Perform a pelvic tilt, tuck chin and lift shoulder blades up off the floor.
- Reach your arms to the opposite knee so that you are rotating your trunk.
- Breathe out as you perform this exercise.
- Do ____________ repetitions.
- If you are more than 4 months pregnant, perform this exercise turned slightly on your side with a pillow under your right hip.

If you have a diastasis, see Section VII.

The Angry Cat
- Kneel on your hands and knees with your hands directly under your shoulders and your knees directly under your hips.
- Pull in your abdominal muscles and buttocks pressing up with your lower back. You should look like an “angry” cat.
- Breathe out as you perform this exercise.
- Relax and return to the starting position with a neutral flat back.
- Do NOT let your back sag!
- Do ____________ repetitions.

II. Inner Thigh Stretching Exercise

V-Stretch
- Sit on the floor with legs in a “V”.
- Keeping your knees straight bend forward at the hips until you feel a stretch in your inner thigh muscles.
- Do not round your back excessively.
- Hold 5 seconds.
- Return to the starting position.
- Do ____________ repetitions.

III. Gluteal Strengthening Exercise

Bridging
- Lie on your back with both knees bent and feet flat.
- While breathing out, lift your buttocks up into the air to form a “bridge”.
❑ Your shoulders and feet should remain touching the floor.
❑ Return to the starting position.
❑ Do ____________ repetitions.

*Gluteal Sets — an alternative to bridging for mothers more than 4 months pregnant.*
❑ Lie on your side with both legs and a pillow between your knees.
❑ Tighten your buttock muscles by trying to squeeze them together.
❑ Hold 5 seconds.
❑ Do ____________ repetitions.

**IV. Chest Stretching And Strengthening Exercises**

*Pectoral Stretch*
❑ Sit in a comfortable, but firm chair.
❑ Bring arms up to shoulder level and out to the side with both elbows bent.
❑ Try to bring your elbows back behind you by squeezing your shoulder blades together. You should feel a stretch across the front of your chest.
❑ Hold 5 seconds.
❑ Relax.
❑ Do ____________ repetitions.

*Pectoral Strengthening*
❑ Sitting as above.
❑ Bring hands together in front of you.
❑ Push your hands against each other without moving them in either direction.
❑ Remember to breathe.
❑ Hold 5 seconds.
❑ Relax.
❑ Do ____________ repetitions.

**V. Neck Strengthening Exercise**

*Chin Tuck*
❑ Sit as in pectoral exercises.
❑ Tuck chin in to form a double chin.
❑ Hold 5 seconds.
❑ Relax.
❑ Do ____________ repetitions.