Patient Guide to Cardiothoracic Surgery
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Cardiothoracic Surgery

Heart surgery is done to correct problems with your heart; there are many different types of heart surgery. Heart surgeries may be used to

• Repair or replace your valves that control blood flow through the heart's chambers.
• Bypass or widen blocked or narrowed arteries to your heart.
• Destroy small amounts of tissue that disturb electrical flow through your heart.
• Repair aneurysms – or bulges in your aorta – that can be deadly if they burst.

Heart Valve Disorders

What is the Function of Your Heart Valves?
• Your heart valves are one-way doors that open to let blood through and close to keep blood from flowing backward. They keep blood flowing in a one-way direction through your heart and lungs.
• Valves that do not open and close well make it more difficult for blood to flow properly through the heart making your heart pump harder in order to circulate enough blood to the body. Over time, this can weaken your heart.

What Causes Heart Valve Disease?
• The following conditions can damage or scar your valves causing improper opening and closing:
  – Connective tissue abnormality (Bicuspid Aortic Valve, Marfan)
  – Birth defects
  – Aging
  – Rheumatic fever
  – Infection
• Symptoms can range from none to severe.

What Symptoms May Occur when your Valves are not Working Properly?
• Palpitations or a “flurry feeling in your chest,” chest pain which may feel similar to angina.
• A sharp pain-like feeling over your left chest.
• Heavy pressure under the breastbone.
• Pain radiating down your left arm:
  – Lasting from a few minutes to hours
  – Appearing when you’re very tired, sick, or under a lot of stress
• Shortness of breath with activity and in later stages shortness of breath at rest.
• Dizziness
• Fatigue
• Blackouts with advanced disease
What Treatment Can be Expected?

- Medications may provide adequate management of the patient’s condition in the early stages of heart valve disease.
- Surgery will be needed to repair defective valves or remove and replace diseased valves when symptoms are severe or patient’s health is compromised.
  - Your cardiologist and the cardiac surgeon will explain the surgical procedure and what preparation is needed.
- Your doctor will determine which type of valve will be used based on the your age and condition.
  - Bovine pericardial tissue valve (from cow tissue)
    - With a bovine valve, there is the potential for degeneration or calcification of your valve over a long period of time.
    - A second valve replacement is very likely in younger to middle aged people due to the 15-20 year life span of most valves.
  - Mechanical valves (artificial).
    - You will be on anticoagulation therapy (blood thinners) for life. This will prevent blood clots from forming around the mechanical valve.
    - There will be a noticeable clicking noise from your mechanical valve, similar to a loud watch.
  - Porcine valves (from pigs)
    - With a porcine valve, there is the potential for degeneration or calcification of the valve over a long period of time.
    - A second valve replacement is very likely in younger to middle aged people due to the ten year life span of most valves.
  - Homograft valves (from deceased human donors) have a 10-14 year rejection cycle and a second valve replacement is very likely in younger patients.

What precautions should be taken when on anticoagulants (blood thinners)?

- The patient must be careful to take blood thinning medication, Coumadin (Warfarin), as prescribed.
- Blood will be drawn on a regular basis when on Coumadin in order to monitor blood clotting time and ensure that bleeding problems do not occur.
- The patient will need to wear an identification bracelet or necklace to identify his use of anticoagulants.
- The patient must be careful not to cut himself because he will bleed longer than normal. Direct pressure should be applied for five to ten minutes in the event of a cut.

What precautions should be taken after having a heart valve replaced?

- Watch for arm or leg numbness, or slurred speech. Notify the doctor immediately if these signs should appear.
- There is an increased risk of introducing bacteria into the body by way of certain dental, gastrointestinal or genitourinary procedures/surgeries. This invasion of bacteria could lead to endocarditis (an infection of the heart valves) and affect the functioning of the valve.
  - A prophylactic dose of antibiotics before and after having any of these procedures done is recommended by the American Heart Association.
  - In females, the patient must notify her doctor if she is pregnant or considering pregnancy.
  - You must notify your dentist and/or other doctors that he has had a valve replacement or repair before having any procedures.
Coronary Artery Bypass Graft Surgery (CABG)

What is a CABG?

- CABG is a surgical procedure to treat severe coronary artery disease (heart disease).
- Part of a vein or artery (called a graft) from another part of the body is used to bypass a blockage in one or more of your coronary arteries.
- The type of graft used — a vein from the leg or an artery from your chest or arm — depends on the number and location of the blockage.
- The graft is attached above and below the blocked area so that blood actually flows around it and to the area of your heart below the blockage.
- Improves blood flow and thereby oxygen and nutrients to your heart muscle itself. Improved blood flow relieves symptoms of angina (chest pain), improves heart function and may prevent you from having a heart attack.

Maze Procedure

Surgeons perform Maze surgery to treat paroxysmal or chronic atrial fibrillation (AF). AF is a fast, irregular heart rhythm where the upper chambers of the heart contract in an uncoordinated fashion. Maze surgery may cure your AF by creating a "maze" of new electrical pathways to let electrical impulses travel easily through your heart. During the surgery, the surgeon makes a number of small incisions, or radio frequency burns, or cryo-freezes in both of your heart's upper chambers. The incisions are made in a certain pattern, like a maze, that will direct your heart's electrical impulses straight to the heart's lower chambers. Maze surgery works because after your heart heals, scar tissue forms. Scar tissue cannot carry (conduct) electrical impulses, so the scar tissue that forms around the incisions keeps the electrical impulses on course.
The Aorta and Thoracic Aortic Disease (TAD)

The aorta is your body's largest artery, carrying oxygen-rich blood from the heart. When the heart's left ventricle contracts, your aortic valve opens and blood flows into the aorta. The aorta and its branches deliver vital nutrients to every part of your body, including the heart itself.

When your aorta is healthy, its elastic walls expand and contract with the ebb and flow of blood within it. However, when your aorta is diseased the area of weak, abnormal tissue bulges or balloons out. The stress of high-pressure blood flow on this abnormal tissue, which becomes weak and thin, puts this vital blood vessel at risk of tearing or rupture.

As the diseased section of aorta gradually weakens, the tissue bulges and eventually an aneurysm forms. State-of-the-art CT and MRI imaging, such as the 64-slice CTA pictured showing bulging of the aortic root and ascending aorta, make it possible to view the entire aorta and find thoracic aortic disease before it results in a life-threatening emergency.

Thoracic aortic disease may be caused by several different conditions and may occur in both males and females of any age. When the underlying cause is genetically based, more than one family member may be affected. TAD is serious because weak, fragile aortic tissue under high pressure may tear or rupture, causing life-threatening bleeding. Early detection can prevent emergencies that too often result in injury or loss of life.

Thoracic Aortic Disease (TAD) includes the following:

- Aneurysm – Bulging or enlargement of a blood vessel due to weakness of the vessel wall
- Coarctation – Narrowing of a blood vessel. In the aorta, the narrowing is in the section of the descending aorta near the arch.
- Dissection – A tearing of the inner lining of the aortic wall, allowing blood to enter and split the layers of the aortic wall. Blood may travel within the layers of the aorta, creating a “false” channel sometimes called a false lumen.
- Intramural Hematoma – Bleeding within the wall of the aorta, a variation of classic aortic dissection. Ulceration of atherosclerotic plaque penetrates into the aortic wall.
- In some conditions, such as congenital bicuspid aortic valve, heart valves are also affected and are included in the overall evaluation of thoracic aortic disease.

Aortic Surgery

The surgical removal of some portion of diseased aorta is called aortic resection. A Dacron graft is used to replace your diseased aortic tissue. Dacron grafts are an excellent example of successful substitution of a synthetic material within the human body. Dacron is so completely compatible with your body that rejection and calcification do not occur. With the passage of time Dacron graft gets covered with your own cells.

Today's modern Dacron grafts are strong, flexible and collagen impregnated, making them impervious to blood. The durability of these grafts exceeds that of the human life span. Surgery on the thoracic aorta is in some respects similar to other types of open-heart surgery. Particular details regarding the size and location of the incision, the use of the heart-lung machine and specialized techniques used to provide neurologic protection vary depending on the type of aortic surgery being performed.
Cardiopulmonary Bypass (CPB)

The heart-lung or bypass machine may be used during your surgery. The Cardiopulmonary bypass (CPB) is a technique that temporarily takes over the function of your heart and lungs during surgery, maintaining the circulation of blood and the oxygen content of your body. The CPB pump itself is often referred to as a heart-lung machine or “the pump.” CPB mechanically circulates and oxygenates blood for your body while bypassing your heart and lungs. It uses a heart-lung machine to maintain perfusion to other body organs and tissues while the surgeon works in a bloodless surgical field.

Hypothermic Circulatory Arrest

During typical open-heart surgery, blood continues to circulate throughout your body, although major blood vessels are clamped to prevent the flow of blood into the surgical area. However, in aortic surgery it is necessary to perform procedures without clamping your aorta, while at the same time keeping the surgical field free of blood. The dilemma facing aortic surgeons was how to temporarily stop blood circulation without causing neurological injury to your brain. An effective solution was found in hypothermic circulatory arrest, also called total circulatory arrest (TCA). Hypothermic circulatory arrest is the temporary suspension of your blood flow under very cold body temperatures. At these cold temperatures, cellular activity levels slow significantly, and blood circulation can be stopped for up to 30-40 minutes without harm to you. This allows surgery to safely be performed on your aorta when clamping to contain blood flow is either not possible or not desirable. Majority of thoracic aortic surgery patients will need short TCA time of 15-25 minutes.
What to Do Before Your Surgery

Pre-Admission

- Tell your physician what medications you are taking, especially aspirin, plavix or an anticoagulant (blood thinner). Your doctor will tell you if you should stop taking them. Unless your cardiologist or surgeon says otherwise, **5 days prior to surgery do not take any blood thinners such as plavix, coumadin, aspirin, fish oil, gingko biloba, multivitamin, or herbal medications.**
- If you develop a cold, fever or sore throat within a few days of your surgery, or have other questions or concerns, call your surgeon's office or your nurse liaison.
- If you smoke, stop immediately to improve your blood flow and breathing.
- At home after your surgery, you will need a blood pressure cuff that fits 2/3 around your upper arm, a thermometer and a scale.
- Purchase a seven-day pill organizer to help you manage your medications when you are discharged from the hospital.

Preoperative Visit

- You will come into pretesting one to three days prior to surgery. Call pretesting to set up appointment for a preoperative visit at 310-257-7273
  - Please bring a list of your medications.
  - Please bring your medical history.
  - Blood tests, chest x-ray and EKG may be done.
  - A nurse will explain the surgery and have you sign a consent form.
- You will be given information on “Your Right to Make Decisions about Medical Treatment.”
- After pretesting, you will visit with the cardiac surgery nurse liaison or another member of your surgery team who will go over with you what to expect during and after your surgery and answer all your questions.
- A cardiac surgery video will be shown that talks about your surgery and what you should expect throughout your hospital stay. You may also watch the video on your hospital room TV:
  - Select TV Channel 45.
  - Dial 2959 on the patient’s in-room phone.
  - After the beep, enter the video code 220 followed by the # sign.
- Pulmonary care will be taught, stressing the importance of coughing effectively in spite of incisional pain to achieve a positive outcome postoperatively. You will be taught to use a cough pillow and the effectiveness of splinting your incision for pain control.
- You will be given an incentive spirometer and instructions on how to use it. An incentive spirometer helps keep your lungs clear, strengthen your breathing muscles and helps prevent complications.
- You will take a tour of the Cardiac Care Unit (CCU) and Progressive Care Unit (PCU) where you will be staying during your hospital stay.
- You will be taken to Day Surgery where you will report to the morning of surgery.
- You will take a tour of Cardiac Rehabilitation Center where you will be going to after you have been discharged from the hospital.
The Night before Surgery
- The night before your surgery you can eat a normal meal, but do not eat or drink anything after midnight. This includes water, gum, mints, etc.
- Take a shower with the anti-bacterial soap provided.
- Use the Chlorhexidine oral rinse provided and swish for 30 seconds and spit.

On the Morning of Surgery
- Take a shower with the anti-bacterial soap provided.
- Use the Chlorhexidine oral rinse provided and swish for 30 seconds and spit.
- Do not wear any makeup or nail polish.
- We encourage you to leave all valuables such as large sums of money, jewelry and credit cards at home. If necessary, money and small valuables may be kept in the hospital safe and reclaimed upon your discharge. An itemized receipt claim ticket will be provided. During your stay in the critical care unit, non-essential belongings will need to be sent home.
- Wear comfortable clothing. You will be given a garment bag so that your clothing can be given to the family member or friend who accompanies you.
- Bring a list of all the medications you are currently taking, including over-the-counter drugs, vitamins and herbal supplements.
- Bring a case for dentures, hearing aids or glasses.
- You may bring a battery operated shaver.
CHG Antiseptic Shower

Directions for Use

**CHG Antiseptic** (Endure 400 Scrub-Stat 4 Chlorhexidine Gluconate 4% Solution) should be used in the shower the night and morning before your surgery.

**Night Shower (evening before surgery):**
- Before taking a shower, have a clean towel and clean clothes available.
- Wash and rinse your hair using your normal shampoo. Rinse your hair and body well to remove all possible shampoo residue.

**You are now ready to begin the rest of the CHG antiseptic shower process:**
- NEVER use the CHG solution near your eyes, ears and mouth.
- Wet a clean wash cloth with warm water.
- Turn off the water during the application of the CHG solution.
- Apply a small portion of the CHG solution to the wet cloth.
- Gently wash your entire wet body from the neck down, focusing on the areas where the incision(s) will be located. (Approximately half of the bottle should be used).
- Rinse the CHG solution off your body completely.

**DO NOT wash your body with regular soap after you use the CHG solution.**
- Pat yourself dry with a clean towel. DO NOT apply any powders, deodorants or lotions.
- Dress with clean clothes.
- Save the remaining half bottle of CHG antiseptic to shower prior to coming to the hospital.

**Morning Shower (early morning, day of surgery):**
**REPEAT** the above procedure the morning of your surgery.
- Again, use a clean towel and clean clothes.
- Use the other half of the CHG solution contained in the bottle.
- Dispose of bottle after both showers are complete.

Your Hospital Stay

**ARRIVING AT THE HOSPITAL**
- Please report to Day Surgery promptly at 5 a.m. or ______.
- When you arrive at Day Surgery you will be directed to the Pre-Op area and you will be given a hospital gown to wear. All clothing and other valuables should be given to the family member or the person who accompanies you. If you are unaccompanied, your nurse can have your valuables locked up prior to surgery.
- An intravenous catheter will be inserted in your arm. Medications such as antibiotics may be given.
- To help prevent infection, any hair in an incision area will be clipped.
- Your anesthesiologist and O.R. nurse will meet with you in Pre-Op holding.
- Medications to decrease anxiety and help you relax may be given just before you are taken to surgery.
DURING SURGERY

- Anesthesia will be administered by the anesthesiologist.
- The standard surgical approach is by a median sternotomy, which is a vertical incision made along the breastbone, after which the sternum itself is divided or cracked. This procedure provides access to the heart and lungs during surgery.
- While you are in surgery your family members should wait on the 7th floor waiting room in front of the elevators. The cardiac surgery nurse liaison or a member of your surgery team will update them several times throughout the operation.
- If your family members choose to stay at home or go outside of the hospital during the operation, the nurse liaison can update them by calling their home or cell phone.

CARDIAC CARE UNIT (CCU)

- After surgery, care will be given in the Cardiac Care Unit (CCU).
- Equipment:
  - **Breathing Tube**
    - During surgery a tube is put through the mouth into the windpipe and is attached to a machine called a ventilator that breathes for you during and after surgery.
    - Talking will not be possible until the tube is removed, usually 6-8 hours after surgery. However, by nodding "yes" or "no" to questions, communication with the nurse or your family is possible.
    - The nurse will suction mucous from your lungs through this tube. It will cause a coughing feeling that quickly subsides. This is necessary to keep the tube and lungs clear.
  - **Vascular Catheters**
    - These catheters are inserted while you are asleep during surgery to assess and treat your condition. They are attached to the bedside monitor, give a continuous display of events and are usually removed in one or two days. They include:
      - Pulmonary artery pressure catheter.
      - Arterial catheter for blood pressure monitoring.
      - IV tubes to administer fluids, medications and blood if necessary.
  - **Heart Monitor**
    - The monitor is connected by wires to patches on the chest and gives a continuous display of heart activity. All of the above equipment have alarms that may sound frequently when you move and do not necessarily indicate a problem.
  - **Chest Drainage Tube**
    - These tubes are placed in the chest near the bottom of the incision to drain the small amount of blood that collects around the heart temporarily after surgery. They are removed after one or two days.
  - **Bladder Catheter**
    - A small tube is inserted into your bladder that drains urine. It may cause a feeling of the need to urinate. It is removed after one or two days.
  - **Dressing**
    - A bandage will be maintained on the mid-chest incision for three to four days.
  - **Nasogastric Tub**
    - This tube is placed through your nose into the stomach to relieve any nausea or gas. If this tube is necessary, it is usually removed when the breathing tube is removed.
• Treatment and Care
  – An experienced caregiver will be in close proximity during the immediate postoperative recovery period and will be able to anticipate and provide for your needs.
  – Post-operative care will include:
    • Blood tests, chest x-rays and EKGs.
    • Administration of several IV medications.
    • Frequent monitoring of blood pressure, respiratory status, heart pressures, heart rate and rhythm, incisional drainage and urine drainage.
    • Administration of blood transfusions may be necessary in some cases.
  – Respiratory treatments will be administered to keep the lungs clear:
    • Coughing and deep breathing will be encouraged frequently to help loosen secretions and expand the lungs.
    • Frequent turning from side to side in bed and getting out of bed with assistance soon after surgery will also help.
    • A small pillow will be provided to hold over the chest incision to help "splint" or support the chest and lessen discomfort when moving or coughing.
  – Pain at the incision site:
    • The nurse will ask you often about your level of pain and medication will be offered to help keep your pain under control.
    • Pain medication will be given through the IV while in the CCU to control pain in the immediate post-op period. Soon thereafter, pain is controlled with oral pain medications.
    • If needed, pain medications will be prescribed for use at home.

PROGRESSIVE CARE UNIT (PCU)
• After one or two days in the CCU and depending on individual recovery rate, you will be transferred to the Progressive Care Unit (PCU). By this time, the following may have been removed:
  – Breathing tube and ventilator.
  – IV access catheters.
  – Chest tubes.
  – Bladder catheter.
  – Nasogastric tube (if used).
• Following removal of the bladder catheter, there may be some burning. If this continues after the first urination, the nurse must be notified.
• Your diet will gradually return to normal.
• Post operative tests will continue such as blood tests, chest x-rays and EKGs.
• Oxygen will be continued if needed.
• IV medications will be continued or resumed orally as ordered by your health care provider.
• Pain medication may be requested to ease discomfort, especially when getting out of bed.
• Activity will gradually increase from sitting on the side of the bed in the CCU to showering and walking in the hallways in PCU.
• Telemetry (monitoring of the heart rate and rhythm) will continue via chest patches, attached to a small telemetry box. This box is secured to your gown and allows unrestricted activity. This telemetry box is worn at all times (removed only when in the shower) and you must remain on the PCU unit floor so the signal will be picked up by the monitoring equipment.
Breathing and Coughing Exercises

Incentive Spirometer

Before your surgery, a nurse or therapist will teach you exercises. These keep your lungs clear, strengthen your breathing muscles, and help prevent complications.

How to use your incentive spirometer:

∑ Sit on the edge of your bed if possible, or sit up as far as you can in bed.
• Exhale normally.
  – Relax and breathe out.
• Place your lips tightly around the mouthpiece.
  – Make sure the device is upright and not tilted
• Inhale as much air as you can.
  – Inhale slowly and deeply.
  – Hold your breath long enough to keep the disk raised for at least five seconds.
• Rest for a few seconds and repeat the above steps at least 10 times every hour when you are awake.
• After each set of 10 deep breaths, practice coughing to be sure your lungs are clear. Support your incision when coughing by placing a pillow firmly against it.

Breathing and Coughing Exercises

Two important things to do after surgery are deep breathing and coughing exercises. These help clear your lungs of mucus and opens up the tiny air sacs in the lungs.

• Deep breathing should be performed every hour while awake.
• Patients who have had abdominal or chest surgery need to perform deep breathing at least three to four times daily. Each session should include a minimum of five deep breaths.
• Deep breathing and coughing exercise may be performed every hour, especially by patients who are prone to pulmonary problems.
  – The coughing needs to be deep, reaching into the lungs and not merely the throat.
  – Effective coughing is best achieved in the sitting position.
  – Support your incision by placing your cough pillow against it.
  – Hold your breath for about three seconds.
  – After deep inhalation, cough forcefully using the abdominal and other accessory respiratory muscles.
Cardiac and Sternal Precautions

- Use a pillow for coughing, sneezing and mobility.
- Do not extend both arms behind you at the same time.
- Do not raise both arms up at the same time.
- No heavy pushing or pulling (especially on bed rails).
- Log roll with bed mobility and transfers.
- No lifting greater than 5-10 lbs. (A gallon of milk weighs 8 lbs.)
- Avoid full weight-bearing through both arms with walker.
- Limit bending towards your feet to put on your pants, shoes or socks.
- Do not strain/push on the toilet when you have a bowel movement.
- No isometric exercises.

Log Rolling: Getting Into and Out of Bed

Follow the steps below to get out of bed. Reverse them to get into bed.

1. Roll Onto Your Side
   - Keep your knees together.
   - Put your hands on the bed in front of you.
   - Try not to push or pull hard on the bedrails.
   - You may use your cough pillow for support.

2. Raise Your Body
   - Push your upper body off the bed as you swing your legs to the floor.
   - Keeping your back straight, move your whole body as one unit.
     Don’t bend or twist at the waist.
   - Breathe out as you move. Do not hold your breath.
   - Let the weight of your legs help you move.

3. Stand Up
   - Lean forward from your hip and roll onto the balls of your feet.
   - Try not to extend both arms behind you at the same time.
   - Flatten your stomach muscles to keep your back from arching.
   - Using your arm and leg muscles, push yourself to a standing position.
   - After you stand up, wait a moment before walking to be sure you’re not dizzy.

Leg Exercises

- Tightening and relaxing your leg muscles squeezes the veins in your legs. This helps blood flow and makes your leg muscles stronger. There are many ways to do this:
  - Press your feet against the foot of the bed
  - With your legs straight, bend your feet and toes toward you head.
  - Turn your feet in a circular motion
- You can do leg and foot exercises several times a day, 10-20 repetitions at a time or as directed by your doctor.
Discharge Instructions for Cardiothoracic Surgery

After you are discharged:

- The cardiac surgery nurse liaison will call you at home to make sure everything is going as planned.
- Schedule an appointment with your surgeon and cardiologist one week after discharge.
- If you have any questions or concerns please call your surgeon’s office or the cardiac surgery nurse liaison at 310-891-6604.

Vital Signs

Record the following in your Cardiac Surgery Daily Log that was provided to you and bring the log with you when you see the surgeon or nurse practitioner in the office:

- Take your blood pressure and heart rate twice a day, in the morning and in the evening before you take your heart medications. If your systolic blood pressure (the top number of your blood pressure) is below 100 or your heart rate is below 50, do not take your heart medication until you talk with your cardiologist or surgeon.
- Take your temperature twice a day. Report any temperature greater than 101 degrees to your surgeon.
- Weigh yourself every morning nude. Notify your surgeon if you gain two pounds or more overnight. A weight gain of more than two pounds in one day is due to fluid retention rather than fat. Your doctor may prescribe a diuretic (water pill) for you or make adjustments in medicines already prescribed for you.
- If applicable check your blood glucose as instructed.
- Any pain, chest pressure, shortness of breath or symptoms that feel similar to what was felt before surgery should be reported immediately to your cardiologist or surgeon.

Activities

If your surgeon has not given you an exercise program, the following is recommended:

- It is important to maintain a regular exercise program; being a "couch potato" increases the risk of developing complications such as pneumonia and blood clots.
- Gradually increase activity level, e.g. walking at home, climbing stairs and walking outside. Start with level walking outside 10-20 minutes three to four times a day as tolerated.
- Walking is one of the best forms of exercise because it increases circulation throughout the body and to the heart muscle. It is important to increase your activity gradually. Walk at your own pace. Stop and rest if you get tired. Each person progresses at a different rate after heart surgery. It is important to pace your activities throughout the day. Do not try to do too many things at one time. In poor weather, you can walk at indoor shopping malls.
- During early phases of recovery, shortness of breath may occur with activity.
- You may walk up and down stairs, but take them at a slow pace.
- Assistance with routine household activities is needed while recovering from cardiac surgery, e.g. home cleaning, cooking, shopping, washing clothes and paying bills.
- Activities of daily living should be paced so as not to deplete energy reserves. It may take several months to resume usual activities.
- Mild arm and leg exercises as well as stretches may help you work out the stiffness.
- No lifting, carrying, pushing, pulling or twisting anything over five pounds until your doctors give you the okay. Avoid mowing the lawn and vacuuming.
- Do not use a rowing machine, stationary bike or home treadmill until your doctors give you the okay.
- Light-headedness may occur if you stand up too quickly from a sitting or lying position, shower in very hot water or your heart rate is too slow or too fast.
- Notify your doctor if you are experiencing dizziness when walking.
Incisions

- Look at your incisions twice a day, morning and night for three weeks.
- Gently wash incisions with non-scented soap and water everyday to keep incisions clean. Avoid vigorous scrubbing and gently pat the area of the incision to dry it. Do not apply any creams, lotions or powders to the incisions for at least one month or until they are well healed.
- You should shower daily. Avoid extremely hot water because it can affect your circulation and may make you feel dizzy or weak.
- Avoid tub baths, saunas or jacuzzi/hot tubs until your surgeon has given permission. They promote infection in an unhealed incision.
- Watch for signs of infection: any new opening, increasing redness, tenderness or warmth around an incision, pus formation, drainage or temperature greater than 100 degrees. Report these signs to your surgeon immediately.
- Tingling, numbness, burning or itchiness around incisions is considered normal healing and will gradually lessen with time. It is common to get sore spots alongside the chest incision. If an artery in your chest, called the mammary artery, was used during your surgery, you may experience numbness to the left of your incision. This is normal.
- You may have a lump at the top of your incision, this will disappear with time. Until the breast bone heals completely, you may feel a slight motion or "clicking" sound when sneezing, coughing, deep breathing or changing of position especially in bed. Avoid unusual movements like twisting that might cause this “clicking.” Continue to use your “cough pillow” at home. If this movement continues beyond two months, notify your surgeon.
- Because incisions sunburn easily, be sure to protect them from overexposure to sunlight during the first year after surgery. The scar will darken if exposed to the sun.
- After one month, vitamin E oil or aloe vera cream may be rubbed gently into the healed incisions for approximately one to two minutes, three times a day. This helps to flatten the incisions and possibly prevent the formation of a "keloid" (a thick rope-like scar). Should a keloid form, cortisone cream applied directly on the incision will decrease the burning and itchiness of such a scar. Consult your physician about possible treatments that may help to reduce further keloid formation.
- Loose-fitting clothing may provide less irritation of the incisions.

Leg/Ankle Swelling

- Swelling may occur in your legs, especially in a leg which a vein was taken for coronary bypass surgery. Leg edema may continue for several months after surgery.
- To reduce this swelling you should do the following:
  - Several times a day lie back in a reclining position and elevate your legs, preferably above the level of your heart.
  - Avoid standing for long periods of time.
  - Avoid crossing your legs or ankles while sitting or lying down.
  - Walk regularly. Exercise has been shown to help the body develop new blood vessels.
  - Wear surgical support hose if they have been prescribed.
Lungs
- For several weeks after discharge, continue to use your breathing spirometer several times a day. Increase use of the spirometer if you were a smoker or are having breathing problems. Performing the breathing exercises with the spirometer before meals and at bedtime will help your lungs to re-expand after surgery, thereby improving oxygenation to your body and recuperating heart and keep your lungs expanded.
- **ABSOLUTELY NO SMOKING.** It narrows blood vessels, increases heart rate and blood pressure and may cause angina.
- If a mammary artery was used, you may occasionally suffer from fluid around the lung on that side. This is not hazardous to your recovery and will over time gradually disappear. However, this extra fluid may cause you to tire easily and become short of breath with normal activity, so you may have to pace yourself accordingly. Take frequent rest periods between periods of activity.
- A diuretic (water pill) may be prescribed to treat this fluid collection. If fluid build-up is severe, the surgeon may elect to perform a simple procedure called a "thoracentesis" to drain the lung.
- Any sudden shortness of breath at rest or inability to lie flat should be reported to your surgeon.

Pain
- Incisional pain tends to increase after discharge merely because you are doing more activities at home. Incisional discomfort may continue for several weeks after surgery.
- Chest incision pain may be experienced as stretching, pulling, grabbing, tickling, a dull ache, pressure, tightness, sharpness and as little zings.
- Leg incision pain may be experienced as pinching and pulling, stiffness, tightness and sharpness.
- Muscular discomfort may occur in the back, shoulder and or neck and may be described as stiff, sore, sharp, aching or catching. These muscles ache because of positioning on the surgery table. A heating pad on LOW applied for 15 minutes three to four times per day may relieve pain. Mineral ice, ice packs or rubbing affected sore muscles with an analgesic cream such as Ben-Gay may also be helpful.
- Occasional tingling of fingers is another common complaint that will eventually resolve. Exercising by squeezing a soft ball may help.
- Sporadic twinges of pain within the chest, as well as hypersensitivity of the skin may occur if the mammary artery was used. This is a common complaint involving chest nerves and may take several months to resolve.
- Do not hesitate to take prescribed pain medications two to three times per day for the first couple of weeks. A recommended schedule is to take one upon arising in the morning, in early afternoon and before bedtime.

Nutrition
- Appetite changes are common after cardiac surgery. These changes may include difficulty swallowing due to sore throat, and loss of taste and appetite, unpleasant taste and nausea. Eating four to five small meals a day may stimulate your appetite more than eating three large meals. It may take several weeks for your appetite to return.
- Begin making changes to your diet when your appetite returns to normal.
- Follow a low-carbohydrate, low-fat, no added-salt diet after discharge. This may reduce your risk of a heart attack in the future and your risk for requiring surgery again. You should try to have less than 30 percent of your calories from fat. Try to control your weight and eat less saturated fat and cholesterol.
- Nausea, vomiting or other stomach upsets that occur may be due to medicine intolerance. Report these symptoms to your cardiologist if they persist more than a day or two. Take all medicines as prescribed — some need to be taken with food or milk and some are tolerated better before bedtime than in the morning.
Constipation
- You may have problems with constipation. Use a laxative of your choice and a stool softener. Add prune juice and more fruits and fiber to your diet.

Fatigue/Sleep
- Fatigue is common during recovery from cardiac surgery. Patients have described feeling sleepy, tired, weak, wobbly and drained.
- Patients have reported difficulty falling asleep, waking up frequently during the night and being unable to go back to sleep, nightmares or bad dreams, inability to turn comfortably in bed, inability to find a position of comfort for sleeping, incision pain and nocturia (waking up at night to urinate).
- Patients who cannot sleep comfortably in bed have reported being able to sleep in a reclining chair or when using a wedge in bed for support.
- Sleep disturbances are usually resolved within the first few months after cardiac surgery.

Emotions
- You may experience a variety of emotions including excitement, depression, feeling down, anxiety, worry, irritability and tearfulness. These feelings are common after surgery and may last from a few weeks to months, but will gradually lessen and disappear as you recover. You may have good days and bad days; do not become discouraged, this will get better.
- Keeping pain under control, getting adequate nutrition and rest, and maintaining a regular exercise program will contribute to your well-being.
- Most people expect they should be well recovered within a few weeks, but reality is it may take months for this to occur and depends on the severity of the disease, your age, type of surgery, post-operative complications and pre-existing health.

Sexual
- You can resume sexual relations when you feel comfortable. For many people this is about two to four weeks after discharge unless instructed differently by your doctor.

Driving/Returning to work
- Unless your doctor tells you differently, driving is not recommended until the sternum heals (usually 3-6 weeks) for the following reasons:
  - The sternum or breastbone does not completely heal for least six weeks.
  - Your reaction time may be slowed due to medications, drowsiness or weakness.
  - Driving may exacerbate neck, shoulder and back pain.
  - Using a thin, small pillow under the shoulder belt may minimize some of the discomfort across your sensitive chest.
  - Discuss timing related to return to work with your surgeon or cardiologist.

Medicine
- Your medications will be discussed with you before you are discharged.
Delpit Cardiac Rehabilitation Center

Cardiac rehabilitation is a medically supervised and customized program of exercise and education designed to help you achieve the highest possible level of recovery from heart disease. The cardiac rehabilitation team at Torrance Memorial’s Delpit Cardiac Rehabilitation Center consists of highly skilled nurses and health professionals that will work with you and your doctor to develop an individualized program of monitored exercise, nutritional counseling, emotional support and education about lifestyle changes. Their goal is to help you regain strength, prevent your condition from worsening, and to reduce your risk of future heart problems.

Cardiac rehabilitation is more than just a treatment. It allows you to take an active part in your own recovery, and it marks the beginning of a new and healthier lifestyle. Your involvement in outpatient cardiac rehabilitation will start about four weeks after you are discharged from the hospital. You will receive a phone call or letter from the Delpit Cardiac Rehabilitation Center to schedule your appointment. Or you can call 310-517-4737. The cardiac rehabilitation team looks forward to working with you and your family.
## Daily Log

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