

# CARDIOVASCULAR SURGERY



An educational guide for patients  
undergoing cardiac surgery

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# WELCOME TO THE CARDIOVASCULAR SURGERY UNIT AT UAB HOSPITAL



We want your stay with us to be as pleasant as possible. If you have any concerns, please notify any member of our staff.

This booklet provides information on how we'll care for you during cardiac surgery and how you can take care of yourself once you return home. You'll need this booklet throughout your hospital stay, so keep it close at hand.

We hope this booklet helps you and your family feel at ease. The nursing staff will refer to this booklet often when they discuss important information with you.

We are here to take care of you when you have heart surgery. This booklet guides you through the preparation, surgery, and recovery processes. Your nurse also will be happy to answer your questions.

We start making plans for your discharge as soon as you're admitted, starting with questions about your support system at home. While most of our patients are able to go home with their families caring for them, some patients may need the help of a home health care agency or a referral to a rehabilitation center. If we believe you may need one of these services, we'll discuss this matter with you and your family and include the social worker and care manager, who can make plans for you to have these services.

If you live alone, you'll need to ask a friend or relative to help you for the first few weeks. Patients should not go home alone and try to take care of themselves without help. If you don't have anyone to help you, ask your nurse to contact the social worker or care manager.

Your nurse will teach you what you need to know before and after surgery and when you go home. You'll use this book, along with videos, to help you understand what you need to know.



## Parking

The most convenient option for parking is the 4th Avenue South parking deck, located at 4th Avenue South and 18th Street. Entrances are located on both 4th Avenue South and 18th Street South. There is a daily parking fee.

## Admitting/Guest Services Desk

From the parking deck elevators, exit to the hospital on the second floor. Follow the signs to the North Pavilion, then take the elevators to the fifth floor and go to the Heart Surgery Admitting/Guest Services desk. Please report there at the designated time. There, you will complete the admission process. Copies of identification and/or insurance cards may be requested. Please be prepared to pay any copays and deductibles at this time. You will be taken to the pre-operative holding area from the Heart Surgery Admitting/Guest Services area.

## Valuables/Personal Possessions

Please give your family all of your valuables and personal things — including jewelry, eyeglasses, hearing aids, contacts, dentures, or partials — since you'll go to the Cardiovascular Intensive Care Unit (CICU) after your surgery.

If you choose to bring items such as a cell phone or electronic device and they are misplaced, the hospital cannot be held responsible for unsecured personal items. Also, the hospital and nursing staff cannot be responsible for large personal items or any items not accounted for by hospital security.

# PREPARING FOR SURGERY

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## Tobacco/Alcohol Use

If you use tobacco of any type, please stop immediately. Smokers have a greater risk for lung problems and poor or slow wound healing after surgery. Also, discuss any regular alcohol use with your surgery team.

## Before-Surgery Appointment

### (Pre-Operative Assessment, Consultation, and Treatment (PACT) Clinic)

Your PACT Clinic appointment will include:

- Pre-admission paperwork. Copies of identification and/or insurance cards may be requested. Please be prepared to pay any copays and deductibles.
- A thorough pre-operative assessment
- Review of your complete medical history
- Discussion of anesthesia risks, side effects, and options
- Review of your medications, including over-the-counter and herbal treatments

**NOTE: Please bring all current medication bottles with you.**

If you're being directly admitted to the pre-operative holding area on the day of surgery, please refer to the instructions you were given.

## Medication Instructions

### Patients on aspirin:

- Aspirin 325 mg: Decrease to 81 mg one week prior to surgery AND take it the morning of surgery, unless you are told not to.
- Aspirin 81 mg: Take it the morning of surgery.

### Patients on blood thinners:

- If you take clopidogrel (Plavix®), ticlopidine (Ticlid®), prasugrel (Effient®), warfarin (Coumadin®), dabigatran (Pradaxa®), rivaroxaban (Xarelto®), apixaban (Eliquis®), ticagrelor (Brilinta®), edoxaban (Savaysa®), or enoxaparin (Lovenox®), please talk to your physician or surgeon about stopping these medications before your surgery.

### Patients on beta blockers:

- Take your beta blocker on the day of surgery with a sip of water. Beta blockers include atenolol (Tenormin®), labetalol (Trandate®), metoprolol (Toprol®, Lopressor®), sotalol (Betapace®), nadolol (Corgard®), and carvedilol (Coreg®).

### Patients with diabetes:

- If you take any oral diabetes medications, do not take them the day of surgery.
- If you take metformin or a combination drug that contains metformin (Fortamet®, Glucophage®, Glumetza®, Riomet®, Kazono®, Metaglip®, Jentaduet®, ActoPlus®, Prandi-Met®, Avandamet®, Kombiglyze®, Janumet®), do not take it the day of surgery.
- If you take NPH insulin (Humulin N®, Novolin N®): For the day of surgery, if your blood sugar is greater than 200, take 50% of your usual dose. If blood sugar is less than 200, do not take the medication.
- If you take glargine (Lantus®) or detemir (Levemir®) insulin, take your normal dose the morning of surgery.

We'll administer medications while you're in the hospital. Please inform your nurse of any medications you were taking at home.

## Prepping Your Skin Before Surgery

### For patients admitted the same day for surgery:

To lower the risk of infection, you should bathe with Ivory or Dial antibacterial soap and the chlorhexidine (CHG) cleanser that will be provided to you. You also can purchase a bottle of chlorhexidine (Hibiclens®) at your local pharmacy and follow the directions below.

- Shower three times (48 hours before surgery, the night before surgery, and the morning of surgery).
- Bathe your whole body with Ivory or Dial antibacterial soap, and shampoo your hair.
- Apply 1/3 of the chlorhexidine cleanser (CHG) to a clean washcloth. Wash your body from the neck down. Do NOT use the CHG cleanser on your face, head or genitals. Pay special attention to washing your armpits, the outer groin area (not your genital area), and the site where you will have surgery. Wash your body gently for 5 minutes. Rinse the CHG cleanser off completely and repeat the rinse.
- Do not wash with regular soap after the CHG cleaner is used. Dry off with a fresh, clean towel.
- Dress with clean, recently washed clothing after each CHG shower.
- Repeat the showering instructions above on the night before surgery and the morning of surgery.
- Use the CHG cleanser as instructed. If you are receiving the CHG cleanser the day before your surgery, you will only take 2 showers (the night before surgery and the morning of surgery). On the morning of your surgery, after bathing with CHG cleanser, do not apply lotions, creams, moisturizers, powder, or makeup.



**NOTE: Although it is rare, some people report irritation, sensitivity, or general allergic reactions with the use of CHG products, especially in the genital areas. If a reaction occurs, discontinue use immediately. If the reaction is severe, contact a physician.**

Failure to cleanse your skin with CHG cleanser as instructed could result in the cancellation of your surgery.

Shaving can increase the risk of infection due to nicks from the razor. Do not shave or use hair removal lotions or creams on your chest and legs. The staff will clip the hair on your skin from chin to ankles while you are in the pre-operative holding area. If you have a beard, you may be required to shave it off several days prior to surgery. Check with your surgeon if you have questions.

### For patients admitted to the hospital prior to surgery:

Nursing staff will help you prepare for your surgery. We will clip the hair on your skin from chin to ankles, and you will need to wipe down with a medicated cloth the night before surgery after your hair has been clipped.

After you've used the medicated cloth, do not apply deodorants, lotions, creams, moisturizers, powders, or makeup. Do not bathe or shower again, as the antiseptic should remain on the skin from the previous night. You also will wipe down with medicated cloths in the morning before you go to the operating room. We want you to brush your teeth, but when rinsing your mouth be sure not to swallow any water. You may only drink items mentioned in the next section, and **only up to two hours prior to arrival.**

# DAY OF SURGERY

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## The Morning of Surgery

### Hygiene:

- Bathe with Ivory or Dial antibacterial soap and CHG cleanser as described previously.
- Brush your teeth but do not swallow water.
- Do not wear makeup, nail polish, lotion, or deodorant.

### Food/Medications:

- Do not eat any food, mints, gum, or hard candy or use any tobacco products (cigarettes, dip, or chewing tobacco) the morning of surgery.
- You may only drink items from the following list up to two hours prior to arrival. Drinking anything after this time or not on this list can result in delay or cancellation of surgery:
  - Water
  - Apple juice, grape juice, cranberry juice; **NO ORANGE JUICE**
  - Sprite or 7-UP
  - Gatorade or Powerade (any flavor); **DO NOT DRINK GATORADE PROTEIN SHAKES.**
  - Coffee or tea; **NO MILK, CREAM, OR ARTIFICIAL CREAMER. Sugar and sugar substitutes are ok.**
- Only take medications you were instructed to take on the morning of surgery.

### What to Bring:

- Pack lightly; bring your slippers, robe, toothbrush, and a brush/comb.
- Wear loose-fitting, comfortable clothing.
- Bring cases for your glasses, contacts, and/or dentures.
- If you use a CPAP machine, bring it with you.
- Bring your insurance information and driver's license or official identification card.
- Bring a list of current medications.
- Bring all current medications in their original containers. We will verify what you are taking and return your medications to your family.
- Reading material
- Light jacket
- Walker if you have and use one (leave in your car)
- Oxygen tank if on home oxygen (leave in your car)

### What to leave at home or with a family member:

- Remove any body piercing jewelry.
- Leave valuables (jewelry, wallet, credit cards, cell phone, etc.) at home or with your family.

## Pre-Operative Holding Area

Initially you will be taken to the pre-operative holding area, which is located on the fifth floor of the North Pavilion. This is where you will be prepped for surgery. Prep for surgery includes removal (clipping) of hair from chin to ankles by nursing staff.

The surgeon, nurses, and the doctor who will put you to sleep (the anesthesiologist) will talk to you and your family about what to expect. The surgeon also will tell you what time you'll be going to surgery. After all of these people have visited with you, we'll ask you to sign a consent form giving your doctor permission to do the surgery.

Bring a light jacket if you tend to get cold, and bring a book or magazine to help pass the time. In the case of an emergency, your surgery may be delayed. The pre-operative team will give you frequent updates on when your surgery will start. Family/visitors (limited to two) may wait with you in the pre-operative holding area. While you are in the pre-operative holding area, feel free to discuss any questions or concerns about your care/surgical procedure with your health care providers.

# IN SURGERY

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## Operating Room

You will be taken to the operating room (OR), and the anesthesiologist will give you anesthesia through an IV. You will fall asleep quickly and will not be able to hear or feel anything during your surgery. Surgery usually takes about 4-6 hours.

During your surgery and your stay in the Cardiovascular Intensive Care Unit (CICU), your family/visitors will wait in the visitor waiting area, located on the fifth floor of the North Pavilion. Your family/visitors should register with the waiting room staff when they arrive, so that they can be contacted to receive reports on your surgical progress.

Any concerns your family/visitors have while you are in the operating room should be discussed with the patient/family care representative in the waiting room. An electronic status board will display surgical progress and updates for family/visitors while you are in the OR. At least one family member should stay in the waiting room at all times. Please let the patient and family care representative in the waiting room know how to reach someone if all family members must leave.





# RECOVERING FROM SURGERY

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## Cardiovascular Intensive Care Unit (CICU)

You'll go directly from the operating room to the Cardiovascular Intensive Care Unit (CICU), where nurses are always watching and taking care of you. Your health care team will discuss the expected length of stay in the CICU and step-down unit with you before your surgery.

When you get to the CICU, you'll have several small tubes attached to machines, monitors, or containers. You won't notice this until you start to wake up from anesthesia. Don't worry if you can't move your arms or legs when you first wake up from surgery; the mind and body wake up at different times because of the medicine used to put you to sleep. In a short while, your entire body will be awake. You'll hear the sounds of equipment and be aware of activity around you.

## Family Visits

Once you're transferred to the CICU, the surgeon will meet with your family in a small waiting room outside the unit. It will be about one hour before your family can visit after your arrival to the unit. Visitors may swap out as needed.

The CICU has open visitation, allowing two (2) family/visitors at a time and only one (1) family/visitor is allowed overnight from 10:30 pm to 5 am. Children may visit as long as they are accompanied by an adult who is not the patient. The child must stay with that adult at all times.

Family/visitors should not be sick or have been in contact with people who have been sick in the past three weeks. These sicknesses include but are not limited to: fever, rash, flu, cold symptoms, nausea, vomiting, diarrhea, strep throat, pink eye, measles, chicken pox, COVID-19, and shingles.

Family/visitors may be asked to leave the unit during emergencies. Once the emergency is over, they will be allowed back into the unit.

Cell phones may be used in the CICU family waiting area.

**NOTE: Please help keep the noise level to a minimum.**

## Getting Patient Updates, and Calling In to Check Status

This section is about requesting and phoning in for CICU patient updates. The following rules are designed to comply with the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), and they help protect the security and privacy of all patients' health data and information:

- One person in the family should be designated (usually the next of kin) to call for information about the patient's status. It is the responsibility of the designated family member (or visitor) to share this information with other family and visitors.
- A designated family member will receive a password to be used whenever calling for an update. This password will allow the nurse to share specific details of the patient's progress (good, fair, serious, or critical). This password and the name of the designated caller are to be placed in the patient's medical record.
- The nursing staff is allowed to share detailed patient information ONLY with the patient's next of kin or designated family member or friend.
- The designated person can call for updates at any time EXCEPT during the hours of 6:30-8:30 am and 6:30-8:30 pm.



## Adult Cardiac Surgical Unit

You will go from the CICU to an adult cardiac surgical unit on the 5th floor of the Spain Wallace Building. When you get to your room, we'll check your blood pressure, pulse, and temperature and listen to your lungs. Your family can visit once you're settled in. Your family may bring your gown, pajamas, robe, slippers, and personal care items at this time.

We'll help you with your bath the first day or two after surgery. We'll show you and your family how to clean your incisions when you bathe, so that you'll feel comfortable cleaning the incisions by the time you go home.

The nurses will tell you when you can shower and shampoo your hair after surgery. Male patients should shave every day with a battery-operated or safety razor while in the hospital.

We welcome all visitors, including children, if the patient so desires. Adult supervision is required for all children.

The Adult Cardiac Surgical Unit visiting hours are open and flexible. One adult family member can stay overnight.

## Using Electrical Devices

You won't be allowed to hold blow dryers, electric razors, or other electrical items while they're turned on as long as you have wires coming out of your chest, unless the nurse puts tape or a cover on them. This covering will serve as insulation for your wires. If you aren't sure if your wires have the proper cover on them, ask your nurse before you use one of these electrical items.

You may go back to using any electrical item you want (blow dryers, electric razors, etc.) without any limitations when you go home.

# AFTER SURGERY: HOW YOU CAN HELP YOURSELF

Some of the best ways to help yourself after surgery are to take deep breaths, cough frequently, and get out of bed and walk.

## Keep Your Airways Open

The nurse will show you how to use an incentive spirometer (a device that expands your lungs to help you breathe more deeply). After using it, you should take several deep breaths and cough every 1-2 hours during the day and when you're awake at night. Your family can help you remember when to do this. Using the incentive spirometer, deep breathing, and coughing will help clear your lungs and help prevent fever. When coughing, remember to hold your pillow to your chest.



Lie on your side when you're in bed, and turn from side to side every couple of hours. Mucus can collect in your lungs if you lie on your back for long periods of time, which can lead to pneumonia.

## Get Moving

You will be sitting in a chair for at least 30 minutes in the evening on the day after your surgery (post-op day 1).

You'll begin walking the day after that (post-op day 2). You should walk at least four times a day. A nurse or physical therapist will help you at first, then your family should help you. Slowly increase the distance and frequency of your walks.

Cardiac Rehab and Physical Therapy will make recommendations about your post-surgery activity.

You must participate in important activities to aid in your recovery, including walking, taking deep breaths, and coughing. These are designed to help you return to normal activities.

Walking will help you in several ways. It helps the soreness go away sooner, it helps prevent blood clots from forming in your legs, and it helps you cough up mucus from your lungs. Also, walking is the only way for you to regain strength and feel better. The heart is a muscle that gets stronger with exercises such as walking. When the heart gets stronger, you'll feel better, because the heart is doing a better job of pumping blood through your body.

## Pay Attention to Your Pain

After heart surgery, it's normal to have some pain at the incision site, shoulder, neck, or upper back, depending on how the sternum was opened. We'll be asking you about your pain; we want you to be comfortable, and we want to know if something is wrong. We have medicine to help take the edge off your pain and keep you as comfortable as possible. You'll be able to start walking, do your breathing exercises, and get your strength back sooner if you aren't in severe pain. Your body can heal faster if it isn't fighting pain.

You may ask the nurse for pain medicine every four hours for the first few days. Ask for pain medicine as soon as the pain starts — don't wait for it to get bad. It's harder to ease pain once it has started. We'll ask you to rate your pain on a scale of 0-10. This helps us to know how well the pain medicine is working for you.

To help ease the pain in your chest and shoulders, be sure to use good posture when you sit, stand, and walk, and you should exercise your arms and shoulders when you wake up in the morning and after you take a nap.

# WHAT TO EXPECT AS YOU RECOVER

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## The Incision

Incisions heal better if they're left open to the air instead of covered with a dressing. We'll show you how to clean your incision once your dressings are removed. You or your family should be comfortable with cleaning your incisions before you go home. We'll also clean and re-tape your heart wires daily.

You may notice that the skin around the incision itches and looks dry. This is normal. You also may have some puffiness or swelling around your incision, especially at the upper end of the chest incision and at the lower end of the leg incision, if you have one. The swelling will go away slowly and will be gone in 3-4 weeks.

## Arrhythmias

Some of our patients will have abnormal heart rhythms called arrhythmias. At least 30% of all patients who have heart surgery experience arrhythmias during the first few days after surgery. That is why all of our patients have heart monitors. Most arrhythmias are easy to treat, and we're able to get the heart back into a normal rhythm before the arrhythmia causes any problems. You won't have to wear a heart monitor after you go home. You may go home on anti-arrhythmia medications for one month if you do experience an arrhythmia called atrial fibrillation (AFib).

## Heart Monitor

All patients must wear a heart monitor throughout their hospital stay. You must wear it at all times except when bathing. On the day you go home, your nurse will tell you when to remove the monitor before leaving for discharge. Please don't take this monitor home — the monitor won't pick up your heart rhythms outside the hospital, so it won't work after you leave.

## Confusion

It's quite common for patients to become confused after open heart surgery. The confusion may be mild (such as forgetting what day it is) or more severe (not recognizing family members, for example). Sometimes confused patients may forget why they are attached to IVs, oxygen, or other equipment and try to pull at these devices. They often need constant reminders to leave some of them alone. Luckily, confusion is only short-term, and patients return to their normal selves in only a few days. Patients do not remember being confused.

There are no medications we can give to treat post-operative confusion — it's something that must resolve on its own. In the meantime, we ask the family to please be patient when their loved one is confused. It helps patients if their family stays with them when they are confused, and we ask that one family member spend the night with the patient (if they are out of the CICU) for as long as the confusion continues. Seeing people they know helps the confused patient remain as calm as possible and seems to help them return to normal more quickly. Also, the family can help remind the patient not to pull at equipment that should be left alone. Often, confused patients will follow these directions from family members better than they will from the medical staff.



# PLANNING FOR DISCHARGE

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- Expect to stay in the hospital 3-7 days.
- A care manager is available Monday-Friday to help with discharge planning and special needs.
- Arrange for someone to help you at home 24/7 for the first week after discharge. Before you go home, your family or caretaker should watch the discharge video.
- Prior to your discharge, have your family bring clothes for you to wear home. We recommend loose-fitting clothing, such as a button-up shirt and comfortable trousers or sweat pants.
- If you already require home oxygen, make sure that those oxygen tanks are full. Bring a full tank with you, but leave it in the car for the ride home.
- On the day you go home, your nurse will talk with you about the medicines you'll take at home. It's a good idea to write down questions as you think of them, so you'll remember to ask them. Before you go home, the doctor, nurse practitioner, or physician's assistant will remove your heart wires. Please tell the nurse if the wires have not been removed on the day you go home. You'll need to stay in bed for one hour and in the hospital for at least four hours after we take out the wires.

# TRAVELING HOME

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If you have a walker, bring it with you, but leave it in the car for transport to home. You should arrange for a ride home from the hospital, as you will not be able to drive for 2-4 weeks after discharge.

When given your day of discharge, plan to have transportation ready to take you home by 10 am. Please let your care manager know if you need help with transportation prior to your day of discharge.

If you'll be traveling home on a bus, train, or airplane, your family may want to make special arrangements with the carrier or ticket agent before discharge, so that you can board before other passengers or ride in a wheelchair between connections. Please let us know if we can help you with any problems or needs. Please let us know at least 24 hours in advance if you have plans to take a bus, train, or airplane home. Often we have to make special arrangements in order for you to be discharged in time to make your ride or flight.

Most of our patients travel home in a car. It doesn't matter whether you ride in the front seat or back seat; you should ride wherever you feel most comfortable. Please remember to wear your seatbelt. The seatbelt will not damage the incision on your chest, and you'll be much safer if you wear one. If you have a long trip home, you'll need to stop about every hour to get out of the car, walk around, go to the restroom, and then continue with your ride home.

Under no circumstances should patients who've had heart surgery drive themselves home from the hospital. You should have someone else drive you for at least the first two weeks after discharge.

# WHAT TO EXPECT AT HOME

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## **After-surgery instructions for home:**

- Continue taking medications as prescribed; they may be adjusted by your cardiologist or heart surgeon.
- Continue fluid restrictions (maximum 1.5 liters or 48 ounces per day) for 2 weeks following discharge, unless told otherwise.
- Weigh yourself daily, keeping a log, and do not gain more than 3-5 pounds over 1-2 days.
- Watch for swelling in your feet and legs, which should decrease over time.
- Monitor your appetite, which should gradually improve over time.
- Gradually increase your walking time and distance; do not worry about speed.
- Do not lift more than 10-15 pounds for 2 months following surgery.
- Females should wear a support bra DAILY.

# WHEN TO CALL THE DOCTOR

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**You most likely will not have problems after your operation, but if you notice any of the following symptoms, please call the CV Surgery clinic at 205-801-8660:**

- Extreme fatigue
- Increasing shortness of breath
- Irregular heart rate or racing heart
- Dizziness when standing
- Decreased exercise tolerance level
- Unable to lie flat in bed when sleeping
- Increased swelling in feet and/or legs
- Redness, drainage, or separation of incision
- Chills, sweating, or fever higher than 101°F
- Weight gain of more than 3-5 pounds over 1-2 days
- Uncontrolled blood sugar; if you have diabetes and your blood sugar is more than 200 for 24 hours or longer
- Uncontrolled blood pressure (high or low); if your top number is more than 160 or less than 90, or the bottom number is more than 110

## Dedicated Telephone Line for Patients and Families

There is a dedicated phone line for patients and families to use after discharge for any questions, problems, or clinical concerns. The number is 205-801-8660, and it is answered Monday-Friday from 8 am to 4:30 pm and can be used for all CV surgeons.

TAVR patients should call 205-975-1888 between the hours of 8 am and 5 pm. If asked to leave a voicemail, please leave your name and telephone number.

## After Hours and On Weekends

For all patients after hours (5 pm to 8 am) and on weekends, call the UAB Medicine paging operator at 205-934-3411 to have the CV nurse practitioner on call paged. If you feel you are having a medical emergency, CALL 911 IMMEDIATELY.



# CARE AT HOME

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## Medications

- Follow the instructions for your pain medicines carefully. Too much pain medicine can cause problems with your heart or lungs.
- Do not take home remedies or medicines unless your doctor tells you to.
- Do not take aspirin for pain or fever.
- Ask your physician or pharmacist before you take any over-the counter pain medication.

## How to Take Care of Your Incisions

Look at your incision daily and monitor for redness, drainage and/or odors. Keep your wounds/incisions open to the air, clean, and dry unless told otherwise. You should shower daily using an antibacterial soap (Dial) and water. A clean towel and bath cloth should be used with each shower – NO EXCEPTIONS. Do not use ointments, creams, or lotions on wounds/incisions.

If you have a leg incision, you may notice that the skin on either side of the incision is lightly numb and that some parts of the incision heal more slowly and hurt more than others do. It's normal to have drainage for up to a month from the spot on the leg where the drain tube was removed. This drainage is usually dark red or clear, and there may be a large amount. The drainage is from the dissolving bruise and is normal. The incision will heal completely over time, and the tightness, swelling, and numbness will go away. It won't be necessary to put a dressing or bandage over your incisions after you go home. In fact, the incisions will heal faster if you do not put dressings on them any longer than needed.

Females should wear a support bra daily to prevent your chest incision from pulling apart.

## Pain

You can expect to have some pain around the incision for several months after you get home. Sneezing, coughing, sudden changes in body position, and sitting around for long periods of time can cause pain. This happens because pain starts in the muscle and bone rather than in your heart. Don't be surprised if the location and amount of your pain changes from day to day. The popping and cracking sounds you may hear in your chest area are normal and may occur frequently until the chest bone is healed. Six weeks after surgery, you'll feel much better; after three months, you'll be well on the road to recovery.

## Activity

After a little while, you'll probably feel healthier after your heart surgery than you have in many months or years. If you do a little more each day and rest when you get tired, you'll become stronger and be able to do the things that are important to you.

You should get up each morning at your regular time and get dressed. You may wash your hair at any time. You may walk outdoors at a slow pace, help with light jobs around the house, and go to church or any other place you might enjoy. You also may walk slowly up and down stairs and hills if you don't feel tired. Gradually increase your walking time and distance; do not worry about speed.

Don't be afraid to move. Remember to use good posture when you sit or stand. Breathe deeply and cough several times during the day to expand the little air sacs in your lungs and get rid of the mucus.

Do not lift more than 10-15 pounds for 2 months following surgery. Do not lift, push, or pull anything heavy for three months; it usually takes 6-8 weeks for your breastbone to heal. We'll tell you exactly when it's ok to do certain things. It's a good idea to have someone in your home to help you for the first several weeks after discharge.

Continue to use your incentive spirometer, take deep breaths, and cough on a regular basis after you go home. We recommend that you do this at least five times a day: upon waking, before each meal, and at bedtime.



# CARE AT HOME

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## Rest

Plan your day so that you have time to rest. Never let yourself get too tired. Rest every day for at least 45 minutes, and rest for a few minutes after eating. If you take a nap, try to sleep before 3 pm. If you nap later than that, you may find that you have trouble sleeping at night.

Too much sleeping and sitting may cause your muscles and bones to hurt, and it is not good for your circulation. If you notice that your neck, shoulders, and chest muscles are tight, do these light exercises to relax your muscles:

- Slowly raise your arms above your head as far as you can reach, then lower them to your sides.
- Lift your shoulders up and down and relax them.
- Raise your arms out to your sides at shoulder level, bring them together, then lower them.



## Stress and Strain

It's better for your heart if you don't have too much physical or emotional stress. Stress makes your blood pressure go up and your heart work harder.

- Take it easy in very hot or cold temperatures.
- Do not drink or eat too much.
- Do not strain when having a bowel movement. Eating more fruits and vegetables can help you stay regular. Ask your doctor to prescribe a stool softener or laxative, if needed.
- Do not smoke cigarettes, pipes, or cigars, as smoking stresses the heart and may cause problems with your heart and blood vessels.

## Preventing Infection

It is very important that you avoid getting an infection. Various germs can cause an infection in different ways, including damaging valves and other parts of the heart.

One of the best ways to prevent an infection is to wash your hands before you clean your incisions or put anything into your mouth. Make sure to keep your fingers and hands away from the incision site, to help prevent germs from entering the body. Take a bath or shower every day using a clean towel and washcloth.

After surgery, replace your old toothbrush with a new, soft-bristled toothbrush, and brush your teeth and/or gums after every meal. Germs can live on the old toothbrush and cause another infection. Germs from your mouth may get into the bloodstream through the gums if you brush your teeth too hard or have dental work. Replace your toothbrush if you get any type of infection.

Be sure to get routine checkups from your doctor and dentist. Wait at least three months after your surgery before you have any dental or surgical procedure done. Tell every doctor and dentist who takes care of you that you've had heart surgery. Depending on the type of surgery you had, you may need to take antibiotics before you have a dental procedure or surgery.

## Follow Up with Your Health Care Team

A surgical post-operative visit will be scheduled for 1-4 weeks after discharge. More than one post-operative visit may be needed, depending on your recovery status. Within a month of discharge, your surgeon will send a complete report of your operation and condition in the hospital to your referring physician. It is OK to go ahead and see your referring physician, even if the report has not yet been received.

A follow-up appointment with your cardiologist should be made within 2-6 weeks after hospital discharge. After you get home, you should see your primary care doctor in 2-3 months.

If you are taking Coumadin (warfarin), you should have a follow-up appointment within several days of leaving the hospital. This appointment should be made before you leave the hospital. We suggest that you wear a medical alert ID bracelet if you are taking Coumadin.



# HEALTHY EATING

## Reducing the Amount of Sodium in Your Diet

Your health care provider will tell you how much sodium (salt) you can have in one day. Most of the time, you'll need to stay on a restricted diet of no more than 4,000 mg of sodium a day.

### These tips can help you reduce sodium in your diet:

- Stop adding salt to the food you are cooking or eating.
- Buy fresh or frozen meats or fish; do not eat processed meats. Do not use meats with sauces or marinades.
- Eat fresh or frozen fruits and vegetables. Avoid canned foods.
- Try to avoid fast food. Ask about the salt content of your food when eating out.
- Read food labels to help limit your salt intake.



## Restricting the Amount of Fluid You Drink

It isn't wise to drink a lot of fluids for the first two weeks after open heart surgery. Fluid limits are different for everyone. Usually, fluids should be limited to 1½–2 liters a day. Drinking more than this may lead to swelling and excess fluid, which puts a strain on the heart. After the first two weeks have passed, consult your physician for further instructions about your fluid restrictions.

- Weigh yourself daily, keeping a log, and do not gain more than 3-5 pounds over 1-2 days.
- Watch for swelling in your feet and legs, which should decrease over time.

## Measuring Fluids

- 2 liters = 2,000 cc or ml; 8 cups; ½ gallon of milk or a large soda bottle
- 1½ liter = 1,500 cc or ml; 6 cups
- 1 liter = 1,000 cc or ml; 1 quart; 4 cups
- 1 cup = 8 ounces
- A 2-liter or 2,000 ml fluid restriction is equal to about 8 cups of water.
- A 1-liter or 1,000 ml fluid restriction is equal to about 4 cups of water.

**NOTE: Some foods count as fluids and should be considered as part of your fluid restriction. These include ice, popsicles, Jell-O, sherbet, ice cream, yogurt, applesauce, soup, and pudding.**

### Examples of fruits with high fluid content include:

- 1¼ cup of watermelon or cantaloupe = 6 fluid ounces (¾ cup)
- 1 orange or ½ grapefruit = 4 fluid ounces (½ cup)

**Pick foods that are low in sodium, which are better for you.**

Food Group	Recommended	Not Recommended
<b>GRAINS</b>	<ul style="list-style-type: none"> <li>• Most breads</li> <li>• Many cold cereals</li> <li>• Cooked hot cereals</li> <li>• Pasta</li> <li>• Rice</li> </ul>	<ul style="list-style-type: none"> <li>• Bread/crackers topped with salt</li> <li>• Biscuits, cornbread, other “quick” bread</li> <li>• Bread crumbs or stuffing mix from a store</li> <li>• Cereals with more than 300 mg of sodium per serving</li> <li>• Instant hot cereals</li> <li>• Pizza</li> </ul>
<b>VEGETABLES</b>	<ul style="list-style-type: none"> <li>• Fresh vegetables</li> <li>• Frozen plain vegetables</li> <li>• Low-sodium canned vegetables</li> <li>• Homemade soups</li> <li>• Low-sodium canned soups</li> </ul>	<ul style="list-style-type: none"> <li>• Canned vegetables</li> <li>• Vegetables with sauces or cheese</li> <li>• Vegetables prepared with bouillon cubes or fatty meats</li> <li>• Canned or dried soups</li> <li>• Pickled vegetables, sauerkraut</li> <li>• French fries, onion rings</li> </ul>
<b>FRUITS</b>	<ul style="list-style-type: none"> <li>• Fresh fruit</li> </ul>	<ul style="list-style-type: none"> <li>• Dried or canned fruits</li> </ul>
<b>MILK</b>	<ul style="list-style-type: none"> <li>• Nonfat (skim) or 1% milk</li> <li>• Nonfat or low-fat yogurt</li> <li>• Small amounts of low-fat or reduced-sodium cheese</li> </ul>	<ul style="list-style-type: none"> <li>• Buttermilk</li> <li>• Processed cheese and cheese foods</li> </ul>
<b>PROTEIN</b>	<ul style="list-style-type: none"> <li>• Fresh meats and fish</li> <li>• Tuna packed in water</li> <li>• Dried beans and peas</li> <li>• Eggs, especially egg whites</li> </ul>	<ul style="list-style-type: none"> <li>• Salted, cured, or smoked meats</li> <li>• Canned meats</li> <li>• Canned or smoked fish</li> <li>• Lunchmeats</li> <li>• High-sodium frozen meals</li> </ul>
<b>DESSERTS, SNACKS</b>	<ul style="list-style-type: none"> <li>• Fruit</li> <li>• Angel food cake</li> <li>• Unsalted pretzels, popcorn, nuts</li> <li>• Low-fat pudding</li> </ul>	<ul style="list-style-type: none"> <li>• Baked goods made with baking soda</li> <li>• Salted pretzels, nuts, chips</li> </ul>
<b>FATS, OILS</b>	<ul style="list-style-type: none"> <li>• Tub or liquid margarine</li> <li>• Unsaturated fat oils (canola, olive, corn, sunflower, safflower, peanut)</li> </ul>	<ul style="list-style-type: none"> <li>• Salted butter or margarine</li> </ul>
<b>CONDIMENTS</b>	<ul style="list-style-type: none"> <li>• Fresh or dried herbs</li> <li>• Spices</li> <li>• Salt-free seasoning mixes</li> <li>• Vinegar</li> <li>• Lemon or lime juice</li> <li>• Pepper sauce</li> <li>• Simple salad dressing (such as oil and vinegar)</li> </ul>	<ul style="list-style-type: none"> <li>• Salt, sea salt, garlic salt</li> <li>• Seasoning mixes containing salt</li> <li>• Bouillon cubes</li> <li>• Ketchup</li> <li>• Pickles, olives, relish</li> <li>• Barbecue sauce</li> <li>• Worcestershire sauce</li> <li>• Soy sauce</li> <li>• Salsa</li> </ul>

# HEALTHY EATING

## Cooking and Eating Out

Even when you must eat away from home, you can do it in a healthy way. Here are some tips to help:

- Ask for heart-healthy menus
- Ask for food with no salt or MSG
- Use fat-free or 1% milk
- Choose broiled, grilled, steamed, or poached foods instead of fried foods
- Use low-fat or fat-free salad dressings or none at all
- Ask for salad dressing or sauces to be served on the side
- Choose substitutions like a baked potato or steamed vegetables instead of French fries or breaded and fried vegetables
- Use small amounts of light or fat-free margarine instead of butter or stick margarine

**NOTE: Seasonings that have low or no salt include basil, dill, curry, chives, paprika, thyme, oregano, rosemary, red pepper, ginger, onion powder, garlic powder, and black pepper.**

## Limiting Cholesterol and Fat in Your Diet

Cholesterol is a fat found in the bloodstream and the body's cells. Too much cholesterol can cause a buildup in the walls of blood vessels and clog your arteries. It can lead to coronary artery disease and worsen your heart condition. Limiting your cholesterol intake will help you manage your heart condition.

Limiting your fat intake also can help manage your heart condition. Saturated and trans fats are most harmful and should be limited. These fats can raise blood levels of cholesterol, which can increase your risk of heart attack and coronary artery disease. Monounsaturated fats are better for you and can help lower cholesterol levels. Examples of monounsaturated fats are nuts, seeds, and olives, as well as canola, peanut, and olive oils.

**To help reduce cholesterol and fat in your diet:**

- Use skim or low-fat milk
- Eat low-fat cheese
- Remove skin from chicken or turkey
- Eat baked, grilled, broiled (not in butter), or steamed foods
- Use egg whites
- Try low-fat frozen yogurt

## Reading Nutritional Labels

Reading food labels will become an important part of your heart-healthy lifestyle. Pay special attention to the number of calories and the amount of sodium in each serving. Select food with no more than 140 mg of sodium per serving. Avoid foods entirely that have more than 300 mg of sodium per serving.



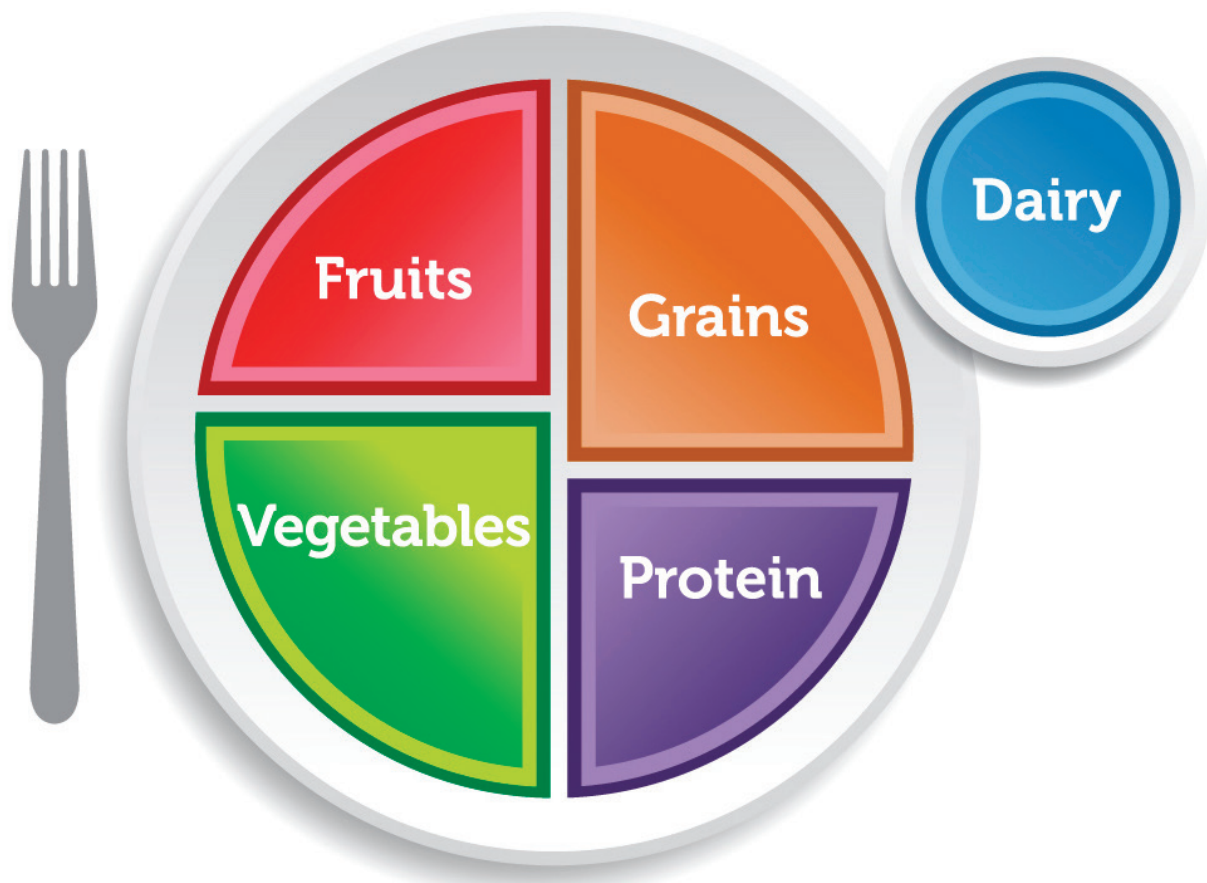
## UAB Nutrition Sciences Recipe: Crispy Chicken Fingers

### Ingredients:

- 1 pound skinned, boned chicken breasts, cut into 18 strips
- 1/4 cup low-fat mayonnaise
- 2/3 cup instant potato flakes
- 1/4 cup grated Parmesan cheese
- 1/2 teaspoon garlic powder
- 1/8 teaspoon paprika
- Vegetable cooking spray

Combine chicken strips and mayonnaise in a shallow bowl and turn the chicken strips to coat well. Combine potato flakes and next four ingredients in another shallow bowl. Dredge chicken strips in potato flake mixture and place on baking sheet coated with cooking spray. Bake at 375° for 18 minutes and broil 3 inches from heat (with electric oven door partially opened) for 3 minutes or until chicken is lightly browned and crispy.

*Yield: 6 servings • Per serving: calories 142, fat 4g, saturated fat 2g, protein 18g, carbohydrates 7g, fiber <1g, cholesterol 45mg, sodium 308mg*



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# PHYSICAL CONDITIONING

As early as one week after discharge, you'll receive a referral to one of UAB's cardiopulmonary rehabilitation programs, depending upon the kind of surgery you've had. A cardiac rehabilitation specialist will speak with you prior to discharge.

Cardiac rehabilitation is an outpatient program of supervised exercise and education that helps many patients with heart disease recover faster and return to full and productive lives. Your blood pressure, heart rate, and responses to exercise will be watched closely. At the end of the program, an exercise plan will be outlined for you.

The exercises in this booklet are meant for those people who will be exercising at home. If you go to a cardiac rehabilitation program, you may be told to do exercises that are more strenuous than the ones shown in this booklet. This is fine; the rehabilitation program staff is monitoring you while you exercise and is trained to know exactly how much you should exert yourself.

If you exercise at home, stick with the exercises in this booklet for the first three months after surgery to avoid overexerting yourself. Do not progress to more strenuous exercises without first checking with your doctor.

**NOTE: Talk to your health care provider before starting any exercise program.**



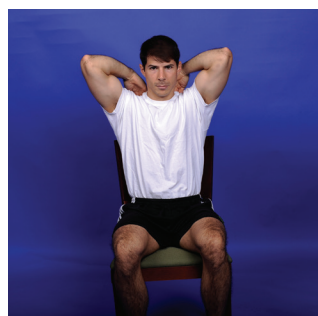
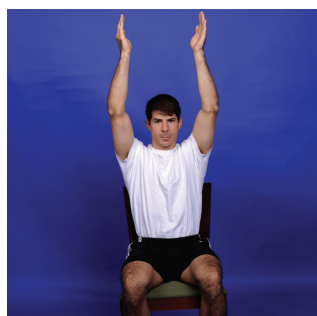
## Diagonal arm exercises

Begin with your arms down by your sides. Reach around and grab your shoulders, then return to the starting position. Repeat 10 times at first, then gradually progress to 20 times.



## Marching in place

Sit on a chair. March in place, raising your knees high. Repeat 10 times at first, then gradually progress to 20 times.



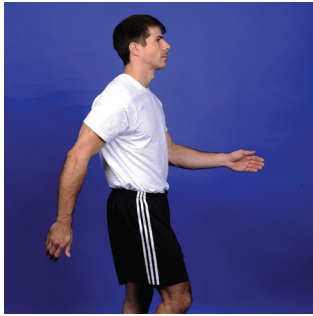
## Shoulder touches

Begin with your arms over your head. Keeping your elbows close to your ears, reach back and touch your shoulders, then return to the starting position. Repeat 10 times at first, then gradually progress to 20 times.



## Knee extension

Sit down. Straighten your left leg and slowly lower it back to the floor. Repeat with your right leg. Repeat 10 times with each leg at first, then gradually progress to 20 times with each leg.



## Walking

Begin with the speed and duration of walking you were doing while in the hospital. Start out slowly and gradually build up your walking time, speed, and distance as you become stronger. When you get home, you should walk 3 to 4 times daily, as you did in the hospital, until you can walk 10 minutes without stopping each time. When you reach that goal, you can begin walking twice a day, continuing to build your walking time until you can walk 30 minutes without stopping. We've provided sample walking plans in this booklet to help guide your progress.



## Half chair squats and full chair squats

Stand and hold onto a stable object such as the kitchen counter. Bend your knees slightly, as if to sit down, then stand up straight. Repeat 10 times at first, then gradually progress to 20 times.



## Side neck bends

Bend your head to the side, as if to touch your shoulder with your ear. Then bend your head to the other shoulder. Work slowly. You can do this exercise while sitting if you prefer. Repeat 10 times, then gradually progress to 20 times.

## Sample Walking Plans

The long-term goal is to include at least 30 to 60 minutes of moderate-intensity physical activity five to seven days a week. To start, choose a time and intensity level that's comfortable for you. As you're able, gradually increase the time and frequency of your walks until you reach your physical activity goal.

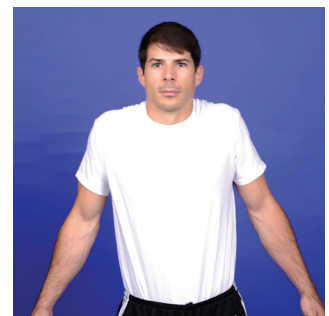
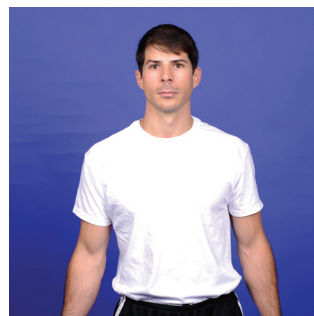
### LEVEL I

Day	Comfortable walking	Times a day
1 . . . .	5 minutes . . . . .	3
2 . . . .	7 minutes . . . . .	3
3 . . . .	10 minutes . . . . .	2
4 . . . .	12 minutes . . . . .	2
5 . . . .	13 minutes . . . . .	2
6 . . . .	15 minutes . . . . .	2

When you're able to walk comfortably for 15 minutes, you may move to Level II. Start each workout with a five-minute warm-up and end with a five-minute cool-down of slower-paced walking.

### LEVEL II

Week	Brisk & comfortable walking	Total time
1 . . . .	5 minutes . . . . .	15 minutes
2 . . . .	10 minutes . . . . .	20 minutes
3 . . . .	15 minutes . . . . .	25 minutes
4 . . . .	20 minutes . . . . .	30 minutes
5 . . . .	25 minutes . . . . .	35 minutes
6 . . . .	30 minutes . . . . .	40 minutes
7 . . . .	35 minutes . . . . .	45 minutes
8 . . . .	40 minutes . . . . .	50 minutes
9 . . . .	45 minutes . . . . .	55 minutes
10 . . . .	50 minutes . . . . .	60 minutes



## Shoulder shrug

Breathe in deeply while bringing your shoulders up to your ears. Then breathe out, relax, and let your shoulders fall back to their resting position. Repeat 10 times, then gradually progress to 20 times.



# PHYSICAL CONDITIONING



## Fit for Life

The information in this booklet tells you how to recover from your heart surgery. However, you still need to continue to take care of your heart after you have recovered. Studies have shown that people who continue to take care of their heart after surgery are much less likely to have problems later.

### **A few things you can do to take care of your heart, even after you've recovered from the surgery:**

- Stop smoking.
- Continue to eat a heart-healthy diet.
- Continue to exercise on a regular basis. Walking is best for most people, but you may talk to your doctor about other exercise options if you wish.
- If you're a diabetic, do whatever your doctor has prescribed for you to keep your diabetes under control.
- If you have high blood pressure, do whatever your doctor has prescribed for you to keep your blood pressure under control.
- If you're overweight, gradually lose weight until it's at a desirable level. We don't encourage crash diets or fad diets. Most people are able to reach and maintain a healthy weight by eating our Heart-Healthy Diet. Talk to your doctor about what weight is desirable for you.

### **Why choose to walk?**

It's easy. It's cheap. It's safe. It improves your health. But if you don't like to walk or can't walk, choose any activity that lets you move.

### **How often should I walk, and how long should I walk?**

It depends on how active you are now and your health condition. Just increasing your daily activities will improve your health. We'll help you choose a level that's right for you.

### **Can I talk while I walk?**

You should be able to walk and talk at the same time. If you can't talk because you're gasping for air, you're walking too fast. If you can talk as easily while walking as you can when you're still, you should try walking a little faster. You should feel comfortable while walking.

### **Where can I walk?**

You can walk anywhere that's easy, close, and safe for you. Plan where you'll walk before you go. Think of flat areas where you can walk comfortably, like shopping malls, school tracks, or streets near your home. Pick a time and place that's convenient for you. Plan to walk with someone. If you can't, be sure someone knows when and where you're walking.

### **When should you not walk?**

Do not walk if you're sick or have a fever. Wait 24 hours after your temperature is normal before increasing your activity.

Do not walk outdoors if the weather is too hot or too cold. Find a place (like a shopping mall) to walk when the weather isn't good.

Do not walk right after you eat a meal. Your heart is busy pumping blood needed to digest your meal. Wait to walk at least one hour after eating.

If you miss more than three days of walking, decrease your time and begin again slowly. This is a plan for life, so don't worry about catching up too soon.

### **What do I wear?**

Wear loose-fitting clothes. You should have comfortable shoes that fit well. Well-cushioned shoes like athletic shoes work well. Wear socks to give a little more cushion and help prevent blisters.



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