Cardiovascular Rehabilitation and Your Best Health

A Guide for Patients and Families

stlukesonline.org
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Cardiovascular Rehabilitation

The goal of cardiovascular rehabilitation is to stabilize, slow, or even reverse the progression of cardiovascular disease. A program of cardiovascular rehabilitation is recommended by the American College of Cardiology for the following people, unless their health care provider determines there’s a specific reason not to. These people include:

- Those who’ve had a heart attack
- Those who’ve had a stent placement (even without heart attack)
- Those who’ve had open heart surgery (valves, heart transplant, coronary artery)
- Those who have persistent chest pain despite treatment (medication or intervention)
- Some people who have congestive heart failure

Cardiovascular rehab is recommended because it decreases your risk of dying from heart disease, diabetes, cancer, stroke, and dementia, helps you improve your quality of life, and creates a sense of well-being and optimism about the future.

Decreases Risk of Dying and Disability

Studies show that heart patients participating in cardiovascular rehabilitation can decrease their risk of dying of all causes over the next 10 years up to 45%, compared to heart patients who don’t participate.

St. Luke’s medically-supervised program is tailored to fit each client’s needs, and includes:

- Exercise
- Nutrition
- Weight Management
- Medication and Symptom Management
- ECG Monitoring
- Education
- Counseling and Emotional Support

Clients learn to modify risk factors including:

- High Blood Pressure
- Nicotine Use
- High Blood Cholesterol
- Physical Inactivity
- Obesity
- Diabetes
- Sleep Apnea

They are also counseled on topics such as:

- Appropriate use of prescribed medication
- Overcoming depression and building stress resilience
- Healthy sleep
About Our Facilities
St. Luke’s has cardiovascular rehabilitation programs in Meridian and Twin Falls. Our Meridian clinic is the first of its kind in Idaho. The 12,500 square-foot center features more than 80 pieces of heart-healthy exercise equipment, a full size walking track with joint-friendly surface, classrooms with audio-visual equipment for ongoing learning opportunities, and a kitchen for nutrition presentations and practice.

Our Twin Falls clinic provides state-of-the-art services close to home for people in the Magic Valley and surrounding area.

Rehabilitation Specialists
Your cardiovascular team may include a physician medical director, nurses, nurse practitioners, respiratory therapists, occupational therapists, physical therapists, exercise physiologists, and additional support staff who are on site to monitor each client’s condition and progress as he or she moves through the prescribed physical activities. Your team may also include a registered dietitian, licensed clinical social worker, or nicotine dependence treatment specialist. Updates regarding your progress will be sent to your health care provider.

Physical Benefits
- Decrease weight, stored body fat, blood pressure, resting heart rate, triglycerides, LDL “bad” cholesterol, and blood glucose.
- Increase HDL “good” cholesterol, fitness, endurance, work tolerance, flexibility, and balance.
- Reduce risk factors for further heart problems.

Psychological Benefits
- Decrease tension, stress, fear, anxiety, depression, fatigue, sleep disturbances, and feelings of isolation.
- Increase self-confidence, sense of well-being, zest for life, overall quality of life, ease of re-entrance into work, and participation in social activities.

Cardiovascular rehabilitation is part of St. Luke’s Lifestyle Medicine department. Lifestyle Medicine is the use of lifestyle interventions for prevention, treatment and management of chronic disease. All your providers are Lifestyle Medicine certified.

Check out our video on YouTube to learn more about cardiovascular rehab at St. Luke’s. Search by St. Luke’s Cardiac Rehab and choose “The Patient Experience.”
Your Rehabilitation Team

Each St. Luke’s Cardiovascular Rehabilitation program is unique in services and staff, and offers the same high level of care. Your rehab team may include some or all of the providers listed below.

**Lifestyle Medicine Providers**
Lifestyle Medicine providers can include physicians, advanced practice providers (APPs) such as nurse practitioners or physician assistants. A physician medical director will oversee your care while you’re participating in cardiovascular rehab. The medical director, APP or other St. Luke’s health care providers will be available during your rehab sessions for emergencies and urgent medical matters. You will be given the opportunity to meet with our Lifestyle Medicine providers in a shared medical appointment or individual appointment.

Your cardiac rehabilitation team will help manage your conditions and medications as needed, in cooperation with your primary care physician and specialists. These conditions may include hypertension, diabetes, tobacco use, cholesterol problems, weight management, depression, anxiety, heartburn, COPD exacerbations, sleep apnea, chest pain, and other conditions related to your cardiovascular health.

**Friendly Front Office Staff**
The front office staff are the first faces you see when you arrive, and are here to help guide you through your cardiovascular rehab experience. They’ll assist in checking you in and out of your appointments, answer and direct your questions appropriately, and guide you through any billing and insurance questions.

**Licensed Clinical Social Worker**
You have the opportunity to meet with our counselor to address needs such as psychosocial, socioeconomic, access to community resources, nicotine dependence treatment, anxiety, or depression. You will also have access to education regarding mindfulness, stress reduction, and gratitude techniques to help you become more resilient in the face of stress. You may use counseling services for phase II of rehab, and will be referred out for services to a provider in the community if additional counseling is needed after program completion.

**Diabetes Educator**
If you have diabetes, you can count on our diabetes educator to help you gain the knowledge that will empower you to manage your disease. Diabetes education is not a lecture on what not to do; it’s real-life guidance, coaching, and support that’s got a proven record of success. It can help you understand exactly how to best manage your diabetes, and help you feel less alone while doing it.

**Medical Assistant**
The medical assistant works directly with our medical director, and acts as a liaison between you and your cardiovascular rehab providers. The medical assistant can help you prepare for your appointments, will routinely check with you during your visits, will follow up with you about ongoing issues, and will relay information to your providers.

**Dietitians**
Dietitian consultations are available to focus on your individual dietary needs. You can schedule a one-on-one appointment to learn more about topics such as eating a whole-food, plant-based diet, and controlling carbohydrates, sodium, sugar, and saturated fat. Your cardiovascular rehab dietitians can also help you with meal planning and recipe ideas.
Physical and Occupational Therapists
If you have balance concerns, you can meet with a physical therapist (PT) and occupational therapist (OT). They will perform a formal balance and fall risk assessment, and can help design an individualized balance retraining home exercise program for you. Regular follow-up appointments are available to reassess your balance and fall risk, or to revise your home exercise program. Your PT and OT can also assist with concerns regarding performing activities of daily living and energy conservation. The appointments include instruction on use of equipment and techniques to conserve energy, increase independence, and minimize shortness of breath.

Respiratory Therapists
If you have pulmonary concerns, you can schedule an appointment with a respiratory therapist (RT). The RT will give you a complete assessment, and develop a personalized pulmonary care plan for you. Your appointment will include a review of your current medications, oxygen therapy program, pulmonary hygiene, and an action plan to prevent an exacerbation and admission to the hospital.

Exercise Physiologists and Specialists
A clinical exercise physiologist (EP) is similar in training and experience to a physical therapist. They specialize in general strength and conditioning programs for people with heart disease, chronic lung disease, diabetes, and other metabolic disorders like arthritis and renal disease. Your EP will work with you on an individual exercise program to help you return to your pre-event level of functioning. This program typically results in an overall improvement in strength and endurance that’s even better than before your heart event. Your EP will also help you develop individual goals to address specific work, recreational, and self-care needs.

Registered Nurses
Registered nurses (RNs) are available throughout your cardiovascular rehab program. They will assist you with understanding your heart condition, your medications, and your personal risk factors, and will help you address any concerns or symptoms that may arise. Nurses will complete a thorough assessment of your medical history, symptoms, lifestyle, and medications during your first appointment at rehab, and as needed throughout the program.

Case Managers
A case manager will be assigned to you for the course of your rehab. He or she will be your contact person for any questions or concerns, and will update you on your progress. Your case manager will help develop an individualized treatment plan, provide individual monitoring, and help you track your progress.
Cardiovascular rehabilitation can improve your quality of life. If you’ve had a heart attack or open heart surgery, research shows that a structured, monitored exercise program focusing on lifestyle modifications can save your life. You may have fears or be apprehensive about starting a program like this. Many people do. It’s perfectly normal. Your fears may be due to some common myths associated with cardiac rehab.

**Myth 1: I don’t exercise and am not in good physical shape.**
People often believe they need to be in good physical shape before starting an exercise program. The truth is, our cardiovascular rehab program tailors the exercise program to each individual. Your first visit is a detailed evaluation of your medical history, current condition, and level of fitness. Your exercise program will be designed to begin at your current level, increasing slowly and safely to get your body in better physical shape.

**Myth 2: Exercise is unsafe.**
Actually, a regular exercise regimen can decrease your risk of added health problems! After a heart event, the safest place to exercise is at a formal cardiovascular rehab program. If any problems arise during exercise, trained health care professionals are right at your side to help. Our cardiovascular rehab experts are with you every step of the way to make sure you increase your physical fitness with a safe, personalized approach.

**Myth 3: Cardiovascular rehab is only for people who’ve had a heart attack.**
Cardiovascular rehab is important for people recovering after a heart attack; however, it’s just as important for people with other heart conditions. A cardiovascular rehab program is appropriate for anyone with heart disease. Including those who’ve undergone an open heart surgery such as coronary artery bypass, heart valve replacement, or heart transplant. Rehab also may be appropriate for people with angina or heart failure. Talk to your health care provider about whether you may be a candidate for cardiovascular rehab.

**Myth 4: Cardiovascular rehabilitation is only about exercise.**
Exercise is just one (very important) part of our program. We also focus on diet, nicotine dependence treatment, improving quality of life, medication management, stress management, depression, education, and psychological support. We take a holistic approach to rehabilitation, meaning we look at each individual as a whole, including physical, mental, and social components. You may also find an added benefit of the program is meeting others with similar conditions; you can share common experiences and give each other social and emotional support.

**Myth 5: Cardiovascular rehab is mostly for men and for older people.**
Heart disease is the #1 killer of women, causing one in three deaths each year. That’s approximately one woman every minute! According to the American Heart Association, heart disease and stroke account for 26.5% of all female deaths in Idaho. On average, nearly four women die from heart disease and stroke in Idaho each day. It’s just as vital for women as men to attend a cardiovascular rehab program.

Heart disease affects people of all ages, not just the older population. And most people with heart disease will find that exercise in a formal rehab program can be safe and beneficial, no matter their age. Because your rehab program is tailored just for you, it’s designed to meet your specific needs and help you achieve your specific goals, whatever your age or gender.

**Myth 6: After I complete the program, I’m done.**
You may believe that after completing a three-month cardiovascular rehab program, your work is done and your heart problem is “fixed.” The truth is, the program is the first step! A rehab program can help you improve elements of your lifestyle to better your health, but your new healthy lifestyle needs to be maintained for the rest of your life to continue to reap the benefits. The goal of our program is to empower you with the knowledge and tools you need to achieve and maintain your best possible health and quality of life.
You’ll be better prepared for your first cardiovascular rehab session if you know what to expect. Here’s a look at your typical daily routine:

• When you arrive, you’ll weigh yourself on our scale.

• You’ll report to the monitor station, where your case manager and other staff members will be waiting for you. You’ll report your weight, and a staff member will assign you a heart monitor and assist as needed.

• You’ll take a seat on the closest bench, and after resting for five minutes, a staff member will take your blood pressure and pulse. You’ll receive your individualized exercise prescription.

• At the scheduled class time, you’ll begin warm-ups with your group, followed by cardiovascular exercise.

• You’ll follow your exercise prescription—formulated just for you. The staff will help you get started and familiarize you with the exercise equipment.

• After cardio exercise, you’ll do your strength training class, where you’ll work with weights. After a few weeks, you’ll transition to an individual strength program.

• After strength/weights, you’ll cool down by completing a minimum of two walking laps.

• You’ll return to the center of the gym and have a seat. You’re almost done! You’ll rest for five minutes and we’ll take your final blood pressure. During this time, you’ll receive education on the topics listed in this workbook.

• Next, you’ll unhook the heart monitor, wipe it down with an antiseptic wipe (located throughout the gym area), and return it to the monitor station.

• Then you’ll congratulate yourself on completing your first session, and taking your first steps to heart health!

**Important Reminders**

• Please let staff know if you experience any discomfort or symptoms before or during cardiac rehab, such as:
  • Discomfort or pain in the chest, arms, jaw, neck, ears, teeth, back, or shoulders
  • Any new or unusual symptom
  • Dizziness, lightheadedness, rapid or irregular heartbeat
  • Shortness of breath, nausea, vomiting

• If symptoms occur at home, call 911.

• Pace yourself with the Rate of Perceived Exertion (see page 93).

• Don’t compare yourself with others in your class; you’re all at different levels and have different goals. Your program is individualized and tailored specifically to you.

• Follow your prescribed exercise, and talk with staff if changes need to be made.

• Continue taking your medications as prescribed; make staff aware of any medication changes.

• If you have diabetes, we may check your blood glucose levels before and after exercise. Please bring a snack with you.

• Don’t eat a large meal before exercise. A light meal or snack before your session is recommended.

• Please avoid caffeine or tobacco two hours before exercise, as they can elevate your heart rate and blood pressure.

• **Enjoy yourself!** And remember, you’re taking the first steps to improving your health!

Please help us keep our gym clean by wiping down equipment after you use it. Thanks!
Consistent participation is vital to your success in cardiovascular rehabilitation. Our attendance guidelines are designed to be flexible, but to also hold you accountable so you can make continuous progress and get the most out of rehab.

• You’re expected to attend a minimum of two times per week.
• Absences due to personal reasons exceeding one week may result in you losing your class spot and being placed on a waiting list.
• More than six unexcused absences (when you don’t notify rehab staff of your absence in advance) in a 12-week/36-session program may result in your early discharge from the program.
• Excused absences (when you call the rehab office or notify the staff in advance) include emergencies, physician appointments, illness, special circumstances, events, and other reasons as determined by your case manager.
• You should notify staff of planned absences if at all possible.
• You should call to inform us of last-minute absences whenever possible.
• Please keep in mind that if you don’t call us when you’re absent, we’ll call you!

Winter Travel Advisory
We run in accordance with the local school district. If schools in the local district are closed due to snow or road conditions, we’ll be closed as well. On other days when weather may be a factor in getting to class, please stay home if you don’t feel safe driving. Just remember to call and let us know. We’d rather you stay home than risk driving in bad conditions!

Cardiovascular Rehab Phone Number:
__________________________________________________________

My Class Time: ________________________________________________

Days of the Week: ______________________________________________

MyAssigned Case Manager:
__________________________________________________________
Cardiovascular rehabilitation is a covered benefit by most insurance companies, including Medicare, Medicare Advantage plans, commercial plans, and individual policy plans. Our front desk staff will do their best to provide you with an estimate of what your insurance will cover. Since we can’t guarantee benefits, we suggest you contact your insurance company with any questions regarding coverage and authorization.

A few tips about insurance

• **Prior authorization**: This may be required prior to services being rendered. The front desk staff will submit documentation to the insurance company. Some companies will have a completion date requirement or a limited amount of sessions that will be covered.

• **Co-pays**: Your policy may have you pay a co-pay or co-insurance per visit. We don’t collect the co-pay at each visit, but you will receive a monthly bill.

• **Direct policy exclusions**: Some plans don’t cover cardiovascular rehab. We’ll let you know if your plan does not cover the program, before you start.

Understanding your bill

• Cardiovascular and pulmonary rehab are billed through the hospital. You’ll receive the same documentation you would get for a hospital stay, labs, etc.

• We submit charges at months’ end. You may not see your first bill for 30 days or more, depending on when you start the program.

• If you have questions regarding your bill, please call St. Luke’s Patient Financial Services at 208-706-2333.
Getting the Most from Your Rehab Experience

Our goal at St. Luke’s is to give you an individualized plan for improving your health, quality of life, and life expectancy through cardiovascular rehabilitation. We encourage you to take advantage of everything we offer to get the most out of your rehab experience. Just follow these tips for your greatest success:

1. **Engage!**
   - Be engaged in your personal health and wellness, and be an active participant.
   - Know your individual risks for the heart disease, as well as other diseases such as dementia, diabetes, cancer, and stroke.

2. **Know your numbers.**
   - Your numbers are your cardiovascular risk factors. How close are you to your target numbers at the start of the program? What factors can you impact? Re-check the numbers when you finish the program to see your progress. See page 20 for a tool to help you track and trend your progress.
   - Don’t forget to ask for your progress report at 30 days and when you finish.

3. **Participate as much as possible.**
   - Show up. Studies show there is a dose response to rehabilitation, meaning it’s more effective the more sessions you attend. For example, coming to rehab three times a week is better than two times a week, and 12 weeks of rehab are better than fewer weeks.
   - Ask questions during the daily group educational sessions.
   - Attend supplemental lectures and cooking classes.
   - Use the food and exercise logs. They’re the most effective tools known for both losing weight and maintaining weight loss.
   - Make a one-on-one appointment with any of our experts to assist you in various aspects of your health and wellness. See pages 4-5 for a description of each and what they can offer you.

4. **Know your case manager.**
   - Ask questions, even if your case manager looks busy. He or she is here for you, and can make time later if necessary.
   - Alert any of the staff if you’re experiencing any new or worsening symptoms such as chest pain, dizziness, or shortness of breath.
   - Keep us informed of changes in your medications or any new diagnoses or procedures.

5. **Know your progress.**
   - Know your progress during rehab by talking to your case manager every 30 days. Know how your numbers are trending, as well as progress to your exercise conditioning.
   - The bottom line is, the more physically conditioned you are, the longer and better quality of life you’ll have, even if you live with chronic health conditions.

When it comes to physical conditioning, for every 1.0 MET increase, there’s a 12-15% decrease in overall mortality in the next seven years after cardiovascular rehab.

*What is a MET?* See page 86.
6. Network!
- The social aspect of cardiovascular rehab can be therapeutic.
- Get to know your classmates. One of them may turn out to be a future exercise partner or friend.
- Consider giving back by volunteering with a patient-run support group for people going through cardiovascular procedures, such as Mended Hearts or WomenHeart (see Chapter 12 for these and other resources).

7. Address stress and learn about emotional wellness.
- Make a one-on-one appointment with our counselor/licensed clinical social worker to address mood issues.
- Learn about adopting a gratitude practice.
- Learn about adopting a mindfulness practice, which can prolong life and promote inner calm and happiness. We practice mindfulness at rehab weekly.

8. Become nicotine free!
- Make an appointment to talk with our physician or our nicotine dependence treatment specialists, or both.
- We offer medication management and individual support to help you adjust to becoming nicotine free!

9. Start building a plan early in your rehab program for how to continue your lifestyle changes.
- Cardiovascular rehab is your three-month kick-start, but what’s next? Start planning how to continue the positive changes you’ve made for the rest of your life.
- Consider where you’ll do your exercise—at home or a community gym.
- Consider getting an exercise partner—a friend, your spouse, or even a dog.
- Participate in the first month of Phase III. It’s free and gives you time to work with our exercise specialists on designing a progressive plan for continued health benefits.

To make effective life-long changes to reduce your cardiovascular risks, you must take an active role and make a positive commitment. The most important member of the rehab team is YOU!
The World Health Organization estimates that 80% of non-communicable diseases (those not caused by infection) could be prevented if four key lifestyle practices were followed:

- Healthy diet
- Being physically active
- Avoiding tobacco
- Moderate alcohol use

In the U.S., we’re living longer but living sicker with increased years of disability in the last decade of our lives. This is related to our health behaviors causing chronic diseases like coronary artery disease, diabetes, dementia, COPD/emphysema, chronic kidney disease and even some cancers. Genetics play only a small part in your risk for disease: only about 20%. In fact, you don’t have to be your genetics; you actually can turn genes on and off with lifestyle behaviors.

**The common cause of chronic disease is inflammation.**

Inflammation is the body’s natural response to injury and outside irritants. It’s necessary for our survival when we have an acute stress like running from a bear. However, the immune system spirals out of control when the injury and irritation are constant, coming from unrelenting health behavior-related stress (one example: routinely poor sleep). This leads to a condition called chronic inflammation. Chronic inflammation damages DNA, ages us, and is a cause of nearly every type of disease.

**Chronic inflammation causes:**

- Direct toxicity to cells
- Blood vessel dysfunction (inability of a blood vessel to dilate and constrict properly)
- Increased tendency to clot
- Insulin resistance (when cells do not respond appropriately to the insulin your pancreas releases)

The good news is that prevention, treatment and even reversal of chronic inflammation and chronic disease are possible. Your lifestyle is the answer.

“Lifestyle as medicine has the potential to prevent up to 80% of chronic disease; no other medicine can match that. In addition, it is potentially inexpensive and even cost-saving: free of all but good side effects, safe and appropriate for children and octogenarians alike. It is, quite simply, the best medicine we’ve got.”

–David Katz, MD, MPH, President of the American College of Lifestyle Medicine

**So what can you do?**

**Behavior matters:**

- What and how much we eat
- How much we move our bodies
- If we use tobacco or drink excessive amounts of alcohol
- How well and how much we sleep
- How we cope with stress
- If we foster close relationships
- If we have a sense of purpose in life and/or a spiritual life
Healthy Eating
The standard American Diet consists of processed foods, animal fat, lots of sodium and too much sugar—all of which contribute to inflammation. Whole-food, plant-based eating is anti-inflammatory. These foods include whole grains, nuts and seeds, beans and lentils, vegetables and fruit. The more plants the better!

Weight Loss
Excessive fat tissue is inflammatory, and obesity in the U.S. is becoming an epidemic. According to the U.S. National Health and Nutrition Examination Survey 2009-2010, two in three adults are considered overweight or obese. Reaching a healthy weight is anti-inflammatory. It can be difficult to achieve and sustain large amounts of weight loss; however, even a weight loss of 5-10% of your body weight is anti-inflammatory and improves cholesterol, blood sugar, blood pressure and mood.

Avoid External Toxins
Tobacco use of all kinds is inflammatory. This includes smoked (cigarettes, cigars, pipes), smokeless (chew, snuff, etc.), and e-cigarettes or vaping. There is no safe amount of tobacco. Tobacco use of any type causes diabetes, rheumatoid arthritis, back pain, heart disease, stroke, erectile dysfunction and many different types of cancer.

Any amount of alcohol use can increase your risk for breast, prostate and colorectal cancers. And the greater the amount you consume, the greater your risk for these cancers. Alcohol in quantities that are more than “moderate” can cause disease through inflammation. This includes liver damage or cirrhosis, high triglyceride and cholesterol levels, atrial fibrillation, heart failure, high blood pressure and many types of cancer.

The recommended “moderate” number of drinks per week for women is 0-7, or one drink per day, and for men is 0-14, or two per day.

Healthy Sleep
The ideal amount of good quality sleep is 7-8 hours nightly. Inadequate sleep and sleep apnea are inflammatory. Sleep apnea is when a person stops breathing or doesn’t take deep enough breaths during sleep. This constantly disrupts sleep, wakes people up and makes it nearly impossible to achieve deep, uninterrupted, restorative sleep. Sleep apnea can be treated. Improving your sleep habits and addressing insomnia to ensure that you regularly get 7-8 hours nightly can improve inflammation.

Healthy Movement
Physical inactivity is the fourth leading preventable cause of death worldwide, according to the Lancet medical journal in 2012. Sitting is the new smoking: it’s inflammatory to be sedentary! Move to decrease inflammation. Start by setting realistic goals and eventually increase the amount of time you spend exercising to get to the optimal amount, which is 150-300 minutes of cardiovascular exercise a week. Brisk walking is the perfect exercise for most people. Try to increase your daily movement, such as getting up from your desk every 30 minutes.

Build Stress Resiliency
Chronic psychological stress also causes inflammation. Stress is part of daily life, but how we deal or cope with it determines how it will affect our bodies. There are healthy ways
(exercise, talk with friends or family, massage, etc.) and unhealthy ways (drink alcohol, isolate yourself, spend large sums of money, etc.) to deal with stress in your life, which can have a significant impact on your risk for disease.

Deliberately working on positive psychology techniques can help build resiliency to stress so your reaction may not be as extreme, debilitating or prolonged. Two tools worth exploring:

- **A gratitude practice** is one way to help recover from difficult events, as well as reduce anxiety and depression. It's also the fastest, cheapest and easiest way to increase personal happiness. By practicing gratitude, you affirm the good things in your life, which helps you remain positive.

- **Mindfulness** is a practice that makes you aware of thoughts, feelings, bodily sensations and environment. It allows you to accept what is present, create calmness and reduce negative emotions.

**Healthy Relationships**

Loneliness is inflammatory. It’s not the quantity of relationships but the quality that matters. Having three or four close friends is enough to ward off negative health effects. There is a 50% lower risk of dying at any period if you have strong ties to family and friends, compared to people who have fewer social connections.

It’s worthwhile to cultivate new friendships and engage in positive social interactions. It’s anti-inflammatory to develop social relationships with people who share similar attitudes, interests and values with you. And don’t forget to practice gratitude for those meaningful relationships in your life.

**Sense of Purpose**

Purpose is gaining meaning from your life experiences, and feeling that life is worth living. Having a sense of purpose gives you a sense of vitality, motivation and resiliency to stress. It is anti-inflammatory. It can also decrease your risk for dementia, heart disease and stroke. A loss of purpose, which is inflammatory, can occur at different times in your life such as retirement, death of a loved one, or during money or relationship problems.

There are ways to cultivate a sense of purpose:

- Reflect on your unique talents and passions, and what you care about most.
- Look at the needs of the world around you and your loved ones, and find where you can make a difference.
- Believe deeply in something.
- Assign meaning to your experiences.
- Practice a faith.
- Volunteer.
Tips for Adopting Healthy Habits
When starting new healthy habits or lifestyle changes, it helps to make goals. When developing your goals, think S.M.A.R.T.

• **Specific.** Ask yourself what you want to accomplish and make sure your goal is specific enough to answer these questions: Who is involved? What do I want to accomplish and why? When and where will this happen?

• **Measureable.** Having a measurable goal allows you to track your progress. It can be quantitative (I will eat one fruit three days next week) or descriptive (I will get to bed by 10 p.m. nightly).

• **Attainable.** Make sure your goal is attainable by setting a goal you can achieve. Assess any limitations or obstacles you may cross and determine ways to overcome them. Be realistic with yourself when setting goals.

• **Relevant.** Reflect on your goals and determine if the goal will be fulfilling for you. Or is there a goal that’s more important to you? Conflicting plans can hinder goals. Ask yourself: Does the goal fit in with what’s going on in the rest of my life?

• **Time-based.** Chose a timeframe in which your goal will be achieved. Setting a timeline can help you identify specific actions needed to work toward your goal. Setting benchmarks can help you track your progress. Be sure to focus on the short- and long-term benefits or achieving your goal.

Self-monitoring is helpful when adopting healthy habits. Try keeping a log book or using an online tool or calendar to track your habits. For weight loss, monitor your weight daily/weekly, keep a food diary, or track your progress in an exercise log.

Build accountability for your actions by developing goals with a dietitian, coach, friend, family member or your health care provider. And surround yourself with support from friends, coworkers and family.

Avoid the “all or nothing” approach. Start with small goals. As you achieve those, you can build your confidence in your ability to tackle larger goals.

Make SMART goals: Specific, Measurable, Achievable, Realistic, Time-based
Lifestyle is Medicine

Write down your goals and display so you see them daily.
Example: I will walk around my neighborhood 15 minutes every Wednesday and Friday after I have breakfast.

Strengthen your self-care foundation.
Example: Sleep well, move more, eat right, unclutter your environment: It makes you feel better and more open to making change.

Research the change
Example: Take a class and/or read books and articles about meditation, its benefits, how it’s done, etc., before even trying it.

Keep track
Example: Use a calendar, daily check-off, food or exercise diary.

Use scheduling
Example: Make a specific time for it in your day or week and schedule it.

Accountability
Example: I will follow up on my progress with my diary, spouse, friend, doctor, sister, counselor, etc.

Gather your supports
Example: Surround yourself with people who support you and your goals. Also, habits are contagious so surround yourself with people who might be involved in the behaviors you want to achieve, like they enjoy exercise daily or mostly cook whole foods at home vs. going out to restaurants frequently.

Change your environment
Example: Keep junk food out of your office, off your desk, out of your house. Set up your bedroom as a sanctuary for sleeping. Keep your walking shoes near the door. Clean off the stationary bike and have TV/music available in that room.

Change your usual routine
Example: I will call my friend on the phone for a 10-minute chat after dinner instead of eating dessert.

Daily affirmation
Example: I am someone who exercises; I am a non-smoker, etc.

Reward yourself in a healthy way
Example: Go to a movie, get a massage, go to a concert, spend time with friends or family just playing, go for a drive.

Enjoy the process and the results
Example: If being in nature makes you feel good, plan your daily exercise outdoors as many days as possible. Notice the details of your surroundings: the trees, flowers, sky, breeze, etc. If being with friends is enjoyable, make dates to spend time with them doing something like cooking, walking, etc.

Avoid all or nothing thinking. Perfection is the enemy of progress.
Example: Remember that change is always two steps forward and one step back, but overall progress is being made.

What will your first SMART goal be?
___________________________________________
___________________________________________
___________________________________________
___________________________________________
___________________________________________
___________________________________________
Chapter 3: Owning Your Health

Taking Charge of Your Health

Your best health care is a partnership between you and your health care providers. So it’s important that you play an active role in improving your health. Follow these tips to make it happen.

Establish a medical home.

- If you haven’t already, find a primary care provider (PCP) who’s right for you, so you can begin to develop a long-term relationship of mutual trust.
- Your PCP should be a good listener, open to questions, and empathetic.
- Your PCP should be the quarterback of your care and help coordinate your health.

Keep your PCP in the loop.

- Report any new symptoms or problems.
- Inform your PCP of any new diagnoses or medications.
- Tell your PCP about any recent ER visits, hospitalizations, tests, procedures, or surgeries.
- You can communicate with your PCP through your St. Luke’s electronic health record, myChart, which gives you convenient access to your health records. Talk with your PCP’s office staff about signing up for myChart, or if you have any questions about your electronic health record.

Be prepared for your medical appointments.

- Bring a list of any questions or concerns you have to appointments with your PCP, cardiovascular rehab team, or other health care providers. Be sure to give this list to your care provider at the beginning of your appointment.
- Have an updated list of all of your prescriptions.
- Let your PCP or other health care provider know if you’re using complementary or alternative therapies.
- Take notes during your appointment.
- Establish a family member or friend as your health care advocate; consider bringing them to your appointments to help remember or record what was said, and to help ask questions.
- If you have persistent questions about your condition, especially if you were just given a new or shocking diagnosis, email or call your physician later, or even make another appointment to discuss further, after you’ve had time to think and do some research on it.
- Don’t be afraid to ask questions.


Boise/Meridian and surrounding area: (208) 381-9000

Magic Valley and surrounding area: (208) 814-1000
Taking Charge of Your Health

Develop a personal health record and share it with your health care providers. You should also take it with you when you travel. Your health record should contain:

- Personal identification information (name, date of birth, address, phone number, marital status)
- Emergency contact names, their relationship to you, and their phone numbers
- All your health care providers’ names, their specialties, their phone numbers, and even your last appointment with them
- Health insurance information
- Living will or not
- Organ donor or not
- List of significant illnesses, diagnoses, or persistent symptoms
- List of all surgeries with dates
- Current medications with dosages, including over-the-counter medications and supplements
- Allergies or adverse reactions to medications, and what the reaction was
- Immunizations (flu, pneumovax, tetanus, shingles, etc.)
- Family history of illnesses or disease

Make sure you always get your test results.

- Any transition in health care is a potential high-risk time. Your information, including treatment plans, test results, accurate medication list, etc., is at risk for being lost, missed, or miscommunicated. A transition is:
  - Going from home to emergency department to hospital inpatient room
  - Going from inpatient room to home or rehab facility
  - Switching health care providers
  - Going to new health system with a different medical record system
  - Going to a specialist

There are many pieces to the puzzle for you to be your best health care partner, but try not to become overwhelmed. Just remember:

1. **Know yourself and your health issues—knowledge is power.**
2. **Be prepared, and take action.**
3. **Communicate—it’s a two-way street.**
4. **Advocate for yourself, and take charge of your health!**

Make it a point to do these four things every time you meet with your health care providers, and you’ll take control of your health, play a greater role in your health care, and make your experience smoother, safer, and more successful.

- What can you do?
  - Keep your records up to date.
  - Make sure you know your test results and what they mean. Know what the plans are, including any follow-up appointments.
  - Make sure you know what your medications are, why you’re taking them, and at what dose.
  - Keep all your health care providers informed. It will keep you safer!

Make sure your voice is always heard.

- Establish a living will (see page 19 for information).
- Share your wishes with your health care providers, your chosen surrogate decision maker, and your family.
- Don’t be afraid to seek a second opinion.
Know Your Numbers

Knowing and understanding your numbers is an important part of taking charge of your health. Know which ones are at goal, and which ones need to be improved. These numbers will be described in greater detail later in this workbook.

<table>
<thead>
<tr>
<th></th>
<th>BEGINNING OF REHAB</th>
<th>30 DAY</th>
<th>60 DAY</th>
<th>END OF REHAB</th>
<th>1 YEAR AFTER REHAB</th>
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<tbody>
<tr>
<td><strong>Date</strong></td>
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<tr>
<td><strong>Blood pressure</strong></td>
<td>Goal: 120/80</td>
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<td><strong>Waist circumference</strong></td>
<td>Goal: 35 inches or less for women; 40 inches or less for men</td>
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<td><strong>Body Mass Index (BMI)</strong></td>
<td>Goal: 25 or lower is ideal; 30 or lower is a good goal</td>
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<td><strong>Blood glucose (blood sugar)</strong></td>
<td>Goal: 100 or lower is ideal; 120 or lower if you have diabetes</td>
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<td><strong>Hemoglobin A1C</strong></td>
<td>Goal: 7.0 or lower if you have diabetes; 5.7 or lower if you have prediabetes</td>
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<td><strong>Triglycerides</strong></td>
<td>Goal: 150 or lower</td>
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<tr>
<td><strong>HDL cholesterol</strong></td>
<td>Goal: 40 or higher for men; 50 or higher for women; 60 or higher is ideal</td>
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<tr>
<td><strong>LDL cholesterol</strong></td>
<td>Goal: 100 or lower</td>
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<td><strong>Moderate exercise</strong></td>
<td>Goal: 150-300 minutes per week is ideal</td>
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<td><strong>MET level</strong> (measure of physical conditioning)</td>
<td>Goal: _____________</td>
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</tbody>
</table>
Durable Power of Attorney for Health Care, Living Will, POST
These are documents you complete ahead of time to express your wishes for your health care in case you become unable to make your own decisions.

Advance Directive for Health Care
This allows you to write down goals, values and preferences for future health care decisions and who you want to communicate for you if you can’t.

The situation: A life-threatening event has left you unable to communicate with those around you or to participate in your daily care, treatment planning or decision making. Even though all care and available treatments are being provided, your doctors have determined your illness or injury cannot be cured and death is likely, or your brain function will not return.

Durable Power of Attorney for Healthcare ("agent" or "proxy")
You select who you want to make medical decisions for you if you are unable to do so. This is called your Health Care Agent.

- It only takes effect if you are unable to make your decisions
  - You do not need to be terminally ill or suffering from an irreversible coma.
  - This is different from a power of attorney. A power of attorney is for finances and property; this applies to health care only.
- One agent serves at a time, but you can have three backup agents in case the first individual is unable or unwilling to serve.

Criteria:
1. At least 18 years old.
2. Must NOT be your health care provider or an employee at your hospital, clinic or other place where you receive care (unless he/she is a close relative).

3. He/she will carry out your instructions on this document and follow the health care choices you make on the document Living Will for Health Care (even if he/she does not agree with them).
4. He/she will carry out any other health care instructions you have discussed with him/her.
5. He/she must understand the role of a Health Care Agent.
   a. Accept this role.
   b. Talk with you about your goals, values and preferences.
   c. Follow your decisions, even if he/she does not agree.
   d. Make decisions in difficult or stressful moments according to your instructions.
   e. Make decisions in your best interest that reflect your goals, values and preferences.
Advance Care Planning

Living Will
This allows you to provide written instructions for health care treatments based upon your values and what is important to you. These written instructions are important if you had a life-threatening event, like an accident or serious illness, and cannot communicate for yourself.

Think about “living well” and what that might mean to you:
• What does your best day look like?
• How do you define wellness?
  • Being able to care for yourself?
  • Being mobile?
• What is important for you to be happy or content with your life?

What decisions will you have to make?
1. Is it your desire to have doctors do everything in their power to keep you alive?
2. The only life-sustaining measures you want are artificial tube feeding or nutrition (food) and/or hydration (water).
3. You wish to receive comfort care and have all artificial life-sustaining treatment, including artificial nutrition and hydration, withheld.
4. Traditions, rituals, culture and religion all play a role in what brings us comfort.
5. Do you want Hospice?

Life sustaining measures are any medical procedures, devices or medications used to keep you alive:
• Medical devices put in you to help you breathe
• Food and water supplied by a medical device (tube feeding)
• CPR (cardiopulmonary resuscitation)
• Major surgery
• Blood transfusions
• Dialysis
• Antibiotics
• Anything else meant to keep you alive

Interventions:
• Tube feeding: A tube is placed in your nose or stomach to provide liquid nutrition when you cannot eat by mouth.
• Ventilator: A breathing machine attached to a tube is placed into your windpipe when you cannot breathe on your own.
• IV fluids: A tube is placed in your vein to supply water when you’re unable to drink.
• Dialysis: A machine removes excess fluid and waste products from your blood when your kidneys no longer work.
• Blood products: Donated blood from a blood bank is provided through a tube placed in your vein and is used to replace blood or blood parts you have lost.
Advance Care Planning

POST – Physician’s Order for Scope of Treatment

This is a standardized form containing orders from a physician that states a person’s medical treatment wishes, in advance of needing medical treatment. It includes DNR (Do Not Resuscitate) orders.

You can select basic interventions:

• If you are not breathing and do not have a pulse, do you want to be resuscitated?
• What level of medical interventions do you want?
  • Would you like comfort care only?
  • Would you want to go to the hospital without life-support treatment?
  • Would you like aggressive interventions to keep you alive?
• Do you want tube feeding and/or IV fluids?
• Do you want antibiotics?
• Do you want blood products/transfusions?

This document is signed by a physician and is more legally binding than a living will if your wishes differ between the two documents. This order can be verbally changed at any time. If you wish to have a DNR order, this document is necessary to complete. If you have a POST form/DNR, it’s good to keep it on your refrigerator or within clear view if paramedics are called by family members. Paramedics are required to adhere to the wishes of a POST form.

Who should have a copy?

• Idaho Registry
• VA, PCP, Health Care Agents, local hospitals

Note:

• Laws differ from state to state.
• When traveling, take a copy with you.
• The medical community will use the most current form on file.

Review and update documents when experiencing any of the “Six Ds”

1. **Decade:** When you begin a new decade in your life.
2. **Death:** When you experience the death of someone you love.
3. **Divorce:** When your Health Care Agent is your spouse or partner and your relationship ends, a new Health Care Agent should be identified.
4. **Diagnosis:** You’re diagnosed with a serious illness.
5. **Discharged:** You’re discharged from a hospital stay.
6. **Decline:** Your illness gets worse.
Chapter 4: Anatomy of the Heart

The Heart’s Chambers
The illustration below explains the function of the heart, the chambers of the heart, and how blood moves through them.

Right atrium
Receives blood from the body after it has used the oxygen it’s carrying, through a large vein called the vena cava. The blood is then pumped into the right ventricle.

Left atrium
Receives oxygen rich blood from the lungs though the pulmonary veins. The blood is then pumped into the left ventricle.

Right ventricle
Receives blood from the right atrium and pumps it through the pulmonary artery to the lungs to pick up oxygen.

Left ventricle
Receives blood from the left atrium and pumps blood out through the aorta. The aorta branches off into smaller arteries that deliver the oxygen rich blood to the rest of the body.

What makes the heart pump?
To pump blood throughout your body, the heart has to contract (squeeze) and relax in a regular rhythm. The heart has its own electrical system that sends out a series of electrical pulses that cause the heart muscle to contract in a sequential rhythm. The muscle of the heart is called myocardium. To learn more about the electrical system of the heart, see page 36.
Anatomy of the Heart

The Heart's Valves
The heart contains four valves. Their job is to keep the flow of blood through the heart moving in one direction. They act as one-way doors that open to let blood through and close to keep blood from flowing backwards.

Aortic valve
Allows blood to flow from the left ventricle into the aorta.

Pulmonic valve
Allows blood to flow from the right ventricle into the pulmonary artery.

Mitral valve
Allows blood to flow from the left atrium into the left ventricle.

Tricuspid valve
Allows blood to flow from the right atrium into the right ventricle.

Normal Aortic Valve

Open

Closed
The Coronary Arteries

The heart not only has its own electrical system, but also has its own plumbing. The coronary arteries are small arteries that deliver oxygen-rich blood to the heart muscle. The coronary arteries are located on the surface of the heart; they start at the base of the aorta and branch off into smaller arteries. The heart is the first organ in the body to receive oxygen-rich blood pumped out of the left ventricle. The major coronary arteries are noted on the illustration below.

My Left Ventricular Ejection Fraction (LVEF) is _________.
LVEF is a measurement of how much blood the left ventricle pumps out with each heartbeat.
Normal LVEF usually is 55% to 65%.

Where are my blockages? _______________________

Where are my stents placed?

____________________________________
____________________________________

Author: Patrick J. Lynch, medical illustrator, derivative work: Fred the Oyster (talk), adaption and further labeling: Mikael Häggström
The Cardiac Electrical System

Your heart’s electrical system controls the rate and rhythm of your heartbeat, keeping a steady rate and synchronized pumping action of your heart.

The electrical system works by sending synchronized electrical signals through cells in the heart that tell the heart muscle when to contract, or squeeze.

The signals travel through a specific pathway to transmit an electrical charge so the heart will contract in one coordinated motion, creating a heartbeat.

The heartbeat happens in this sequence:

1. The sinoatrial node (SA node) is the pacemaker of the heart and sends on an electrical impulse.
2. The upper chambers of the heart—the atria—contract, pushing blood into the lower chambers of the heart.
3. The atrioventricular node (AV node) then sends an impulse to the lower chambers of the heart down through the bundle branches and then the Purkinje fibers.
4. The lower chambers of the heart—the ventricles—then contract, pushing blood out to the lungs and the rest of the body.
5. The SA node then sends out another signal starting another cycle.

The electrical system is important to keep the heart pumping in a coordinated and effective way. When the normal signal is changed or disrupted, an arrhythmia can develop. See page 38 for more information.
Heart disease is a generic term that describes many different problems that affect the heart. Heart disease can affect your coronary arteries, heart valves, heart rate and rhythm, or heart muscle.

Heart disease is the No. 1 cause of death in the U.S., striking a new victim about every 34 seconds. Despite these grim statistics, many people live long and rewarding lives with heart disease. The key is being an active participant in your health, reducing your risk factors, and taking good care of yourself.

Coronary Artery Disease

The heart is a muscle, and like all other muscles in your body, it needs oxygen-rich blood to function. The major blood vessels that supply your heart with blood are called coronary arteries.

Coronary artery disease is a chronic condition that occurs when the arteries in your body become irritated, inflamed, and less flexible (called endothelial dysfunction), allowing cholesterol to build up inside them (also called atherosclerosis).

As the plaque builds inside the artery, the blood flow through the artery is decreased. The reduced blood flow to the heart muscle can cause chest pain (angina), shortness of breath, or other symptoms. Some people, however, experience no symptoms.
What Causes Coronary Artery Disease?

Our current understanding is that **chronic inflammation** is the cause not only of cardiovascular disease, but diabetes, dementia, and certain cancers. The good news is that healthy lifestyle habits can reduce inflammation and help you live a better quality of life—as well as a longer life—by decreasing the severity of cardiovascular disease and preventing other conditions.

**Chronic inflammation** is the common thread in all the risk factors for coronary artery disease (CAD), both reversible and irreversible.

*Note: “Anti-inflammatory” medications DO NOT help; in fact, they can cause worse disease.*

**Risk Factors**
Risk factors for coronary artery disease (CAD) include anything that damages your arteries (see details in chapter 5). Some risk factors are out of your control, such as your age or family history. Others are within your ability to change, including lifestyle choices such as smoking, activity level, diet, and stress.

**How do I know if I have CAD?**
Unfortunately, most people don’t know they have the disease until it’s well advanced. At this point, you may experience angina or a heart attack.

**About Angina**
Angina is the chest pain or discomfort you feel when your heart muscle is not getting enough oxygen-rich blood. Most commonly, you experience angina when you’re doing something active, such as walking or mowing the lawn. This occurs because your heart muscle demands more oxygen-rich blood when you’re active. When demand for oxygen-rich blood decreases (usually with rest), angina symptoms usually go away, too. However, as coronary artery disease progresses, angina can start occurring at rest as well.

Angina is not a disease, but a symptom of **coronary artery disease. It’s a warning sign that you’re at an increased risk for a heart attack!**

**Treating Angina**

- The goal of angina treatment is to reduce discomfort and treat the underlying heart problem, thereby reducing the risk of heart attack or death.
- Symptoms can be controlled through medications, lifestyle changes, and a medically supervised exercise program developed for you at **Cardiac Rehabilitation**.
- Angioplasty can be performed to open a narrowed artery. Sometimes it is necessary to have coronary bypass surgery (open heart surgery) to bypass a narrowed artery.
- **Call 911 if angina symptoms last longer than five minutes, are new or different from previous angina, or are not relieved by nitroglycerin as prescribed.**
Q. What is a heart attack (myocardial infarction)?
A. Your heart is surrounded by arteries (called coronary arteries) which deliver oxygen-rich blood to your heart muscle. A heart attack occurs when the blood flow through an artery is blocked and oxygen-rich blood cannot pass through. If the heart muscle is deprived of oxygen long enough, damage or even death to the heart muscle occurs.

Q. What causes a heart attack?
A. Plaque (a sticky substance caused by cholesterol in the blood) can build up over time causing narrowing or blockage of a coronary artery (also known as atherosclerosis).

Plaque that forms within the coronary arteries can sometimes rupture and spill out cholesterol. A blood clot then develops at the site of the rupture. If this clot is large enough, it can block the flow of blood (and the delivery of oxygen to your heart muscle) through the coronary artery. This complete blockage of your artery causes a heart attack.

Q. What happens after a heart attack?
A. The area of heart muscle that receives its blood supply from the blocked artery may become damaged. Some of the heart muscle may be stunned by the heart attack. This can affect your heart’s pumping ability. This stunned area of the heart muscle may improve over time, while the damaged tissue will not recover.
Q. What are the signs and symptoms of a heart attack?
A. The classic symptoms are pressure, tightness, pain, or a squeezing or aching sensation in your chest or arms that may spread to your neck, jaw, or back. However, you may experience other, less obvious symptoms, especially if you are a woman or have diabetes. These include:
• Nausea, vomiting, heartburn, or abdominal pain
• Shortness of breath
• Sweating or a cold sweat
• Feeling anxious or a sense of impending doom
• Fatigue
• Lightheadedness or dizziness

Q. What can be done for a heart attack?
A. If you have a heart attack:
• Your health care provider will prescribe medications to help your heart function better.
• A heart catheterization may be done to find out how much blockage is in the coronary arteries (see page 64).
• A procedure such as angioplasty or coronary bypass surgery may be needed to improve the blood supply to the heart.
• Lifestyle changes and medications will be prescribed to control your risk factors for heart disease and decrease the risk of future events.
• You’ll be referred to cardiac rehabilitation for a prescribed exercise and lifestyle program.

Q. What should I do in the case of a heart attack?
A. Act quickly! If you or someone you are with is having symptoms of a heart attack, call 911 immediately! When it comes to a heart attack, “time is muscle.” Every minute that treatment is delayed, more damage to the heart muscle is taking place.
DO NOT drive yourself to the hospital. You are putting yourself or someone else’s life at risk!

Heart Attack Warning Signs!

5 to Stay Alive: H.E.A.R.T.

Heavy chest pressure, squeezing, crushing, or burning in your chest.
Extreme discomfort or symptoms such as light-headedness, nausea, heartburn, abdominal pain, sweating or a cold sweat, or unusual fatigue. Feelings of anxiety or an impending sense of doom.
Arm pain. Feeling pain in one or both arms, back, neck, or jaw.
Respiratory difficulty such as shortness of breath with or without chest pain.
Time to call 911 now! Do not drive—people die driving themselves to the emergency department. Call an ambulance.
Heart Valve Disease

Heart valves help control the blood flow through your heart, working as one-way valves. When a heart valve is damaged, it may have difficulty opening and closing. This leads to backflow of blood, making the heart work harder and lessening its ability to pump blood. Over time, this extra work can weaken your heart muscle and lead to heart failure (described in the next section). Heart valve disease can also lead to heart rate and rhythm problems, as well as other complications.

Although valve problems can potentially be severe and life-threatening, most are also highly treatable. Heart valve disease is diagnosed by a physical assessment and echocardiogram. See Chapter 6 to learn more about diagnostic tests and treatment for heart valve disease.

Causes of Heart Valve Disease

- **Congenital**: This means you were born with an abnormal valve, or valve defect.
- **Illness**: These include rheumatic fever or infective endocarditis (inflammation of the lining of the heart caused by an infection).
- **Aging**: Heart valves may simply wear out as you grow older, may develop calcification (build-up of calcium) on the valves themselves, or may become incompetent and begin to leak. **Note**: Calcium you eat or take does not cause calcifications.

Common Types of Valve Problems

- **Insufficiency**: When the valve does not close completely, allowing blood to backflow.
- **Stenosis**: Thickening of tissue around the valve, causing narrowing of the opening. This limits the amount of blood that can pass through.
- **Prolapse**: Valve leaflets (flaps) protrude backward every time the heart contracts, causing blood to flow backwards.

About five million Americans are diagnosed with heart valve disease every year. The most common valves affected are aortic and mitral valves.

Signs and symptoms of heart valve disease may include:

- Fatigue
- Palpitations
- Inability to maintain regular activities
- Shortness of breath
- Rapid heart rate
- Lightheadedness
- Swollen ankles, feet, abdomen
- Chest pain
Cardiomyopathy simply means disease of the heart muscle. The heart is a pump that moves blood around your body and lungs. Cardiomyopathy puts you at risk for:

- Heart failure
- Blood clots
- Changes in heart rhythm
- Problems with the heart’s valves

It’s possible to have cardiomyopathy without any symptoms. This happens when the body is able to manage in spite of the damage to the heart.

Some Causes of Cardiomyopathy
This list has some of the more common causes of cardiomyopathy. Sometimes the cause is not known (idiopathic).

- Coronary artery disease
- Some genetic conditions
- Heart attack
- High blood pressure (hypertension)
- Heart valve problems
- Obesity
- Diabetes
- Thyroid disease
- Viral infections that reach the heart muscle
- Sarcoidosis
- Amyloidosis
- Excessive alcohol use and use of some illegal drugs, such as amphetamines
- Some chemotherapy drugs
- Pregnancy

Types of Cardiomyopathy

- **Dilated Cardiomyopathy:** The heart muscle becomes stretched out and weakened. It is less able to push blood out of the heart into the body.

- **Ischemic Cardiomyopathy:** Occurs when the arteries that bring blood and oxygen to the heart are blocked. There may be a build-up of cholesterol and other substances, known as plaque, in the arteries that bring oxygen to the heart muscle tissue.

- **Hypertrophic Cardiomopathy:** Thickening of the heart muscle that can cause the chambers in the heart to become smaller. This often occurs as a result of genetic conditions.

- **Restrictive Cardiomyopathy:** Part of the heart muscle may be stiff and does not fill properly. This means there is less blood in the heart when it pumps.

- **Peripartum Cardiomyopathy:** A rare condition where the heart muscle becomes weaker toward the end stages of pregnancy or within the first few months after giving birth. The cause is not always clear. A doctor may advise a woman who experiences this to not have more children. Some medications used to treat this can pass through breast milk so breastfeeding may need to be avoided.

- **Stress-induced Cardiomyopathy:** Also known as “broken-heart syndrome” or “takotsubo cardiomyopathy.” This is rare and usually happens after someone has been under a lot of acute stress (not chronic) or gets bad news. Part of the main chamber that sends blood to the rest of the body balloons out and stops squeezing properly. The exact cause is unknown, although there are some theories about how this can happen. For most people, the condition can be corrected with proper treatment.
Heart Failure

Heart Failure is also known as “Congestive Heart Failure.”

The heart is a pump that moves blood around your body and lungs. Your blood carries oxygen and nutrients. Having heart failure does not mean your heart has stopped beating. It means your heart is not pumping blood as it should. Sometimes the heart cannot supply enough blood to keep your body working properly.

When blood backs up, some fluid gets forced into the lungs, ankles/feet, or abdomen, or all of these areas.

Causes of Heart Failure

• Clogged blood vessels in your heart (coronary heart disease)
• Past heart attack
• High blood pressure
• Heart valve problems
• Lung diseases
• Genetic diseases
• Heart muscle disease
• Virus
• Alcohol or drug abuse
• Chemotherapy
• Medical problems during pregnancy
• Obesity
• Unknown causes

Things that may happen when your heart is not working properly:

• Heart chambers and muscles change in shape and size, which affects how well the heart works.
• Heart beats faster to try to pump the same amount of blood to the rest of the body.
• Over time, even with these changes, the heart’s pumping becomes more inefficient, which may result in:
  • Fluid building up in the lungs, causing shortness of breath.
  • Fluid building up in the body, causing swelling in the lower legs and/or abdomen.
  • A bloated feeling and sometimes less of an appetite.
  • Increased fatigue and/or lethargy.
  • Kidney dysfunction.
Heart Failure

One term often used with heart failure is Ejection Fraction (EF). This is the percentage of blood that pumps out of the heart with each beat. The normal EF is typically from 55-65%.

Heart Failure with Preserved Ejection Fraction
Part of the heart muscle may be stiff and does not fill properly. This means there is less blood in the heart when it pumps.

Heart Failure with Reduced Ejection Fraction
The heart muscle has become weakened and can only pump out a small amount of blood. The ejection fraction is often less than 40%.

Tests for heart failure are described in chapter 6.

Treatment of heart failure includes:
- Taking medications as prescribed. Medications can help strengthen the heart’s pumping ability and decrease workload on the heart. See Chapter 7 for more detailed information.
- Following a low sodium diet. Too much sodium makes your body retain water, which can make symptoms of heart failure worse. Recommendations are no more than 1,500mg of sodium a day.
- Monitoring fluid. If you’re on a fluid restriction, it’s important to monitor fluid intake.
- Weighing daily. This can help identify if you’re retaining fluid. Call your health care provider if you have a three-pound or more weight gain overnight, or a five-pound or more weight gain over a week.
- Exercising regularly. Physical activity is very important in the treatment of heart failure. Cardiac rehabilitation can help design an individualized exercise regimen for you.

If you have heart failure or would like more information, please ask any staff member for the booklet, “Managing Your Heart Failure, A Guide for Patients and Families.”
Heart Failure

Warning Signs of Heart Failure

- Unusual dizziness, lightheadedness, or feeling faint
- A sensation of rapid or irregular heartbeat
- Difficulty breathing or waking up at night short of breath
- Reduced appetite or feeling bloated
- Increased fatigue or tiredness
- Swelling on the ankles and/or feet

If you develop any of these symptoms, please call your physician.

3 LBS or more weight gain in one day
5 LBS or more weight gain over a week
In the U.S., 80% of chronic diseases, including cardiovascular disease, and most risk factors are caused by unhealthy lifestyles. Heart disease was the leading cause of death for women in the U.S. in 2013.

**Warning signs of a heart attack aren’t always the same for women and men.** The most common symptom of a heart attack for both women and men is chest pain, although women are more likely to experience other symptoms they might not recognize as being caused by a heart attack. This can delay seeking emergency care. These symptoms include:

- Pain or discomfort in one or both arms, back, neck, jaw or stomach
- Shortness of breath with or without chest discomfort
- Cold sweat, nausea, lightheadedness or extreme fatigue
- Women can experience chest pain such as uncomfortable pressure, squeezing or pain.

**Did you know that fewer women than men survive their first heart attack?** Not only that, but women have a higher mortality rate than men—even one and five years after a heart attack. Many factors contribute to this higher death ratio:

- Women are not treated as aggressively as men for most cardiovascular risk factors.
- Independent risk factors for heart disease tend to be higher in women compared to men.
- The prevalence of obesity is higher in women than men in the U.S.
- Inactivity is higher among women than men, and women become even less active as they age.
- Women develop hypertension (high blood pressure) a decade later than men; however, after age 65 more women than men have hypertension.
- High cholesterol for women is the highest attributable risk for heart disease.
- Women with diabetes have three times the risk of fatal heart disease than men with diabetes.
- Female tobacco users over age 44 have a 25% increased risk for coronary artery disease (CAD) compared to male tobacco users.
- Women who have had a preterm delivery or have had hypertensive pregnancy disorders are at higher risk for developing coronary artery disease (CAD) later in life. Women with a history of gestational diabetes have a higher risk later in life of developing type 2 diabetes and a higher risk of having a heart attack or stroke.
- Some breast cancer treatments can increase women’s risk of heart disease.
- Menopausal hormone therapy can increase the risk of developing clots and future cardiovascular events.
- Autoimmune diseases such as rheumatoid arthritis and lupus are associated with higher risk for CAD.

**Cardiac rehabilitation is a lifestyle behavior change program that’s very effective for women.** It improves cardiac risk factors, psychosocial well-being, and quality of life, yet cardiac rehab is underutilized by women. **Women are 55% less likely to participate in cardiac rehab then men.** Women are also less likely to complete cardiovascular rehabilitation.

Why? We suspect women do not make self-care a priority. They tend to put family and work before themselves, even when faced with a potentially disabling and fatal chronic disease like CAD. Other barriers specific to women include lack of confidence in their ability to make behavior changes, stress, depression and lack of understanding their risk of heart disease.
Arrhythmias

Arrhythmia refers to a change in the normal sequence of electrical signals of the heart, also called dysrhythmia. The sinoatrial (SA) node is the heart's natural pacemaker, keeping in rhythm the electrical signal that tells the heart to beat. When the signal is interrupted, it may speed up, slow down, or become erratic, causing the heart to beat out of its proper rhythm.

Arrhythmias can result from a variety of conditions:

• Lack of oxygen to the heart muscle, often caused by atherosclerosis (buildup of plaque inside the walls of the arteries)
• Heart valve disease
• Damage to the heart muscle

Symptoms of arrhythmias can vary, and can last from seconds to longer periods of time. Some people don’t even have symptoms. The most common symptoms are:

• Palpitations or “skipped beat”
• Fatigue
• Dizziness or lightheadedness
• Fainting or near-fainting
• Rapid heartbeat or pounding
• Shortness of breath
• Chest pain
• In extreme cases, collapse and sudden cardiac arrest

Types of Arrhythmias

• Atrial fibrillation (A-fib): This is the most common type of irregular heartbeat. Normally, your heart contracts and relaxes to a regular beat. In atrial fibrillation, the upper chambers of the heart (the atria) beat irregularly (quiver) instead of beating effectively to move blood into the ventricles. Due to the quivering of the atria, the risk of blood pooling and developing a clot is higher. If a clot breaks off and travels into the bloodstream, it can lead to blood clots, stroke, or heart attack. About 15-20% of people who have strokes have this heart arrhythmia. See more about atrial fibrillation on page 38.

• Bradycardia: This means the heart is beating too slowly, less than 60 beats per minute (BPM). A normal heart usually beats between 60 and 100 times a minute in an adult at rest. Bradycardia can be a serious problem if the heart doesn’t pump enough oxygen-rich blood to the body, but it’s typically not a concern unless it causes symptoms. Elderly people are more prone to problems with a slow heart rate.

• Tachycardia: This means the heart is beating too fast, more than 100 beats per minute at rest. The concern with a rapid heart rate is that it doesn’t allow enough time for the heart to fill before it contracts. The blood flow to rest of the body may be compromised. There are different types of tachycardia; some are more life-threatening than others.
• **Premature contractions:** This happens when an extra beat comes sooner than normal, usually followed by a short pause, causing the next beat to be more forceful. You may feel the forceful beat, or feel like your heart skipped a beat. Increased stress, caffeine, or other stimulants often can cause premature contractions. Most people have premature contractions; the concern is only if they happen frequently, as this might mean the heart is more irritable.

• **Heart block:** This occurs when the electrical impulse from the heart’s upper chambers (atria) to the lower chambers (ventricles) is impaired or does not transmit. There are different degrees of heart blocks. Depending on the type of heart block, you may require a permanently inserted pacemaker.

• **Ventricular fibrillation (V-fib):** This is the most serious type of cardiac rhythm disturbance. The lower chambers of the heart (ventricles) quiver, and the heart is unable to pump any blood. This results in cardiac arrest—the sudden loss of responsiveness with no normal breathing—and requires immediate medical help, including CPR and defibrillation.

Tests to diagnose heart rhythm problems include EKGs and echocardiograms. Treatments can vary, depending on the type of arrhythmia and the symptoms. Treatments include ablation, medications, pacemakers, and implanted defibrillator devices. Diagnosis and treatments are described in detail in chapter 6.
Atrial fibrillation symptoms can include palpitations, sensations of a racing heart, irregular heartbeat or a flip-flop feeling in your chest. It can also cause weakness, reduced ability to exercise, fatigue, lightheadedness, dizziness, confusion, shortness of breath, and even chest pain. Some people don’t have specific symptoms but have a general unwell feeling.

Atrial fibrillation increases your risk of stroke and is associated with increased incidence of heart failure, ischemic (restriction of blood supply) heart disease, chronic kidney disease, sudden cardiac death and a major cardiovascular event.

Treatment for atrial fibrillation includes:

- Controlling your heart rate with medications.
- Anticoagulation (blood thinning) to prevent stroke. Medications include warfarin (Coumadin), apixaban (Eliquis), dabigatran (Pradaxa) and rivaroxaban (Xarelto).
- Rhythm control through medications and/or invasive interventions.
  - Interventions can be electrical cardioversions
  - Catheter ablations
  - MAZE procedure done during an open-heart surgery
- Reduce cardiovascular risks

Risk Factors for Atrial Fibrillation

Risk factors that can’t be changed

- Age
- Sex
- Race
- Family history: You’re at increased risk if your parent(s) had A-fib

Risk factors that can be lessened through lifestyle

- Obesity/overweight: There is a 49% increased risk of developing atrial fibrillation compared to non-obese people.
- Physical activity level: The better your fitness level, the better your chances of resolving atrial fibrillation. In overweight individuals, exercise training decreases the risk of any atrial fibrillation.
- Obstructive sleep apnea: There is a well-known relationship between obstructive sleep apnea (OSA) and atrial fibrillation. Individuals with OSA and treated with CPAP have lower rates or recurrence of atrial fibrillation and better heart rate control than those with untreated OSA.
- Hypertension (high blood pressure): There is an increased risk of atrial fibrillation even with borderline high systolic blood pressure (at or above 130 mmHg).
- Type 2 diabetes: Strict, long-term management of glucose (sugar) levels has been shown to decrease the incidence of new onset atrial fibrillation. About 20% of people with atrial fibrillation have type 2 diabetes.
- Alcohol consumption: About 5% of all cases of atrial fibrillation are related to alcohol consumption. Alcohol induces abnormal heart rhythms. Even moderate alcohol consumption increases the risks of atrial fibrillation.

Lifestyle is an important front-line strategy to prevent atrial fibrillation, reduce the symptoms and severity of atrial fibrillation, and provide an antiarrhythmic benefit.

Recommendations are:

- Weight loss. Ideally lose and maintain 10% lower body weight and/or maintain a body mass index (BMI) of under 25 kg/m2.
- Exercise for 20 minutes or more a day.
- If you’re diagnosed with obstructive sleep apnea, treat it with CPAP.
- Cut down on alcohol intake; limit yourself to one drink or less a day for women and two drinks or less a day for men.
- Manage blood pressure with both lifestyle and medication.
- Manage blood sugar with both lifestyle and medication.
- Don’t smoke or use tobacco products.
The heart isn’t the only part of the body that can be affected by narrowed, blocked, or damaged blood vessels. Diseases of the blood vessels, called vascular disease, affect other parts of the body. If you have coronary artery disease, you’re at higher risk of artery disease in other areas of your body.

**Peripheral Artery Disease or Peripheral Vascular Disease (PAD or PVD)**

Peripheral artery disease (PAD), also known as peripheral vascular disease (PVD), develops when the arteries that carry blood to your legs or arms become narrowed or blocked, reducing blood flow to that area. PAD most commonly affects the legs. As with coronary artery disease, the most common cause of PAD is artherosclerosis (buildup of plaque inside the walls of the arteries). Plaque is made up of cholesterol, calcium and other material in your blood.

One in 20 people over age 50 is affected by PAD. Risk factors include things that damage your arteries and your age (PAD increases in frequency over age 65). Your risk increases if you smoke or have diabetes, high cholesterol, high blood pressure, or a family history of PAD. If you’re a smoker, you’re at much higher risk for PAD (3-5 times). These risk factors also raise your risk of heart attack and stroke.

A common symptom of PAD is claudication. This is cramping or aching in the calves, legs and/or hips when walking or exercising. Claudication is caused from lack of blood flow to your leg muscles. This pain or discomfort goes away with rest, although over time it may affect you even at rest. Diagnosis usually includes a physical exam, measurement of the ratio of your blood pressure at the ankle and the arm, and an ultrasound of the legs. See page 65 for more information.

Those with severe PAD may have:

- Pain at rest
- Coolness of the affected leg
- Leg may appear pale
- Slow healing wounds on the ankle, foot or toes that could lead to severe infection and even limb loss
Initial treatment for PAD includes lifestyle changes such as:

- Stopping smoking
- A healthy diet
- Regular exercise, starting with a supervised exercise program
- Stress reduction
- Blood sugar management if you have diabetes

Medications to treat PAD may include aspirin and blood cholesterol lowering agents such as statins. Cilostazol may also be a beneficial medication that can decrease claudication symptoms and increase walking time. Additional medications may be needed to control high blood pressure and diabetes, and certain medication can aid in tobacco treatment. For more information on medications used to treat PAD and associated risk factors, see Chapter 8.

If symptoms increase in severity and/or occur at rest, further treatments may be required to increase blood flow. These range from peripheral artery angioplasty and stenting to more invasive treatments such as arterial surgery.

Peripheral artery angioplasty and stenting may be done to open blocked arteries. This is generally done with the insertion of a thin, flexible tube called a catheter. Dye can be placed through the catheter to show the narrow or blocked arteries on an X-ray. Once found, a tiny balloon on the end of the catheter can be inflated to widen the artery. Often, a small wire mesh tube called a stent will be placed to keep the artery open and decrease the chance of narrowing again.
Lower extremity bypass surgery can be done for extensive blockages of the arteries and is generally done for patients who are not good candidates for angioplasty and stenting. This surgery redirects blood flow around blocked vessels using an artificial vessel called a graft, or a vein taken from another place in your leg. This surgery is generally performed under anesthesia and requires incision.

**Carotid Artery Disease**
Carotid artery disease occurs when the carotid arteries in your neck, which supply blood to your brain, become narrowed or blocked. Blockages are caused by atherosclerosis or a blood clot. Carotid artery disease can lead to stroke if a blood clot blocks an artery or if the plaque buildup ruptures.

You may not have any symptoms until the carotids are severely narrowed or blocked. For some people, a stroke is the first sign of the disease. Diagnosis usually includes a physical exam and ultrasound of the carotid arteries.

**Aortic Aneurysm**
Aortic aneurysm occurs when an area of the aorta becomes weak and thin. This area stretches and will bulge like a balloon, called an aneurysm. The most common type affects the abdominal (stomach) area, and is called an abdominal aortic aneurysm (AAA). If this area grows large and weak enough, the artery wall can rupture. This is a life-threatening event.

Aortic aneurysms often have no symptoms until they rupture. Symptoms of rupture may include severe, constant back or abdominal pain. The most common causes of aortic aneurysm are tobacco use, atherosclerosis and high blood pressure. You’re at higher risk if you’re male, over age 60, and smoke, or if you have a family history of aortic aneurysm. Diagnosis usually includes a physical exam, ultrasound, or CT scan of the abdomen.
Stroke

A stroke occurs when the blood flow to the brain is decreased or stopped. The blood flow can be blocked from a blood clot, plaque, or a leak in a blood vessel. Sometimes the blood flow to the brain is blocked for a brief time.

If you have signs of a stroke, but the signs go away in minutes to hours, this is called a transient ischemic attack (TIA), or “mini stroke.” A TIA is a strong warning that there’s a problem and a stroke could occur in the future.

When the blood flow to the brain is blocked, causing permanent damage, it’s called a stroke. Tests can be done to find the type, location, and cause of the disruption in blood flow to the brain.

The two most common types of stroke are:

- **Ischemic:** This type of stroke occurs when arteries are blocked by blood clots or by the gradual build-up of plaque and other fatty deposits. About 87% of all strokes are ischemic.

- **Hemorrhagic:** This type of stroke occurs when a blood vessel in the brain breaks, leaking blood into the brain. Hemorrhagic strokes account for 13% of all strokes, yet are responsible for more than 30% of all stroke deaths.

**What to expect**

After a stroke, you may experience mood changes, feelings of frustration, or depression. You may cry or laugh in situations that may not seem appropriate or match your character. You may also experience anxiety, anger, or sadness that doesn’t seem to have an explanation.

Clinical depression is a treatable illness that affects many stroke survivors. Symptoms include significant lack of energy, lack of motivation, difficulty concentrating, problems sleeping, or problems finding enjoyment in anything. Talking about the effects of the stroke can validate these feelings and help stroke survivors deal with these emotions. Ask your health care provider about support groups for stroke survivors and their caregivers. Talk to your provider about an evaluation for clinical depression if symptoms continue.

**Stroke Risk Factors:**

- High blood pressure
- Atrial fibrillation
- High cholesterol
- Diabetes
- Family history of stroke
- Obesity
- Heart disease
- Lack of exercise
- Carotid artery disease
- Heavy alcohol use
- TIA/Stroke
- Smoking

**Act FAST in Case of Stroke!**

To help you remember the signs and symptoms of stroke, use the F.A.S.T test and act fast!

**FACE:**
Ask the person to smile. Does one side of the face droop?

**ARMS:**
Ask the person to raise both arms. Does one side drift downward?

**SPEECH:**
Ask the person to repeat a simple question. Does the speech sound strange or slurred?

**TIME:**
If you observe any of these signs, call 911 immediately!

If you or someone you’re with is experiencing signs and symptoms of stroke, call 911 immediately. Don’t drive yourself.

**Stroke Resources**

**Stroke Support Groups**
- Boise/Meridian: (208) 489-4840
- Twin Falls: (208) 814-4030

**St. Luke’s Stroke Follow-up Clinic**
- Boise/Meridian: (208) 489-4569
- Twin Falls: (208) 814-3755

Additional resources: stroke.org
Kidney (Renal) Disease

Our kidneys are amazing. They’re the “filters” that help sift toxins and waste products out of our bodies. When this system breaks down, our kidneys can no longer filter as effectively, leading to kidney disease or failure (called end stage renal failure).

Two of the most common conditions that lead to kidney disease are diabetes and high blood pressure (hypertension). Diabetes is a disease in which the body doesn’t produce enough insulin or doesn’t utilize it properly (type 2) or doesn’t produce insulin at all (type 1). Insulin is a hormone responsible for helping cells in the body absorb glucose from the bloodstream. If the blood contains too much glucose, it can act as a toxin. Over time, this can lead to kidney damage, or diabetic nephropathy.

High blood pressure (hypertension) damages the small arteries inside your entire body over time, including your kidneys. When these vessels become damaged, they’re unable to filter as effectively as they should. This can lead to fluid and waste buildup in the body. The increase in fluid then causes the blood pressure to rise even more, exacerbating an already dangerous cycle.

How do I know if I have kidney disease?

Unfortunately, kidney disease is “silent.” You most likely won’t know there’s a problem until the damage has already been done. This is why we stress at cardiovascular rehab to “know your numbers” and to take an active, preventive approach to your health care. Kidney disease has no cure, but if you intervene early, you may be able to help your kidneys function longer. Knowing what your blood pressure and fasting glucose levels are is a great way to determine if you might be at risk.

Tests for Kidney Function

Your provider will monitor your kidney function with routine lab tests. The frequency of these tests will depend on your risk factors. Some common tests for kidney function are:

The glomerular filtration rate (GFR) gives an approximate measure of the number of functioning nephrons (units of the kidneys that produce urine and remove waste). GFR is used to monitor the severity of kidney impairment and is often shown on routine blood chemistry lab reports that your provider orders.

Urine tests measure the presence of albumin or protein in the urine (called albuminuria or proteinuria), which is a marker of kidney disease. Even small amounts of albumin in the urine may be an early sign of kidney disease in some people, particularly those with diabetes and high blood pressure.
Kidney (Renal) Disease

What can I do about my kidney disease?
If you have diabetes, the most important thing you can do is keep your blood glucose levels under control. Talk to your primary care provider about your goals for blood glucose levels and hemoglobin A1c to ensure optimal diabetes management.

Avoid certain pain medications such as non-steroidal anti-inflammatory drugs (NSAIDS) like ibuprofen, naproxen (Aleve), aspirin, and celecoxib (Celebrex). These medications can raise your blood pressure, increase your risk of bleeding, and cause heart attack—even with short term use!

Monitoring your diet is also an important tool for managing kidney disease:

- Avoid excess sodium, which can cause your blood pressure to rise.
- Limit dietary cholesterol; excess cholesterol intake can lead to plaque buildup in the walls of your arteries, including the arteries in your kidneys.
- Avoid excess protein intake, which can lead to more work for your kidneys, and further damage.
- Watch potassium. Kidneys that are diseased have a difficult time removing extra potassium from the body, which can lead to potassium buildup in the bloodstream. While we do need a certain amount of potassium in our bodies, too much can be dangerous, leading to abnormal heart rhythms that can be life-threatening.

Smoking not only worsens heart disease and diabetes, it damages every organ in the body, including the kidneys. Quitting is one of the most important things you can do to maintain your kidney function! If you smoke, take advantage of the many resources at cardiovascular rehabilitation to help you quit, including our nicotine dependence treatment specialists. When you’re ready, all you have to do is ask!

Treating Kidney Disease
The most important first step in treating kidney disease is to address any underlying conditions like hypertension or diabetes, making sure they’re being managed optimally. Certain medications can make the most of the remaining kidney function (ACE inhibitors); others can decrease the workload on the kidneys (diuretics, or “water pills”). Appropriate management of diabetes, blood pressure, and cholesterol medications may also become part of your regimen. If your kidneys decline to the point they’re no longer functioning at all (end stage renal failure), your treatment options are:

- Dialysis several days per week to filter toxins from the blood.
- Kidney transplant.
- No treatment. If you choose not to treat complete kidney failure, or to treat conservatively, you will typically not live longer than a few weeks.
Risk factors are conditions of your health—such as heredity, environment, and lifestyle—that can increase your risk of coronary artery disease. Factors are divided into ones you can modify, or control, and those that you cannot.

Risk Factors That Can be Controlled

- **High blood pressure**: systolic of 140 or above and/or diastolic of 90 or above
  - Ideal: 120/80 or less
  - **My blood pressure**: ________

- **High cholesterol**: Any of these:
  - Total 200 or higher
  - Triglycerides 150 or higher
  - Low HDL (“good” cholesterol) 40 or lower for men and 50 or lower for women
  - High LDL (“bad” cholesterol) 130 or higher
  - **HDL goal**: 60 or higher for men and women
  - **My cholesterol**: ________
  - My triglycerides: ________
  - My HDL: ________ My LDL: ________

- **Being overweight**: BMI of 25 or higher and/or having excessive belly fat (waist circumference 35 inches or more for women and 40 inches or more for men)
  - **My BMI**: ________
  - **My waist circumference**: ________

- **Diabetes (HbA1c 6.5 or higher), pre-diabetes (HbA1c 5.7-6.4), or a history of gestational diabetes**: □ Yes □ No
  - **My HbA1c**: ________

- **Tobacco use in any form**: □ Yes □ No □ Former

- **Physical inactivity**: Excessive sitting, exercising less than 150 minutes a week
  - **Time per week I spend exercising**: ________

- **Obstructive sleep apnea**: □ Yes □ No

- **Excessive emotional stress**: □ Yes □ No

- **Depression or anxiety**: □ Yes □ No

- **Long-term (5 years), post-menopausal hormone replacement therapy**: □ Yes □ No

Non-reversible Risk Factors: You can’t control these but they do increase your chance for a future cardiac event.

- **Family history of heart disease in a primary relative (parent or sibling)**: □ Yes □ No

- **Race**: Certain ethnicities have a higher incidence of heart disease such as Asian, Native American, and African American

- **Prior radiation treatments for cancer to your chest**: □ Yes □ No

- **History of HIV infection, or HIV treatment**: □ Yes □ No

- **Auto-immune disease like Lupus, scleroderma, rheumatoid arthritis, and others**: □ Yes □ No

- **Age**: men > 55 years old and women > 65 years old

These risk factors should be discussed with and managed by your primary care provider (PCP). If you don’t have a primary care provider, it’s vital that you establish care. St. Luke’s can help you find a primary care provider. Call (208) 381-9000 in the Treasure Valley or (208) 814-0065 in the Magic Valley, or visit stlukesonline.org.
What it is and why it matters
Metabolic syndrome is a cluster of risk factors that are associated with twice the risk of developing cardiovascular disease and five times the life-long risk of developing type 2 diabetes. Taken alone, these risk factors might even be considered borderline, but together they add up to an increased risk. These factors include high blood pressure, certain cholesterol problems, high blood glucose (blood sugar), and excessive belly fat. Metabolic syndrome affects approximately 30% of the U.S. adult population, primarily due to increasing obesity rates in the U.S.

Adjusting your health habits and adopting an anti-inflammatory lifestyle can help reverse the components of metabolic syndrome and decrease your risk. Type 2 diabetes can be avoided 90% of the time and your cardiovascular risk can be reduced.

An anti-inflammatory lifestyle incorporates a consistent daily exercise habit, a primarily plant-based diet, such as the Mediterranean Diet, and decreasing your body weight: even a 5-10% reduction in your current body weight is effective in decreasing your risk for progressive heart disease and type 2 diabetes.

My Risk Factors
Three or more may mean Metabolic Syndrome

- Hypertension or borderline hypertension: 130/85 or higher, or being treated for high blood pressure
- My blood pressure: _______________
- Waist circumference: 35 inches or more for women, 40 inches or more for men
- My waist circumference: __________

Specific cholesterol issues
- HDL: 40 or lower for men, 50 or lower for women
- My HDL: _______________________
- Triglycerides: 150 or higher
- My triglycerides: ____________________

Diabetes or pre-diabetes
- Pre-diabetes: Fasting glucose 100 or higher and/or A1c of 5.7-6.4
- Diabetes: Fasting glucose 126 or higher and/or A1c of 6.5 or higher
- My fasting glucose: ______________ 
- My A1c: _______________________

If you’ve recently been diagnosed with diabetes, please ask about speaking with a diabetes educator, or call St. Luke’s Humphreys Diabetes Center in Boise at (208) 331-1155, or St. Luke’s Clinic – Diabetes Management and Education in Twin Falls at (208) 814-7271.

Remember, diabetes is defined as a fasting glucose of 126 or higher and an A1c of 6.5 or higher.
You could be at risk for developing metabolic syndrome if you:

- Are overweight or inactive
- Consume an unhealthy diet
- Have a family history of heart disease or diabetes, or a family member with Metabolic Syndrome.
- Have a history of gestational diabetes (diabetes during pregnancy)
- Have a history of polycystic ovarian syndrome

There is also an increased risk with advancing age and with certain ethnicities, especially Hispanics and Asians.

**How is metabolic syndrome diagnosed?**

Metabolic syndrome is diagnosed by your primary care provider, based on your measurements of blood pressure, waist circumference, and specific cholesterol issues.

**How is metabolic syndrome treated?**

Metabolic syndrome is treated by making changes to your lifestyle habits. Developing a consistent regimen of proper diet and exercise, abstaining from tobacco, managing your weight, and reducing stress, as well as medication management (in certain cases) can be changes that save your life!

**What are the consequences of not treating metabolic syndrome?**

Recent studies have shown that metabolic syndrome is becoming more and more prevalent in the Unites States. Approximately 25% of adults in this country have undiagnosed metabolic syndrome. It’s known as the “silent killer” because you don’t know you have it, or that you’re at risk, unless you know your numbers.

Left untreated, you’re at twice the risk of heart disease, five times the risk for diabetes, and at an increased risk for Alzheimer’s disease, dementia, and sleep apnea. The sooner you treat your risk factors, the better!
Blood pressure is the force of blood against your artery walls as it circulates through your body. Blood pressure normally rises and falls throughout the day, but it can cause health problems if it stays high for a long time. High blood pressure can lead to heart disease and stroke—the leading causes of death in the United States. High blood pressure is called hypertension.

Some of the risk factors for high blood pressure you can’t control, such as your age, gender, and race or ethnicity. But you can work to reduce your risk by following a healthy diet, maintaining a healthy weight, not smoking, and being physically active.

One in three American adults has high blood pressure.

What are the signs and symptoms?
High blood pressure is sometimes called the “silent killer” because many times there are no warning signs or symptoms. Many people may not realize they have it. This is why it’s important to know what your blood pressure is, and monitor it regularly.

**If your blood pressure becomes extremely high, you may experience:**
- Headache
- Vision problems
- Chest pain
- Pounding in your head, chest, or ears

*If you develop any of these symptoms, seek care immediately, as they could lead to a heart attack or stroke.*

Why is high blood pressure bad for the heart?
It’s normal for blood pressure to increase during times of exercise, stress, or exertion in order to deliver more blood where it’s needed. However, if blood pressure stays high for prolonged periods of time, your heart has to pump against more resistance. Over time, arteries can become damaged, hardened, and even weakened. Fatty plaque can build up inside artery walls; this is called atherosclerosis. The heart muscle can even become enlarged and weakened, making pumping less efficient.

**High blood pressure over time can put you at risk for:**
- Heart attack
- Stroke
- Aneurysm
- Heart failure
- Kidney problems
- Vision loss
- Erectile dysfunction
- Memory loss
- Peripheral artery disease
How is blood pressure measured?
Your blood pressure is measured by wrapping an inflatable cuff with a pressure gauge, called a sphygmomanometer, around your arm to squeeze the blood vessels. While listening with a stethoscope, air is released from the cuff. The gauge measures the pressure in the blood vessels when the heart beats (systolic) and when it rests, between beats (diastolic).

- **Ideal blood pressure:** 120/80 or lower
- **Prehypertension:** 120-129/80
- **Stage 1 hypertension:** 130-139/80-89
- **Stage 2 hypertension:** 140 or higher over 90 or higher
- **Typical treatment goal:** Under 140/90

It’s important to use lifestyle changes along with medication, if needed, to help achieve your blood pressure goals: quit tobacco, limit alcohol, lose weight, eat a plant-based diet, exercise daily, manage stress, treat sleep apnea, and consume less than 2,000 mg of sodium daily (unless your health care provider tells you a different amount).

**Tips on monitoring your blood pressure at home:**
- Be sure you rest for at least five minutes before having your blood pressure checked. Remember, your blood pressure will vary depending on activity and stress.
- Check your blood pressure at the same time each day; always use the same arm.

- Keep a blood pressure log.
- If your first blood pressure reading is high at the doctor’s office, ask to have it re-checked after you rest for a few more minutes.
- If you have a home blood pressure monitor, bring it to your appointments with your health care provider, or to cardiovascular rehab, to verify its accuracy.

**How is high blood pressure treated?**
If you have high blood pressure, your health care provider may prescribe medication to treat it. Lifestyle changes, such as the ones listed above, can be just as important as taking medication.

**How to improve blood pressure:**
- Healthy eating, including a low sodium diet
- Exercise
- Stress reduction
- Taking medications as prescribed

**About Low Blood Pressure**
When you make healthy lifestyle changes such as diet, exercise, and weight loss, your blood pressure often will decrease. While you’re participating in cardiovascular rehab, we’ll closely monitor your blood pressure. If it becomes too low and you develop symptoms of low blood pressure, your blood pressure medication may need to be adjusted. Symptoms of low blood pressure include:

- Dizziness or lightheadedness
- Fatigue
- Lack of concentration
- Blurred vision
- Fainting
- Cold, clammy skin

If you experience any of these symptoms, please notify your health care provider. **Do not** stop or change any of your medications without talking first with your provider.
Sleep Hygiene

Sleep is important to your overall health. Sleep is a time when our bodies can reset, repair and restore. Quality and adequate sleep is actually anti-inflammatory and can improve your mood and memory and increase energy. The goal is to obtain seven to nine hours of quality sleep at night.

Lack of sleep, interrupted sleep, and/or poor quality of sleep can contribute to long-term health problems such as obesity, diabetes, hypertension and cardiovascular disease. Lack of sleep can increase pain and arthritis. Things that can disrupt your sleep include sleep apnea, periodic limb movements, pain, stimulants such as caffeine, alcohol and room environment. Medical conditions can also contribute such as depression, hormone imbalance, inflammatory conditions and bladder conditions.

• Feeling run down or fatigued
• Daytime headaches
• Falling asleep easily or frequently during the day

Sleep hygiene refers to habits you can adopt to promote healthy sleep. Try these tips to improve your sleep:

1. **Schedule:** Stick to schedule and go to bed and get out of bed at the same time each day, even on the weekend. A regular schedule will help set your internal clock. Set a bedtime that will allow you at least seven hours of sleep, but no more than nine hours.

2. **Routine:** Keep your daily routine the same, even if you have a bad night’s sleep. Try to avoid naps during the day. If you cannot make it through the day, take a nap of no more than an hour and take it as early in the day as possible.

3. **Timing:** Don’t go to bed unless you’re sleepy. If you can’t fall asleep within 15-20 minutes, get out of bed and do something you consider calming, such as stretching or reading, then try again. If you wake up during the night, try total-body relaxation or deep breathing.

Do you have any of the following signs of poor sleep?

• Difficulty concentrating
• Sleepiness
• Mood changes
• Irritability
• Difficulty with memory and thinking
• Feeling disoriented
Sleep Hygiene

4. **Avoid:** Avoid stimulants before bedtime. Avoid any caffeine or nicotine 4-6 hours before bedtime. Caffeine blocks chemicals in the brain that promote sleep. Avoid alcohol before bedtime. Some think of alcohol as a sedative that will help them sleep; however, for every serving of alcohol, two hours of sleep are impacted, causing arousal. Don’t eat a large meal before bedtime. If you’re hungry, eat a light snack. Reduce fluid intake before bedtime. Avoid exercise within two hours of your bedtime, as it can prevent sleepiness.

5. **Light:** Sufficient exposure to natural light during the day and darkness at night will help your body know when to be awake and when it’s time to sleep. If needed, use blackout curtains or wear an eye mask to block out light, as well as ear plugs to block out noise. Avoid blue light, including any electronic lights like cell phones, iPads, kindles or TVs within one hour of bedtime.

6. **Habits:** Healthy habits such as regular exercise and eating healthy foods will help promote sleep. Try exercising in the morning, as it will help you feel awake. Exercise and an active lifestyle will help promote sleep.

7. **Rituals:** Developing sleep rituals that you do every night will help your body and mind prepare for sleep. Find things that will calm your mind before bedtime such as yoga, stretching, reading a book or taking a warm bath. Try progressive relaxation techniques, focusing on relaxing each part of the body from head to toe. Evening rituals create a physiological response to help the body shut down.

8. **Setting:** Make your bedroom a quiet, relaxing space. Ensure you have enough blankets to keep you warm. Use your bed for sex and sleeping only. Using your bed for other things, such as watching TV and using your laptop, will send your body the wrong signal. Some people find sounds soothing at night, such as fans or sounds of rainfall.

9. **Awareness:** Keep a sleep log to help create awareness of your sleeping schedule. This can also help you track your progress as you continue to improve your sleep hygiene. Wearing devices such as a Fitbit bit or smart watch can also help you track your sleep and movement throughout the night.
Sleep apnea is a condition in which the airway closes off during sleep, causing oxygen levels to fall to inadequate levels and disrupting your sleep. This is very stressful for your body, and is associated with chronic inflammation and associated illnesses such as worsening heart disease, congestive heart failure, high blood pressure, abnormal heart rhythms, stroke, sudden death, diabetes, and dementia. Obstructive sleep apnea (OSA) is the most common type of sleep apnea. Another type is central sleep apnea. This occurs when your brain doesn’t send proper signals to tell you to breathe. Sleep apnea can sometimes be an unrecognized cause of metabolic syndrome, and can run in families.

The main symptoms of OSA are loud snoring, fatigue, and daytime sleepiness. However, some people have no symptoms. Other symptoms may include:

- Restless sleep
- Awakening with choking, gasping, or smothering
- Morning headaches, dry mouth, or sore throat
- Waking frequently to urinate
- Awakening unrested, groggy
- Low energy, difficulty concentrating, memory impairment

**Note:** If someone has observed you having episodes of stopped breathing (apnea), choking, or gasping during sleep, there is a strong possibility of sleep apnea.

The main risk factors for OSA are obesity, a large neck size (greater than 17 inches in a man and 16 inches in a woman), middle to advanced age, abnormal airway, being a male, and sedation from alcohol or medications.

Sleep apnea is usually diagnosed by testing with specific equipment used at home for one night or more formally in a sleep lab. This equipment measures the breathing effort and airflow, blood oxygen level, heart rate and rhythm, duration of the various stages of sleep, body position, and movement of the arms and legs.

Effective treatment will eliminate the symptoms of sleep disturbance; long-term health consequences are also reduced. The most effective treatment for sleep apnea uses air pressure from a mechanical device called a CPAP (continuous positive airway pressure) to keep the upper airway open during sleep.

You may be able to treat mild sleep apnea by making changes in how you live and the way you sleep. For example:

- Lose weight if you’re overweight.
- Sleep on your side, not your back.
- Avoid alcohol and medicines such sedatives before bed.

Oral devices also are available to treat mild or borderline OSA; their effectiveness should be evaluated with a repeat sleep study after use begins. Surgery is also an option for sleep apnea if your tonsils, adenoids, uvula, or other tissues are blocking your airway.
Diabetes is a problem with your body that causes blood glucose (sugar) levels to rise higher than normal. This is also called hyperglycemia. Diabetes occurs when the body doesn’t produce any insulin, or not enough insulin, or doesn’t know how to use the insulin it does produce.

Insulin is a hormone your body produces in the pancreas to promote glucose absorption. Glucose is essential for your body to create energy for your daily life. It comes from the foods you eat and is also stored in your liver.

Insulin acts like a key to unlock the cell doors, letting the glucose enter the cell, providing energy for all the activities of daily living.

If adequate amounts of insulin are not produced or your body doesn’t recognize the insulin, then glucose will build up in the bloodstream and cause health problems. This is called hyperglycemia. Over time, this buildup of glucose in your blood stream causes blood vessel damage and tissue injury.

Diabetes can’t be cured, but it can be controlled with a good diabetes plan. The best way to manage diabetes is a combination of diet, exercise, and medication to keep your blood glucose in a healthy range.

Types of Diabetes

- **Type 1 diabetes** is sometimes referred to as insulin-dependent diabetes or juvenile-onset diabetes. The cause is unknown, but is most likely due to an autoimmune disorder that causes the body to mistake our insulin-producing cells as foreign, and attack them. The result is the body is no longer able to produce insulin. Type I is usually diagnosed in childhood or early adulthood.

- **Type 2 diabetes** is sometimes referred to as non-insulin dependent diabetes or adult-onset diabetes. It’s the most common type, accounting for nearly 90% of people with diabetes. Type 2 occurs when not enough insulin is produced by the pancreas or when the body is less sensitive to the insulin it does produce. This is called insulin resistance. Many people with type 2 diabetes may take oral medications to help keep blood glucose in a healthy range, and many may use insulin as well.

- **Prediabetes** is a condition in which your blood glucose is higher than normal but not high enough to be diabetes. This condition puts you at risk for developing type 2 diabetes. Damage is occurring with pre-diabetes and should be treated with lifestyle changes.

More than 60% of people with heart disease have diabetes or prediabetes.
What are the complications of diabetes?
Diabetes is a serious disease that can lead to serious complications, including the ones listed below. However, these risks can be decreased by managing diabetes and keeping your blood glucose in a healthy range.

- Stroke
- Heart and blood vessel disease
- High blood pressure
- Nerve damage can lead to neuropathies
- Gastroparesis, delayed gastric emptying
- Skin complications
- Foot complications, such as ulcers
- Gum disease
- Eye complications, such as vision loss, glaucoma, cataracts, diabetic retinopathy, glaucoma
- Difficulty concentrating
- Blurred vision
- Frequent urination
- Fatigue
- Extreme hunger
- Nausea
- Fast heartbeat
- Feeling anxious

What are the signs and symptoms of high blood glucose?
If you experience these symptoms, talk with your health care provider.

What are the signs and symptoms of low blood glucose?
You may experience low blood glucose due to the medication you take, skipping a meal, or exercising without an adequate snack. Signs of low blood glucose include:

- Sweating
- Nervousness, shakiness, weakness
- Extreme hunger
- Nausea
- Fast heartbeat
- Feeling anxious
- Increased thirst
- Headaches
- Blurred vision
- Frequent urination
- Fatigue

Lab Tests for Diabetes

**A1C Test:** This blood test takes the average blood glucose over the past three months and shows it as a percentage. The higher the percentage, the greater your risk. However, a flaw with this method of diagnosis is that it doesn’t show daily fluctuations in your blood glucose.

My A1C numbers: ____________

**FPG Test:** This is the most common test used to diagnose diabetes. For this test, blood is drawn from a vein after you have fasted for at least eight hours. To be diagnosed with diabetes, your blood glucose must be above 126 mg/dL on two separate occasions. A fasting glucose only represents one exact moment in time compared to an A1C, which shows a three-month average.

My FPG numbers: ____________

**Hemoglobin A1C Test**

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<tr>
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**Fasting Plasma Glucose (FPG) Test**

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My A1C numbers: ____________

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Diabetes

Overcoming Risk Factors for Prediabetes and Type 2 Diabetes

Having a family history of type 2 diabetes is a big risk factor for developing prediabetes and type 2 diabetes. Lifestyle habits can either contribute to the onset of diabetes or prevent it. Being inactive, eating an unhealthy diet, poorly managing stress, and smoking are all habits that contribute to insulin resistance and development of diabetes. Working on healthy lifestyle habits can greatly reduce your risk of developing diabetes, even for those genetically prone to insulin resistance. Aiming for 30 minutes of physical activity at least five days per week may be the best prevention medicine available.

**These nutrition tips can help you decrease your risk:**

- Eat at regular intervals throughout the day to stabilize blood glucose levels and prevent swings from high to low.
- Eat fresh and natural foods from all the food groups.
- Include a protein source with each meal and snack to help stabilize blood glucose.
- Use measuring cups and learn portion sizes. Eat to satisfy, not to stuff.
- Aim for five servings of fruits and vegetables daily.
- Make a habit of choosing whole grains, which are more slowly digested, making you feel fuller longer than refined versions of these foods.
- Choose low fat dairy products and keep daily sodium intake below 2,000 mg, unless your health care provider tells you a different amount.
- Drink water! Avoid high calorie, sugary drinks that have a dramatic impact on glucose spikes.
- Avoid emotional eating. Stay away from unhealthy foods when you feel blue.
- Nourish your body with whole foods to take good care of your pancreas. You only have a finite amount of insulin-producing cells, so take good care of them. You’ll miss them when they’re gone!

High Cholesterol

Cholesterol is a fat used in the body. You get this fat from your own body as well as from eating animal products such as red meat, eggs, and dairy products. Too much cholesterol in your bloodstream can lead to buildup on the walls of your arteries, which can cause blockages.

“High cholesterol” is a catch-all term used to describe several different conditions, each of which is a risk factor for heart disease:

- High total cholesterol
- High LDL “bad” cholesterol
- Low HDL “good” cholesterol
- High triglycerides

Cholesterol is measured with a lipid profile, which gives you information about your total cholesterol, LDL, HDL, and triglycerides. This information comes from a test of your blood, which is drawn after you’ve fasted. If your levels are abnormal, you can improve them by making lifestyle changes. Physical exercise and following more of a Mediterranean diet can help increase your HDL, while a diet that limits animal and hydrogenated fats can help lower your LDL.
Exercise and Diabetes

Your cardiac rehabilitation program includes 2-3 exercise sessions per week at the center, plus your own home exercise program. It’s important to understand how exercise affects you and your diabetes. Exercise lowers blood glucose in several ways.

Exercising increases your sensitivity to insulin, whether your body produces it or you receive it through medication or a pump. This increased insulin sensitivity allows your cells to better utilize insulin to absorb glucose. This occurs during physical activity and even hours after.

Muscle contractions are another way your body absorbs glucose. Stimulation due to muscle movements during activity allows cells to absorb glucose, which is used as energy.

Exercise increases your ability to use the glucose in your bloodstream, helping lower blood glucose in the short term and decreasing your A1C numbers over time. As you start exercising consistently, your diabetes medications may need to be decreased. Everyone responds to exercise differently, so it’s important to monitor yourself and find out what works best for you. We’ll work closely with you to help determine any necessary changes.

Blood glucose levels will drop during exercise and vary based on many factors including what you ate before exercise, how long you exercised, and what type of exercise you did.

During your cardiovascular rehab program, you’ll do a moderate level of exercise each day, for 30-60 minutes. It’s important to eat before coming to exercise to make sure you sustain a healthy blood glucose level during and after exercise. The best snacks to try are those that contain a protein and a carbohydrate. Here are some great options to try:

<table>
<thead>
<tr>
<th>Carbohydrate</th>
<th>Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. 30 grams</td>
<td>Approx. 7-14 grams</td>
</tr>
<tr>
<td>Medium sized apple</td>
<td>6 ounces fat-free Greek yogurt</td>
</tr>
<tr>
<td>5-6 whole wheat crackers</td>
<td>2 ounces hummus</td>
</tr>
<tr>
<td>1 peach</td>
<td>1 light string cheese</td>
</tr>
<tr>
<td>1 cup grapes</td>
<td>½ cup fat-free cottage cheese</td>
</tr>
<tr>
<td>Whole wheat bagel thin</td>
<td>⅓ cup edamame</td>
</tr>
</tbody>
</table>

Blood Glucose Goals

<table>
<thead>
<tr>
<th>Goal</th>
<th>Range</th>
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<tbody>
<tr>
<td>Before a meal</td>
<td>70-130 mg/dL</td>
</tr>
<tr>
<td>1-2 hours after a meal</td>
<td>Less than 180 mg/dL</td>
</tr>
</tbody>
</table>

Depending on how much your glucose level drops during exercise, you may need a higher target goal for pre-exercise. It’s important to discuss these goals with your health care provider.

You should eat one snack for every 60 minutes of moderate exercise. Try monitoring your blood glucose levels before and after exercise, as well as two hours after completing exercise, to determine your individual response. Knowing how your body responds will help you determine any adjustments you may need to maintain a safe, adequate blood glucose level.
Hypoglycemia, or low blood sugar, can occur during or after exercise. Luckily, it’s very easy to treat and can be avoided once you learn your body’s response to exercise. It’s important to recognize how you feel if you become hypoglycemic. Everyone is different. The risk of becoming hypoglycemic after exercise may last as long as 48 hours.

**Symptoms may include:**
- Dizziness
- Irritability
- Sweat
- Unsteady gait
- Fatigue
- Excessive hunger
- Fainting/feeling faint
- Crying
- Hand tremors

**How to Treat Hypoglycemia**
- Drink or take 15-20 grams of fast-acting carbohydrate (1 cup of sports drink, ½ cup of juice, 3-4 glucose tabs, etc.).
- Wait 15-20 minutes before checking your blood glucose again.
- If your blood glucose is still low and symptoms are still present, repeat steps 1 and 2.
- Once you feel better and blood glucose is up, eat a regular meal to keep your blood glucose at this level.

**Hypoglycemia after exercise is more likely to occur if you:**
- Take insulin or have an insulin pump
- Skip a meal or don’t eat anything within ½ hour to 2 hours after ending your workout
- Exercise for a long time without a snack
- Exercise too strenuously without a snack

Remember, glucose is a fuel our body needs in order to function and exercise, so hypoglycemia needs to be avoided! Prevention is key.
Tobacco
Smoking is the second major risk factor for heart attack and stroke. Nicotine and carbon monoxide in tobacco smoke can damage the linings of the arteries, allowing cholesterol a place to start accumulating. Smoking can also contribute to spasms of the arteries, elevate blood pressure, and reduce the amount of oxygen in the blood. It’s also a major cause of lung cancer, bronchitis, and emphysema. And constant exposure to secondhand smoke raises the risk of heart disease and stroke, even for non-smokers.

Quitting smoking will help you live longer and stay healthier:

- Within about eight hours of quitting, oxygen levels in your blood increase to near normal.
- After about 48 hours, your nerve endings start to regrow.
- After about one month, your circulation and lung function improve.
- And after one year, your chance of having a heart attack is cut in half!

See page 125 for information on how you can quit tobacco, including St. Luke’s Nicotine Dependence program.

Alcohol
Drinking too much alcohol can raise your blood pressure, cause heart failure, and lead to stroke. It can contribute to high triglycerides, cancer, and other diseases, and produce irregular heartbeats. It also contributes to obesity, alcoholism, suicide, and accidents.

The risk of heart disease in people who drink moderate amounts of alcohol is lower than in nondrinkers, so if you drink, limit your alcohol consumption to **no more than two drinks per day for men and one drink per day for women**. It’s not recommended that nondrinkers start using alcohol or that drinkers increase the amount they drink.

**One drink =**

- 1 ½ fluid ounces of 80-proof spirits (bourbon, Scotch, vodka, gin, etc.)
- 1 fluid ounce of 100-proof spirits
- 4 fluid ounce of wine
- 12 fluid ounce of beer
Stress
Chronic stress puts you at risk for heart disease and other serious illness, due in large part to your body’s natural response. During times of stress, your body produces adrenaline—a hormone that increases your blood flow, heart rate, breathing, and other functions. Stress also releases cortisol, which helps maintain fluid balance and blood pressure. In the short term, these “stress” hormones are useful, even life-saving. However, chronic stress over time exposes your body to persistently elevated levels of these hormones, suppressing your immune system, increasing blood pressure and blood sugar, and contributing to obesity.

Studies also link stress to changes in the way blood clots, which increases your risk of heart attack. It may also lead to a higher risk of clot formation, and may damage your arterial walls—increasing the chances of cholesterol accumulation. In addition, people often respond to stress in ways that contribute to health problems, such as overeating, smoking, or developing high blood pressure.

You can improve your health by decreasing and managing stress in your life. Try avoiding things that cause stress, and learn healthy coping skills to help manage daily stress in your life. Your cardiovascular rehab social worker can help you learn these skills and other ways to be resilient in the face of life’s stressors. Social work services are available at no additional cost while you’re enrolled in St. Luke’s Cardiac Rehabilitation program. Read more about managing stress on page 98.

Obesity
If you’re obese or overweight, you’re taxing your heart by forcing it to work harder to nourish all the added tissue. The extra weight can limit your physical activity, influence your cholesterol levels, raise your blood pressure, and contribute to diabetes.

Talk to your health care provider or your cardiac rehabilitation team about ways you can lose weight, including modifying your diet to reduce fat and calories and increasing your physical activity.

Lack of Exercise
If you live a sedentary lifestyle, one of little to no physical activity, you have an increased risk of clot formation, stroke, and coronary artery blockage. Adding regular exercise to your daily life will help improve your cholesterol and triglycerides, blood pressure, stress management, and weight. The recommended minimum amount for good health is 30 minutes of cardiovascular exercise at least five times a week.
Chapter 7: Diagnostic Tests & Procedures for the Heart

Diagnostic Tests

Blood Tests

Blood tests are often ordered by your health care provider to learn more about your heart problem. Some of the most common tests are listed below.

**Blood electrolytes:** Electrolytes such as calcium, potassium, magnesium, and sodium are important for heart health and the functioning of other organs in your body. Checking electrolytes may give more information about the causes of your heart problem or assist in treating it.

**Blood cell count:** This test counts the different types of cells in your blood, such as red blood cells and white blood cells. The test can help determine if there is any infection in your body, and show your body’s ability to carry oxygen to vital organs.

**Cardiac markers:** Damaged heart cells release certain biochemical markers. They can be detected with troponin or CPK. Elevated enzymes can indicate if you have recently suffered (or are suffering) a heart attack.

**BNP (B-type natriuretic peptide):** When the heart is stressed, it releases BNP. Elevated BNP levels may indicate a higher risk for coronary artery disease (CAD) or heart failure.

**Blood coagulation tests:** The most common type of clotting test is called PT/INR. The PT (prothrombin time) is how long it takes for your blood to clot. The INR (internationalized normalized ratio) is calculated based on the PT. Blood thinners, such as Coumadin, may be prescribed to help prevent dangerous clots from forming in your heart or blood vessels. To regulate the dose of Coumadin, the PT/INR will be checked regularly to ensure your blood is clotting at the right level.

**Glucose test:** This test can help check for diabetes, or whether your diabetes is in good control. You can read more about these tests on page 51.

**Lipid test:** This test checks for levels of cholesterol, triglycerides, and other fatty substances in your blood. The results can help determine your risk for coronary artery disease and whether you need treatment. You can read more about this test on page 52.

**C-reactive protein (CRP):** C-reactive protein levels rise when there is inflammation in your body. Very high levels of CRP are caused by infections and many serious diseases. However, other tests are needed to find the actual cause and location of the inflammation.

**CPK test:** Creatine phosphokinase is a substance found in the body in places such as the heart and muscles. CPK is a blood test used to determine if any damage has occurred in these areas. CPK is often used with other blood tests to help determine if someone has suffered a heart attack.
Peripheral Vascular Studies

If you have coronary artery disease, you may be at risk for narrowing or blockages in other parts of your body, including your brain, kidneys, arms, or legs. To diagnose these problems, your healthcare provider may refer you for peripheral vascular studies. Technicians will use ultrasound waves to search for plaque or narrowing in the arteries in these non-invasive studies:

- **Peripheral**: These studies search for blockages or narrowing in the arteries of your arms or legs. One type is the ankle brachial index (ABI) test, which compares the blood pressure in your ankle and your arm.
- **Carotid**: These studies look for blockages or narrowing in the carotid arteries of the neck.
- **Abdominal**: These studies assess blood flow in the aorta, which is the main artery carrying blood out of the heart. They also assess the arteries that lead to the kidneys, intestines, and liver.

**Ankle Brachial Index (ABI)**

This is a simple test that compares the blood pressure in your ankle to the blood in your arm, showing how well blood is flowing in these limbs. It doesn’t show which blood vessels are narrowed or blocked. This test can generally be performed in a doctor’s office or vascular lab. An exercise ABI may also be done to see if these pressures have changed.

- 1.0 to 1.4: Normal, suggesting no peripheral artery disease.
- 0.9 or less: Suggests narrowing or a blockage of the arteries providing blood to the leg(s).
- 1.4 or more: Suggests rigid arteries—your doctor may perform further testing for peripheral artery disease.

**Holter Monitor**

A Holter monitor is a small machine that records the electrical activity of your heart. You wear it for 24 to 72 hours while you do all your normal activities. The monitor has wires that attach to small electrode discs. These discs are taped to your chest.

This kind of machine has many different names. It’s sometimes called an ambulatory monitor, an ambulatory electrocardiogram, or an ambulatory EKG. It’s also called a 24-hour EKG or a cardiac event monitor.

**Why is this test done?**

You may have this test to find out if you have a problem with your heart’s electrical system. Many heart problems can only be noticed when you’re doing something. They may happen when you exercise, eat, have sex, or sleep. Or they may happen when you have a bowel movement or you feel stressed. Your Holter monitor will record the way your heart beats during all of these activities.

Holter monitoring also will:

- Look for what may cause chest pain, dizziness, or fainting
- Look for poor blood flow to your heart (called ischemia)
- Check to see if treatment for an irregular heartbeat is working
Electrocardiogram (ECG/EKG)

An electrocardiogram (EKG or ECG) is a test that checks for problems with the electrical activity of your heart. An EKG translates the heart’s electrical activity into line tracings on paper. The EKG looks at your heart rate, rhythm, and electrical conduction.

**Why is this test done?**
You may need this test to check your heart’s electrical activity. The test also can check the health of your heart. For example, it can help find the cause of unexplained chest pain or other symptoms of heart disease. *Note:* This is just one piece of information to help diagnose heart problems. Some people may have a normal EKG, even though they have heart disease.

**What happens during the test?**
- You may have to remove certain jewelry.
- You’ll take your top off and be given a gown to wear.
- You’ll lie on a bed or table. Parts of your arms, legs, and chest will be cleaned and may be shaved.
- Small pads (electrodes) will be attached to your skin on each arm and leg and on your chest. A special paste or pad may go between the disc and your skin. The electrodes are hooked to a machine that traces your heart activity onto a paper.
- During the test, lie very still and breathe normally. Don’t talk during the test.
Diagnostic Tests

Echocardiogram
An echocardiogram (also called an echo) uses sound waves to make an image of your heart. A device called a transducer sends sound waves that echo off your heart and back to the transducer. These echoes are turned into moving pictures of your heart that can be seen on a video screen.

Transthoracic Echocardiogram
In a transthoracic echocardiogram (TTE), the transducer is moved across your chest or belly. A TTE is the most common type of echocardiogram.

Why is this test done?
This test is done to check your heart health. It’s used for many reasons. Your health care provider may do an echocardiogram to:

• Check a heart murmur
• Look for the cause of shortness of breath or unexplained chest pains
• Check how well your heart is pumping blood
• Check to see how well your heart valves are working
• Look for blood clots inside your heart

Transesophageal Echocardiogram
A transesophageal echocardiogram (TEE) is a test that helps your health care provider look at the inside of your heart. A small device called a transducer directs sound waves toward your heart. The sound waves make a picture of the heart’s valves and chambers.

Your health care provider may do this test to look for certain types of heart disease. Or it may be done to see how disease is affecting your heart.

You will be given medicine to make you sleepy and comfortable during the test. The provider will put a small, flexible tube into your throat and guide it to your esophagus (the tube that connects your mouth to your stomach). He or she will ask you to swallow as the tube goes down.

The transducer is at the tip of the tube. It helps get pictures of your heart. The provider will look at the ultrasound pictures on a screen. You will not be able to eat or drink until the numbness from the throat spray wears off. Your throat may be sore for a few days after the test.
Stress Echocardiogram

In a stress echocardiogram, an echo is done while your heart is at rest and after your heart is made to work hard (stressed). You’ll receive medication through a vein (intravenously, or IV) that will increase your heart rate and contractility while the echo is done. A stress echo is usually done to find out if you have reduced blood flow to your heart due to coronary artery disease. Reduced blood flow is easier to see when your heart is put under some form of stress.

An exercise electrocardiogram checks for changes in your heart while you exercise. You may need this test to check your heart’s electrical activity. It can help find out if a heart problem is causing chest pain, and can help your doctor decide on the best treatment for certain heart problems. It also helps find the cause of symptoms that happen during exercise or activity, such as dizziness, fainting, or rapid, irregular heartbeats.

What happens during the test?

You’ll first have an echocardiogram before exercising. This is called the baseline. You’ll then exercise for a specific amount of time before having another echocardiogram.

- You’ll take off all or most of your clothes and change into a gown.
- You’ll lie on your back or on your left side on a bed or table.
- You may receive medicine through a vein (IV). The IV can be used to give you a contrast material, which helps your health care provider get good views of your heart.
- Small pads (electrodes) will be placed on your arms and legs to record your heart rate during the test.
- A small amount of gel will be rubbed on the left side of your chest to help pick up the sound waves.

- The transducer will be pressed firmly against your chest and moved slowly back and forth. It’s usually moved to different areas on your chest to get specific views of your heart.
- You’ll be asked to do several things, such as hold very still, breathe in and out very slowly, hold your breath, or lie on your left side.

When the echocardiogram is finished, you’ll exercise and then have another echocardiogram. If you’re not able to exercise, you may be given medicine that stimulates your heart to beat harder and faster, as if you were exercising. You most likely will either walk on a treadmill or pedal a stationary bicycle. While you exercise:

- Your heart rate and blood pressure will be recorded.
- You might be asked to use numbers to say how hard you’re exercising. The higher the number, the harder you think you’re exercising.
- You’ll continue to exercise until you or your health care provider feels you need to stop.
- You’ll then lie on a bed or table, and another echocardiogram will be done.
Implantable Cardioverter-Defibrillator (ICD) and Pacemaker

The heart is a complex organ with its own electrical system. At times, the electrical system can be altered or blocked, causing the heart to beat too slowly (bradycardia), too quickly (tachycardia), or irregularly. The heart needs a coordinated electrical signal to pump effectively and ensure adequate blood flow to the entire body. But the electrical system can be damaged by a previous heart attack, heart failure, congenital heart conditions or an unknown cause.

What is a pacemaker?
A pacemaker is a small, battery-powered device that monitors the heart’s rate and rhythm. If your heart is beating too slowly, the pacemaker sends an electrical signal to initiate a regular heart rate and rhythm. These signals are painless. The pacemaker also stores information about your heart rhythm and how the pacemaker is working. This information can be retrieved easily by your provider to allow adjustments to your therapy as needed.

What is an implantable cardioverter-defibrillator (ICD)?
An ICD is a small, battery-powered device that monitors the heart’s rate and rhythm. If a life-threatening heart rhythm is detected, the ICD will deliver an electrical shock to the heart, resetting the heart’s electrical system back to normal. ICDs may also function as pacemakers.

How is a pacemaker or an ICD placed?
The placement of a pacemaker or ICD is a procedure that requires a small incision in your upper chest. One, two or three wires or leads will be placed and guided through a vein in your chest. The leads are placed in the best position on the heart to deliver electrical signals. The physician will then create a pocket underneath the skin on your chest for the device. Once the device is in place, the incision will be closed. Most people will have a small scar at the site and notice a small bump under the chest. People who are smaller in size may notice the bump more than others.

Will I sense the pacemaker or ICD?
When the pacemaker is working, it sends a very small electrical impulse that you won’t feel. When an ICD delivers a shock, it will hurt briefly. People will feel it in different ways; it has been described as feeling like you’re being punched in the chest. This can be alarming and may make you nervous; however, the shock is a sign that the ICD is doing its job and is there to save your life. There’s no way to know how often this may happen, and it may never happen.
Procedures for the Heart

After the Procedure

Your arm nearest the implant will be limited, and you’ll need to keep the arm at or below shoulder level for around four weeks. It’s important that you follow your health care provider’s instructions on limitations following your surgery. You may resume normal activity and exercise per your provider’s recommendation.

What should I do if my ICD goes off?
If you have a defibrillator and receive a shock, please call your health care provider’s office. If you receive more than one shock in 24 hours, you should seek emergency care.

You can live a normal, active life with your ICD or pacemaker. Here are a few tips:

• Avoid strong magnetic and electrical fields. These can keep your device from working right. Most office equipment and home appliances are safe to use. Check with your health care provider about which things you should use with caution and which you should stay away from.
• Be sure your doctor, dentist or other health care providers know you have an ICD.
• Ask your health care provider what sort of activity and intensity is safe for you.
• Discuss driving limitations and traveling with your provider.
• If you have an ICD, it’s safe to resume sexual activity once you’re able to return to routine physical activity. It would be rare for an ICD shock to occur during sexual activity. The electric shock cannot be conducted to your partner, regardless of the intimacy of the moment.
• Devices are equipped with batteries that are made to last. The length of the battery life on each device varies, depending on settings and usage. Please refer to your device manual or your health care provider to learn more about the life expectancy and function of the device. During follow-up visits with your provider, the device’s battery life will be assessed.
• Refer to your informational pamphlet about the device for more information.
MAZE Procedure

The maze procedure is a surgical treatment for atrial fibrillation. During surgery, the physician creates scar tissue in the atria, which is the upper chamber of the heart. The scar tissue blocks the abnormal electrical pathway that causes the arrhythmia. The physician may also remove part of the tissue that increases the risk of blood clots for individuals with atrial fibrillation. The surgery is often done in combination with other open-heart surgeries such as valve replacement or repair, or coronary artery bypass graft.

Cardioversion

Cardioversion is another way to return an abnormal heart rhythm to a normal rhythm. Electrical cardioversions are used to treat arrhythmias such as atrial fibrillation. During this procedure, an electrical shock is delivered to the chest to try and restore the heart to a normal rhythm. Medication is given through a vein so there is no pain during the procedure.

Cardiac Ablation

Ablation is used to treat conditions that cause the heart to beat too fast. During the procedure, a long flexible tube called a catheter is inserted through an artery in the groin. The catheter is then threaded up through the heart and an energy source is used to damage the areas of the heart that are causing the fast heartbeat.
Coronary Angioplasty and Stent Placement

Coronary angioplasty and stent placement is a non-surgical treatment to open narrowed coronary arteries to improve blood flow to the heart. It’s usually done the same time a blockage is found during cardiac catheterization.

This procedure involves temporarily inserting and opening a tiny balloon where your artery is clogged to help widen the artery. It’s often combined with the permanent placement of a small wire mesh tube called a stent to prop the artery open and decrease its chance of narrowing again.

Why is this procedure done?
- To restore oxygen-rich blood flow to your heart muscle.
- To treat coronary artery disease when medications or lifestyle changes are not enough to improve your heart health.
- If you have a heart attack or worsening angina (chest pain).

After your stent placement, you’ll be taking aspirin regularly. You’ll also be taking a medication called platelet inhibitors, most likely clopidogrel (Plavix), for up to one year. This medication helps prevent the formation of blood clots in and around your stent.
Procedures for the Heart

Heart Valve Surgery

Heart valve surgery fixes or replaces a damaged heart valve. There are four valves in your heart. They are the mitral, aortic, tricuspid, and pulmonary valves. These valves open and close to keep blood flowing in the proper direction through your heart. When you have a problem with a heart valve, blood does not flow through the heart the right way.

During surgery, your doctor may fix your heart valve or replace it with an artificial valve. The artificial valve may be made of plastic, metal, or animal tissue. Or your heart valve may be replaced with a donor heart valve that comes from a person who has died. Whether your heart valve is repaired or replaced depends on the type of valve problem you have.

How is heart valve surgery done?

Heart valve surgery typically begins with a large cut, called an incision, in the chest. This is called open-chest surgery. During open-chest surgery, a heart-lung bypass machine is used to add oxygen to the blood and move the blood through the body. This machine allows your doctor to stop your heartbeat while working on your heart.

In some cases, other types of heart valve surgery may be an option. These include surgery that’s done without stopping the heart and surgery that uses smaller incisions in the chest.

After surgery, it’s crucial that you follow sternal precautions. See page 85 for more detail.

After surgery, you may need to take anticoagulants to prevent blood clots. Be sure to tell your doctor, your dentist, and all your other health care providers that you’ve had heart valve surgery.

Dental Guidelines

If you’ve had a valve replacement, whether tissue or prosthetic, you’ll need to take antibiotics one hour before any dental procedure for the rest of your life, to prevent bacterial endocarditis.

The typical amount is two grams of amoxicillin, unless you’re allergic to it. In that case, you may be prescribed Keflex or another antibiotic. Your prescription will usually come from your dentist. Do not schedule any dental work three to six months after valve surgery. Always remind your dentist and the dental staff that you’ve had a valve replacement.
Procedures for the Heart

Bypass Surgery

Coronary artery bypass graft (CABG) is surgery to treat coronary artery disease. The surgery helps blood make a detour, or bypass, around one or more narrowed or blocked coronary arteries. Coronary arteries are the blood vessels that bring blood to the heart. The surgery is also called coronary artery bypass or bypass surgery.

Your doctor will make a bypass using a piece of blood vessel from another part of your body. He or she will attach, or graft, this blood vessel above and below the narrowed or blocked section of your artery.

**How is bypass surgery done?**

Bypass surgery typically begins with a large cut, called an incision, in the chest. This is called open-chest surgery. Your doctor will make the cut in the skin over your breastbone (sternum). He or she will then cut through your sternum to reach your heart and coronary arteries.

Next, your doctor will connect you to a heart-lung bypass machine. This machine will let your doctor stop your heart while he or she works. Your doctor will use a blood vessel from your chest, arm, or leg to bypass the narrowed or blocked arteries. When the blood vessels are in place, the doctor will restart your heart.

Your doctor will use wire to put your sternum back together. The wire will stay in your chest. You’ll get stitches or staples to close the cuts in your skin. The cuts will leave scars that may fade in time.

Some hospitals offer less invasive bypass surgery. This includes surgery done without stopping the heart. The surgery also may be done through smaller cuts in the chest.
Transcatheter Aortic Valve Replacement (TAVR)

Transcatheter aortic valve replacement (TAVR) is a procedure that replaces the aortic heart valve. It’s done to treat aortic valve stenosis. In aortic valve stenosis, the valve between your heart and the large blood vessel that carries blood to the body (aorta) has narrowed. That forces the heart to pump harder to get enough blood through the valve.

In TAVR, the doctor uses a catheter to put in the new heart valve. It is not an open-heart surgery.

TAVR is a newer procedure. How well it works long-term is not yet known. And TAVR can cause serious problems. These include stroke, a heart attack during the procedure, or even death.

TAVR may be a good option for a person who can’t have surgery or has a high risk of serious problems from open-heart surgery. For example, you might be a candidate for TAVR if you’re not healthy enough for an open-heart surgery. But TAVR may not be a good choice if an open-heart surgery is likely to be successful. A team of doctors will use professional guidelines to decide whether or not TAVR is a good choice for you.

How is TAVR done?

TAVR is often done through an incision (cut) in the groin. But sometimes a small cut is made in the chest. Your doctor will use a tube called a catheter and special tools that fit inside the catheter. He or she will put the catheter into a blood vessel and move it through the blood vessel and into the heart. A specially designed artificial valve fits inside the catheter. Your doctor will then move the new valve into the damaged aortic valve. The artificial valve will expand and take the place of the damaged aortic valve.

Most people will be asleep for the procedure. The surgery usually takes about two to three hours. You will have to stay in the hospital for several days after the procedure.
How Medications Can Help

Medications, depending on the type, can help your heart in several ways:

- Decrease the workload on your heart
- Help maintain good blood flow to the heart muscle
- Decrease the risk of forming blood clots
- Help control heart rate and rhythm
- Decrease risk factors for heart disease such as high blood pressure, diabetes, and high cholesterol
- Improve the heart’s pumping ability

Different medications produce different effects, and can vary from person to person. It’s important to talk to your health care provider about your medications, and it’s important that you know and understand your medications, and why you’re taking them. You can use this list of questions to ask your health care provider or pharmacist to help you better understand your medications:

- What is the medication used for?
- How does it work?
- How and when do I take it?
- What do I do if I miss a dose?
- Should I take it with food or water?
- What are the side effects?
- What other drugs, dietary supplements, natural products, or foods interact with this medication?
- Can I drink alcohol when taking this medication?
- How long before I see the effects?
- How long do I need to take it?
- How should it be stored?

Don’t hesitate to talk to your health care provider or pharmacist if you have concerns about your medications, and don’t stop taking your medications without talking to your health care provider.

It’s important to know that heart medications can dramatically improve heart function, reduce your risk of a cardiac event, and prolong your life. Whatever medications have been prescribed for you, take them faithfully, as instructed. Each has a unique purpose, and sometimes work in combination with each other to improve your condition.

Don’t stop taking any medications due to adverse side effects without first talking with your primary care provider. He or she can sometimes prescribe a similar medication without as many side effects for you. All medications have side effects and everyone reacts differently to medications. Your primary care provider will try to find one that works for you, with as few side effects as possible.
Tips for Taking Medications

• Understand your medications. Ask your health care provider or pharmacist so you understand what the medication is, why you’re taking it, and how to take it.

• Use one pharmacy. Having one pharmacy that has a list of all of your current medications will be important in identifying any potential interactions.

• Keep a current list of all medications you’re taking with you at all times.

• Talk to your health care provider before taking any over-the-counter medications (OTC). These include any dietary supplements like herbs and vitamins.

• Organize your pills. Use a divided pillbox for different times of the day and different days of the week. By filling your pillbox weekly, you can see at a glance whether you’ve taken each dose. It also helps you know when to request refills.

• Order refills when you’re down to a two-week supply. Pharmacies often have a delay when filling orders, and it’s important to avoid running out of your medications. Plan ahead.

• Plan ahead when traveling. Keep your medications with you in your carry-on, just in case your luggage gets lost. Make sure you have enough medications to last you on your trip, plus a few days.

• Set up reminders to take your medication. Use a note, alarm clock, or the alarm on your cell phone to remind you to take your medications on time. Taking your medications at the same time each day can help to set up a routine, such as taking them after you’ve brushed your teeth each morning, or after breakfast.

• Store medications properly. Keep medications away from heat, direct light, and moisture. Some medications, such as nitroglycerin, need to be kept in a light-proof container. Keep all medications locked up away from children. Keep medications in their original container.

• Throw away any medications that are not currently prescribed to you. Be sure to dispose of medication appropriately. There are often locations in your city or town that will take and dispose of old medications.

• Don’t skip a dose or stop taking medications abruptly. Most heart medications need to be taken regularly, and can be dangerous if stopped abruptly. If you have concerns about a medication you’re taking, or possible side effects, talk to your health care provider first.

• Communicate. Talk to your health care provider and pharmacist regularly. Inform them of all medications you’re taking and any potential side effects.
## Common Medications to Treat Cardiovascular Disease

Listed are common medications used for various types of heart disease and associated risk factors.

<table>
<thead>
<tr>
<th>Medication Categories</th>
<th>Examples</th>
<th>Side Effects and Notes</th>
</tr>
</thead>
</table>
| **ACE (angiotensin converting enzyme) inhibitors** | **ACE inhibitors:**  
- benazepril (Lotensin)  
- captopril (Capoten)  
- enalapril (Vasotec)  
- lisinopril (Prinivil, Zestril)  
- ramipril (Altace) | **Common side effect of ACE inhibitors:** dry, non-productive cough  
**Note:** Do not use potassium supplements or salt substitutes without first talking to your health care provider. |
| **ARBs (angiotensin II receptor antagonist)** | **ARBs:**  
- candesartan (Atacand)  
- eprosartan (Teveten)  
- irbesartan (Avapro)  
- losartan (Cozaar)  
- valsartan (Diovan) | |
| **Antiarrhythmics (heart rhythm medications)** | **Possible side effects:** headache, dizziness, lightheadedness  
**Notes:**  
- Take antiarrhythmics exactly as prescribed.  
- While taking these medications, you will need ongoing monitoring from your health care provider.  
- If you're taking an extended-release tablet, do not crush, break, or chew the tablet. Be sure to swallow it whole. |  
- amiodarone (Cordarone, Pacerone)  
- disopyramide (Norpace)  
- flecainide (Tambocor)  
- lidocaine (Xylocaine)  
- procaainamide (Procan, Procanbid)  
- propranolol (Inderal)  
- quinidine (many trade names)  
- sotalol (Betapace) |
## Medication Categories

<table>
<thead>
<tr>
<th>Anticoagulants and platelet inhibitors (“blood thinners”)</th>
<th>Examples</th>
<th>Side Effects and Notes</th>
</tr>
</thead>
</table>
| • Decrease the clotting ability of the blood, reducing the risk of blood clots, stroke, and heart attack. | **Anticoagulants:**  
  • dalteparin (Fragmin), danaparoid (Orgaran)  
  • enoxaparin (Lovenox)  
  • heparin (various)  
  • warfarin (Coumadin—see page 76 for information)  
  • rivaroxaban (Xarelto)  
  **Platelet inhibitors:**  
  • aspirin  
  • clopidogrel (Plavix)  
  • prasugrel (Effient)  
  • apixaban (Eliquis)  
  • dabigatran (Pradaxa) | **Side effects:** Call your health care provider if you notice bleeding from your gums, frequent nose bleeds, or blood in your urine or stools.  
**Notes:**  
• Some supplements may increase your risk of bleeding.  
• If taking warfarin, be consistent with your diet, especially foods high in vitamin K. You will also have regular tests called PT/INR to ensure correct dosing.  
• If you’ve had a stent placed, don’t stop taking these medications abruptly. Doing so can put you at high risk for blocking off the stent. |

| Beta blockers | Examples | Side effects: In some people, beta blockers can cause drowsiness or fatigue. Call you health care provider right away if you have any of these side effects:  
• Chest pain (may be related to your disease and not a side effect)  
• Fainting or severe dizziness  
• Slow, fast, or irregular heartbeat  
• Swelling of your feet or ankles  
• Unusual weight gain |
|----------------------------------------------------------|----------|-----------------------|
| • Often used to treat angina, high blood pressure, and irregular heart rhythms  
• Relax blood vessels so blood can move more easily  
• Improve heart function  
• Reduce symptoms and lessen chances of future hospitalizations | • atenolol (Tenormin)  
• bisoprolol (Zebeta)  
• carvedilol (Coreg)  
• labetalol (Normodyne, Trandate)  
• metoprolol succinate (Toprol XL)  
• metoprolol tartrate (Lopressor)  
• nebivolol (Bystolic)  
• propranolol HCL (Inderal)  
• sotalol (Betapace) |  

## Cilostazal
- This medication is a phosphodiesterase inhibitor, vasodilator, and platelet inhibitor.
- Used to treat individuals with claudication as a result of PAD.
- Works by dilating the arterial vessels and prevents platelets from forming clots.
- Can decrease symptoms of claudication.

## Warnings:
- Do not take this medication if you have heart failure.
- This medication can increase your risk of bleeding. Notify your provider if you have signs of abnormal bleeding.

## Notes:
- This medication may take several weeks to see full effects.

## Common Medications to Treat Cardiovascular Disease

<table>
<thead>
<tr>
<th>Medication Categories</th>
<th>Examples</th>
<th>Side Effects and Notes</th>
</tr>
</thead>
</table>
| **Calcium channel blockers** | - amlodipine (Norvasc, Lotrel)  
- bepridil (Vascor)  
- diltiazem (Cardizem, Tiazac)  
- felodipine (Plendil)  
- nifedipine (Adalat, Procardia)  
- nimodipine (Nimotop)  
- nisoldipine (Sular)  
- verapamil (Calan, Isoptin, Verelan) | **Side effects:**  
- Swelling in your feet and legs  
- Constipation  
- Nausea  
- Headache  
- Rash  
- Drowsiness |
| **Diuretics (“water pills”)** | - amiloride (Midamor)  
- bumetanide (Bumex)  
- chlorothiazide (Diuril)  
- chlorthalidone (Hygroton)  
- furosemide (Lasix)  
- hydro-chlorothiazide (Esidrix, Hydrodiuril)  
- indapamide (Lozol)  
- spironolactone (Aldactone) | **Side effects:**  
- Electrolyte imbalances (loss of sodium, potassium, magnesium, calcium)  
- Lightheadedness  
- Low blood pressure  
**Notes:**  
- Diuretics make you urinate more. Taking your medication in the morning can help you avoid having to get up at night to urinate.  
- Since some diuretics can cause loss of potassium, you may be prescribed potassium supplements. |
| **Cilostazal** | - This medication is a phosphodiesterase inhibitor, vasodilator, and platelet inhibitor.  
- Used to treat individuals with claudication as a result of PAD.  
- Works by dilating the arterial vessels and prevents platelets from forming clots.  
- Can decrease symptoms of claudication. |  |
### Medication Categories

#### Lipid medications (blood cholesterol lowering agents, antihyperlipidemics)
- Medications in this category work in different ways. They can lower levels of cholesterol, LDL, and triglycerides, and treat abnormally low levels of HDL.
- These medications can also improve the inner lining of your vessels and stabilize existing plaque.

<table>
<thead>
<tr>
<th>Statins:</th>
<th>Side effects:</th>
</tr>
</thead>
<tbody>
<tr>
<td>atorvastatin (Lipitor)</td>
<td>Muscle pain, weakness, or cramps</td>
</tr>
<tr>
<td>fluvastatin (Lescol)</td>
<td>Abdominal bloating, gas, or constipation</td>
</tr>
<tr>
<td>lovastatin (Mevacor)</td>
<td></td>
</tr>
<tr>
<td>pravastatin (Pravachol)</td>
<td></td>
</tr>
<tr>
<td>rosuvastatin (Crestor)</td>
<td></td>
</tr>
<tr>
<td>simvastatin (Zocor)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fibrates:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>fenofibrate (Tricor)</td>
<td>The number one treatment for high blood cholesterol is following a heart-healthy diet.</td>
</tr>
<tr>
<td>gemfibrozil (Lopid)</td>
<td>Drug therapy is used in combination with diet.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bile acid sequestrants:</th>
<th>Avoid grapefruits or grapefruit juice while taking statins.</th>
</tr>
</thead>
<tbody>
<tr>
<td>colesevelam (Welchol)</td>
<td>Take your statin medication in the evening or at bedtime.</td>
</tr>
<tr>
<td>cholestyramine (Questran)</td>
<td></td>
</tr>
<tr>
<td>colestipol (Colestid)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Others:</th>
<th>Notes about nitrates:</th>
</tr>
</thead>
<tbody>
<tr>
<td>niacin (Niaspan, Nicolar)</td>
<td>Take exactly as prescribed.</td>
</tr>
</tbody>
</table>

### Nitrates and other antianginals
- Used to prevent, reduce, or relieve angina pain, or chest pain
- Work by relaxing blood vessels
- Increase supply of oxygen-rich blood to the heart
- Reduce blood pressure and decrease workload on the heart

<table>
<thead>
<tr>
<th>Nitrates:</th>
<th>Notes about nitrates:</th>
</tr>
</thead>
<tbody>
<tr>
<td>oral nitroglycerin (Dilatrate-SR, Imdur, ISMO, Isordil, Monoket)</td>
<td>Take exactly as prescribed.</td>
</tr>
<tr>
<td>nitroglycerin ointment (Nitro-Bid, Nitrol)</td>
<td>Store nitroglycerin in a dark place.</td>
</tr>
<tr>
<td>nitroglycerin skin patches (Deponit, Minitran, Nitro-Dur, Transderm-Nitro)</td>
<td>Know when your medications expires, as you should replace it regularly.</td>
</tr>
<tr>
<td>nitroglycerin sublingual tablets (Isordil, Nitrostat, Nitrogard, Sorbitrate)</td>
<td>Do not take nitroglycerin if you have taken erectile dysfunction medication (Cialis, Levitra, Staxyn, Stendra, Viagra) within 24 hours. The combination of these medications can lead to an emergency.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other antianginal:</th>
<th>Notes about ranolazine:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ranolazine (Ranexa)</td>
<td>Interacts with many other medications.</td>
</tr>
<tr>
<td>Other classes of medications can also be prescribed to treat angina.</td>
<td>Do not take if you have liver disease.</td>
</tr>
</tbody>
</table>
Over-the-Counter Medications

**NSAIDS**

Non-steroidal anti-inflammatory drugs (NSAIDS) are over-the-counter medications commonly taken for pain relief. These medications are contraindicated in people with known coronary artery disease. That is, they should be avoided because of a serious risk for harm. This recommendation is for life. If you’re taking warfarin (Coumadin), you should also avoid these medications.

**Examples of NSAIDS:**
- Ibuprofen (Motrin, Advil)
- Naproxen (Aleve)
- Any medication that contains either ibuprofen or naproxen
- Prescribed NSAIDS: diclofenac, indocin, etolac, meloxicam (Mobic), Celebrex (celecoxib)

**Anyone with coronary artery disease should avoid NSAIDS other than aspirin. Here’s why:**
- They increase your risk of bleeding significantly, especially when taking anticoagulants or platelet inhibitors.
- They can cause gastritis, irritation of the stomach, and heartburn.
- They can lead to an increase in blood pressure.
- If you have congestive heart failure, they can worsen your symptoms.
- They can decrease kidney function, especially if you have a history of diabetes or kidney disease.
- They can raise potassium levels dangerously.
- They can cause swelling in your legs and feet.
- They increase your risk of another heart attack.

**About Aspirin**

Aspirin is a special type of NSAID that’s commonly prescribed to individuals with coronary artery disease and peripheral artery disease. It’s used to protect bypass grafts and stents in the heart and can lower the chance of heart attack, stroke and death in some people.

**Do not take more aspirin than is prescribed by your health care provider.**

**Alternatives to NSAIDS**

*Always talk with your health care provider before taking any over-the-counter medications.*

- **Acetaminophen (Tylenol):** Don’t exceed more than 4 grams (4,000 mg) in one day.
- **Capsaicin cream:** This is used for joint or nerve pain. Recommendations are to apply two to three times a day to the affected area.
- **Not working?** If you need something stronger, talk to your health care provider to discuss other safe alternatives.
Over-the-Counter Medications

**Cold Medications**
Most over-the-counter cold medications are not safe to take if you have heart disease. Pseudophedrine (decongestants) and most medications you have to spray into your nose (afrin, neosynephrine) cause vessels to constrict, leading to an increase in your blood pressure and heart rate. Remember, most cold medications have several different medications in one. Read the labels, and discuss these medications with your health care provider or pharmacist before taking.

**Alternatives for relief from cold symptoms:**
- Salt water nasal spray, or Ocean Spray may be helpful for nasal congestion.
- Mucinex or robitussin (plain) are typically okay to take for cough.
- Benadryl may be okay for clearing up secretions; however, be aware it may cause drowsiness.
- Antihistamines can help with allergies (Claritin, zyrtec, allegra), although they may cause arrhythmias.
- Treat your cold with good old-fashioned fluids, acetaminophen, low-sodium chicken soup, sleep, rest, and time.

**Other Over-the-Counter Medications and Supplements**
It's recommended that you avoid these medications and supplements. But always talk to your health care provider about any over-the-counter medications, supplements, vitamins, or meal replacements, and the ways they may affect your health.

**Avoid these medications and supplements:**
- Fish oil can increase your risk of bleeding. Don’t start taking it unless prescribed by your health care provider. For heart health, it’s more effective to eat fish two or more times a week.
- Garlic supplements may also increase your risk of bleeding.
- Ginkgo biloba, a supplement usually taken for memory, may increase your risk of bleeding.
- Yohimbine, a supplement taken for male sexual function, is not safe to take because it can increase your blood pressure and heart rate.
- St. John’s wort, a supplement taken for mood, interacts with certain cardiac medications and anti-depressant medications.

**A word about vaccinations**
- An annual flu shot (influenza vaccination) is recommended for all adults to help you avoid the flu and protect your health.
- The pneumococcal vaccine (pneumovax) is recommended for adults age 65 and older to help protect from pneumonia, meningitis, and other serious infections.
- The shingles vaccine is recommended for adults age 60 and older to reduce the risk of shingles and its associated pain.
- Studies show that vaccinations are safe and effective.
Warfarin sodium (Coumadin) is a medicine used to treat and prevent blood clots in the legs, lungs, heart, brain, and other parts of the body. Warfarin works as an anticoagulant. “Anti” means “against” and “coagulant” refers to blood clotting. An anticoagulant helps prevent clots from forming in the blood. Warfarin is sometimes called a “blood-thinner,” because it works in the liver to decrease the production of natural blood components called clotting factors.

How does warfarin work?
Warfarin blocks the use some of the vitamin K in your liver. Vitamin K is needed to make clotting factors that help the blood clot. Vitamin K is found naturally in certain foods, such as green leafy vegetables and fruits. Warfarin reduces the body’s ability to form blood clots. It can also keep clots from getting larger, but it does not break up existing clots.

Key points to remember:
• Take your warfarin as directed, at the same time each day.
• Maintain a consistent diet of foods containing vitamin K.
• Avoid major changes in dietary habits.
• Avoid alcohol or limit it to one drink per day for women or two drinks per day for men.
• Keep all scheduled blood test (PT/INR) appointments, or call promptly to reschedule.
• Tell all your health care providers that you’re taking warfarin. Carry a wallet card and consider getting a medical alert bracelet or necklace that lets others know you take warfarin.
• Don’t stop or add new medications without first discussing with your health care provider or anticoagulant clinic.
• Warfarin medicines are color-coded by strength. If you get a different color tablet than usual, ask your doctor or pharmacist about it. To simplify the process, it’s best to use just one pharmacy. Don’t take other medicines that contain warfarin while taking Coumadin.
What are the side effects of warfarin?

Bleeding is the most common side effect. Warfarin can cause bleeding it’s a blood-thinner medicine that lowers the chance of blood clots forming in your body. This bleeding can be serious and can sometimes lead to death. Minor bleeding may occur even when your INR is in your goal range. More rare side effects are skin rash, loss of hair, and purple toes. If you experience these or other symptoms, please discuss with your health care provider or anticoagulation clinic.

Minor Bleeding

You might see any of these symptoms from time to time:
- Gum bleeding while brushing teeth
- Slight or occasional nosebleed
- Easy bruising
- More bleeding after minor cuts
- Longer menstrual bleeding

These are sometimes called “nuisance bleeding,” and are generally not harmful. Any nuisance bleeding or bruising that seems worse may be a reason to contact your health care provider.

Major Bleeding

If your INR is too high, bleeding may occur. The type of bleeding symptoms will determine if you need to seek help immediately or need to call your health care provider or anticoagulation clinic.

Call your health care provider or the anticoagulation clinic if you have:
- Unexplained bruising
- Frequent nosebleeds
- Bleeding gums
- Unusual bleeding

Seek immediate help or go to the nearest emergency department if you have any of these symptoms of major bleeding:
- Red or dark brown urine
- Red or black, tarry stool
- Vomiting or coughing up blood, or a stomachache
- Any bleeding that doesn’t stop or is very heavy

Also, seek immediate help if you fall or hit your head.
Chapter 9: Exercise

Intro to Exercise and METs
Increasing your activities of daily living (ADLs) and taking part in a regular exercise routine will be instrumental in your recovery from your cardiovascular event and in the improvement and sustainability of your health moving forward.

It’s important to know the difference between ADLs and exercise:

- ADLs are considered physical activity, or any bodily movement that results in a substantial increase in energy expenditure, compared with being at rest.
- Exercise is planned, structured, and repetitive bodily movement designed to improve your health and physical fitness level.

What is a MET?
We measure the intensity at which you perform your ADLs and exercise with METs (metabolic equivalent). A MET tells us how much oxygen your body consumes in order to perform a certain activity. The higher the MET level, the harder the activity. So when you exercise at a higher MET level, you’ll receive greater health benefits. Studies show that for every 1.0 MET increase in physical activity, there’s a 12% decrease in all-cause mortality. One of your cardiac rehabilitation goals will be to improve your functional MET capacity for improved health, reduced mortality, and a better ability to return to your preferred level of activity.

How much exercise?
General health recommendations for cardiovascular exercise is a minimum of 150 minutes a week at moderate intensity. Of course, if you exercise more than 150 minutes and/or at a hard-to-vigorous intensity, your health benefits will be even greater. In the supervised and controlled environment of cardiac rehab, you’ll be safely and progressively guided through all components of your exercise program (cardiovascular exercise, resistance training, and flexibility) to allow you to achieve your health, ADL, activity, and fitness goals.

About MET levels
- At rest, your body works at 1.0 MET to sustain life and cellular function.
- Light activity is 1.0-3.0 METs.
- Moderate activity is 3.0-6.0 METs.
- Hard to vigorous activity is above 6.0 METs.
Components of an Exercise Program

**Aerobic Exercise**
Aerobic exercise, also referred to as cardiovascular exercise, includes rhythmic activities that use large muscle groups and are performed at a moderate to high intensity for an extended period of time. Some examples are walking, jogging, bicycling, cross-country skiing, and swimming.

Aerobic exercise helps improve heart and lung function, and is crucial to weight management. Other benefits include decreased body fat, increased lean body mass, increased stamina, decreased stress, and improved sleep quality.

It’s a good idea to do a variety of cardiovascular activities to avoid overuse injuries to your muscles, bones, and joints. Overuse injuries are a result of “micro-traumas” caused by repetitive use of the muscles, bones, and joints. If different types of exercise are readily available to you, and if you’re physically capable of performing them, you should alternate exercises periodically to avoid injury. It’s also a great way to avoid boredom.

**Resistance Training**
Resistance training exercises are designed to increase muscular strength and endurance. These exercises become more important as we age because they help maintain bone mineral density and slow the rate of muscle atrophy (decreasing muscle mass). Resistance training plays an important role in injury prevention, balance, and the ability to perform activities of daily living (ADLs).

You can perform resistance training with machine weights, free weights, resistance bands, and body weight exercises. Your exercises should include the major muscle groups of the chest, arms, shoulders, upper and lower back, abdomen, hips, and legs. It’s important to have a well-rounded program so you avoid muscular imbalances.

There is an inherent risk of musculoskeletal injury associated with resistance training, which is why you should always consult with an exercise professional before starting a program. He or she can make sure your program is well-designed and your lifting technique is correct.

**Flexibility**
Flexibility and stretching are vital to helping you maintain range of motion and physical function—two things that decrease as we age. Your stretches should include all muscle groups, and only be performed once your muscles are warm. Why does this matter? Stretching warm muscles helps reduce the risk of a muscular strain, and it allows for a better, more effective stretch. If you stretch as part of your warm-up and cool-down, you’ll ensure that your muscles are warm enough to stretch safely.

Stretches should be performed until you reach a tolerable, mild discomfort—never to the point of pain. Like resistance training, it’s important that you stretch correctly to avoid musculoskeletal injury.
Warm-up and Cool-down

With either aerobic or resistance training exercises, it’s crucial that you perform both a warm-up before you start exercising and a cool-down after you finish. The warm-up is a transitional phase that allows your body to adjust to the changes occurring to it:

- Gradually increases your heart rate, blood pressure and body temperature.
- Warms up your joints and muscles, which are more stiff and “cold” at rest. This reduces risk of injury.
- Converts the carbohydrates, fats and proteins you eat into energy you use during exercise.

Always warm up for 5-10 minutes, gradually increasing your intensity until you’re ready to start exercising. If you have certain cardiac conditions, or have difficulty adjusting to exercise, you may require a more prolonged warm-up.

After exercise, it’s just as important to perform a cool-down, especially for people who have a heart condition. If you quickly move from exercise to total rest, you create the most likely time for another cardiac event to occur. This is due to a phenomenon called post-exercise hypotension, which is a significant drop in blood pressure that occurs after you stop exercising. This drop occurs due to blood pooling in the large muscles, like the legs, when you have a sudden decrease in your heart rate. This can also cause dizziness and fainting.

By performing a cool-down, you:

- Gradually return your heart rate, blood pressure and body temperature to pre-exercise levels, thereby reducing your risk of a post-exercise event.
- Help remove lactic acid that has built up during exercise, which can cause muscle soreness.

Your cool-down should last 5-10 minutes and decrease in intensity until you reach your pre-exercise resting state. If you have certain cardiac conditions, you may require a more prolonged cool-down.
Cardiovascular Exercise Guidelines

• Do a variety of cardiovascular activities (walking, jogging, bicycling, cross country skiing, swimming) to avoid overuse injuries to your muscles, bones, and joints. A variety of cardiovascular activities will also help prevent boredom.

• Before any cardiovascular exercise, do a 5-10 minute warm-up.

• Follow your warm-up with at least 30 minutes of continuous moderate exercise (CME).

• When increasing your exercise, do not increase more than one component of exercise at a time:
  • Increase your time to 30 minutes of continuous exercise first if you aren’t already able to tolerate that amount.
  • Then work on increasing workloads.

• Do not increase your time and intensity by more than 10% per week. For example, if you’re walking at 3.0 mph one week, don’t go over 3.3 mph the next week.

How hard should you exercise?
Your exercise intensity will depend on how you’re tolerating exercise and your fitness goals. Generally speaking, your intensity should feel like a moderate or slightly more than moderate workload (see page 83 for the “rate of perceived exertion,” or RPE scale). You can also use the “talk test” (see page 84) to make sure you’re working hard enough but not too hard, or look into a heart rate monitoring system. The most important thing is to listen to your body and stop exercising if something doesn’t feel right.

• If you don’t have time to do all 30 minutes at once, you can break it up into no less than 10-minute bouts. You’ll still get some health benefits, and anything is better than nothing. But doing all your exercise in one continuous bout is the best way to improve your fitness.

Exercising with PAD
If you have peripheral artery disease (PAD) and have pain in your legs with walking (intermittent claudication), exercise should be broken up into bouts, walking into the leg pain to a moderate level (refer to page 92), then resting to relieve the leg pain.

Aerobic exercise such as walking should be performed for a total of 45-60 minutes throughout the day on multiple days of the week. Since walking stimulates the leg pain and creates the long-term change, it’s essential to use walking as your primary exercise. Continue following the general guidelines for cardiovascular exercise regarding warm-up and cool-down.

If you’re prescribed nitroglycerin, you should carry it with you when you’re going to be exercising, whether at cardiovascular rehab, at home, outside or at another gym.
## Cardiovascular Exercise Guidelines

### The FITT principle for cardiovascular (aerobic) exercise

- **Frequency:** At least 5 days a week of moderate intensity exercise, **OR** at least 3 days of vigorous intensity exercise, **OR** a combination of 3-5 days a week of moderate and vigorous exercise
- **Intensity:** Moderate and/or vigorous intensity
- **Time:** 30-60 minutes of moderate exercise **OR** 20-60 minutes of vigorous exercise

### Vigorous exercise should be performed after approval and discussion with an exercise professional.

## Resistance Training Guidelines

- Resistance training can be performed with:
  - Machine weights with stacked weights
  - Free weights – dumbbells, medicine balls
  - Body weight exercises – ball squats, pushups, sit-ups
  - Resistance bands
- Your exercises should include the major muscle groups of the chest, arms and shoulders, upper and lower back, abdomen, hips and legs. Make sure to exercise opposing muscle groups to avoid muscle imbalance injuries.
- Also include multi-joint and single-joint exercises. Multi-joint exercises use more than one muscle group, like the chest press, leg press, squat and abdominal crunch. Single-joint exercises use one muscle group like the bicep curl, triceps extension and leg curl.
- Always consult with an exercise professional before starting a program to make sure your program is well-designed and your lifting technique is correct.
- Always perform a 5-10 minute warm-up before doing resistance training exercises.
- Resistance training should be performed 2-3 times per week.
- Rest 48 hours between sessions so your muscles can rest, repair, and strengthen themselves.
- If you don’t have built-in rest days, you may begin to feel excessive muscular soreness.
- Always take a systematic approach: This includes manipulation of different exercises for each muscle group as well as the amount of repetitions (reps), sets, and weight you use.
- Generally speaking, 2-4 sets of 8-15 reps is appropriate for most people and will lead to strength maintenance or improvement.
- The amount of reps should start at 8 and gradually increase toward 15.
- The amount of weight can be increased if you can easily perform 15 reps of any given exercise. Avoid increasing the weight by more than 10% at any given time. When you initially increase the weight you may want to decrease the reps, then work toward gradually increasing your reps again at the new weight.
- It’s better to be on the lighter side than to risk injury.
- Always do a 5-10 minute cool-down after resistance training to safely return your body to its resting state.
Lifting Form and Technique

**DO NOT** throw your weights around. Make sure your movements are slow and controlled. This helps you strengthen your muscles and avoid injury. Make sure to breathe while lifting. Breathe out with exertion.

The FITT principle for resistance exercises (strength training)

- **Frequency**: 2-3 days per week with at least 48 hours between sessions
- **Intensity**: Moderate intensity, 2-4 sets, 10-15 repetitions is recommended to improve strength and endurance
- **Time**: No specific duration
- **Type**: Resistance exercises involving each major muscle group
Flexibility is the ability to move a joint through its complete range of motion (ROM). Being flexible is important for exercise performance and the ability to perform activities of daily living (ADLs). Aging causes a decrease in ROM, but regular stretching can help improve your exercise performance, posture, and balance, and can help prevent injury. There is chronic improvement in our ROM after 3-4 weeks of continued stretching. Stretching daily is the most effective!

**Types of Stretching**

- **Dynamic stretching** is “slow movement” stretching that involves a gradual transition from one body position to another. This is used before exercise as part of a warm-up. Ask exercise staff for examples.

- **Static stretching** involves slowly stretching a muscle group and holding the position for a period of time.

Follow these guidelines for static stretching:

- Stretch only after your muscles are warmed up.
- Stretch all major muscle tendon groups of the neck, shoulders, upper and lower back, pelvis, hips, and legs.
- Stretch in a static manner. This means that the stretch gradually lengthens and is held in a deliberate and controlled fashion. Avoid ballistic and dynamic stretches where “bouncing” occurs.
- Do not stretch to the point of pain. The stretch should only be lengthened to the point of “mild discomfort.”
- Maintain a regular breathing pattern and avoid holding your breath to prevent dizziness. Avoid stretching positions that may cause dizziness.
- Stretch all major muscle groups. Just as we strengthen all our major muscle groups, we want to stretch them all as well.

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**The FITT principle for stretching**

- **Frequency:** Stretch 2-3 times per week.
- **Intensity:** Do 4 or more sets per major muscle tendon group.
- **Time:** Stretches can be held 15-60 seconds, with the entire routine lasting at least 10 minutes.
- **Type:** Do only static stretches.
When exercising, it’s important that you perform at the appropriate intensity. This will ensure that you’re exercising safely and getting the intended benefits.

There are many ways to measure intensity. These include:

**Rating of Perceived Exertion (RPE) scale.** The RPE scale is a quick and easy way to rate how difficult an exercise “feels.” Exercise should typically be performed in the light-to-moderate zone. See the RPE scale on page 93, along with the Modified Rating of Perceived Dyspnea scale, which is a way to measure shortness of breath during exercise.

**The “talk test.”** If you can maintain conversation with someone and not have to stop for breath in the middle of a sentence, it’s a good sign that exercise isn’t overly intense. If you can sing while exercising, the intensity may be too easy.

**Workload.** The amount of work you’re performing on your exercise equipment is the numerical value of your exercise intensity. We can calculate your workload on each piece of equipment to a standardized measure of intensity called a MET (see page 86 for the definition of a MET).

### How your exercise physiologist calculates your HRR zone

**The formula:**

\[
(220 - \text{age} - \text{resting heart rate}) \times \text{exercise intensity} + \text{resting heart rate} = \text{Heart Rate Reserve (HRR) zone}
\]

**Example:**

Ellen is 72 years-old. She has a resting heart rate of 65 and is exercising at a light intensity of 40-60%.

\[
220 - 70 (\text{age}) = 150
\]
\[
150 - 65 (\text{resting heart rate}) = 85
\]
\[
85 \times 40\% (\text{low end of HRR zone}) = 34
\]
\[
34 + 65 (\text{resting heart rate}) = 99
\]
\[
85 \times 60\% (\text{high end of HRR zone}) = 51
\]
\[
51 + 65 (\text{resting heart rate}) = 116
\]

Ellen’s HRR zone is 99-116 beats per minute (bpm).

**Target heart rate zone.** You can calculate your target heart rate zone based on age, exercise tolerance, and intended exercise benefits. It’s a good idea to have an exercise physiologist calculate the best and safest target heart rate zone for you. Your cardiovascular rehab staff will use the Heart Rate Reserve (HRR) method to calculate a target heart rate zone (see box at left).

Most cardiovascular rehab patients will start at a light to moderate target heart rate in the 40-60% range. Over time, as you move further out from your event and your exercise tolerance improves, you might work toward moderate to high intensities in the 60-80% range, and even high intensity intervals up to 95% of HRR.

When using HRR to measure your intensity, it’s crucial that you measure your heart rate accurately. A heart rate monitor will give you accurate, constant, and real-time feedback of your heart rate throughout your entire workout.
Sternal Precautions

If you’ve had an open heart procedure, it’s very important that you protect your chest (sternal) incision. During open heart surgery, your sternum (breastbone) was separated, then closed again. To make sure your sternum and wound site heal completely after surgery, you must follow sternal precautions during your recovery period. Each person is different, but sternal precautions typically last a minimum of 8-12 weeks from the date of your surgery.

While on sternal precautions, you must:

• Not perform any overhead or chest pressing exercises
• Splint your chest anytime you cough, sneeze, laugh, etc.
• Limit the amount of weight you lift to no more than 10 pounds

Certain conditions can extend the length of sternal precautions, possibly even to 16 weeks. These conditions include but are not limited to:

• Diabetes
• Osteoporosis
• Tobacco use
• Complicated surgery
• Valve surgery
• Immune-compromised
• Corticoid steroid use
• Renal dysfunction
• Repeat sternotomy

Please be sure to discuss the length of your sternal precautions with your surgeon.

Exercise Intensity

You can also measure heart rate manually by taking your pulse at the carotid artery on your neck or radial artery on your wrist. Find your pulse and count the number of beats over the course of:

• 1 minute
• 15 seconds, then multiply by 4
• 20 seconds, then multiply by 3
• 30 seconds, then multiply by 2

This method can be difficult if you don’t have any experience finding a pulse. It can be even more difficult if you’re trying to do it while exercising.

The heart rate monitors on the equipment are not accurate for everyone. If you need assistance with how to monitor your own heart rate while working out, please ask your rehab staff.

Exercise Intensity and PAD

Patients with PAD who have leg pain while walking should walk to a 3 out of 4 on the claudication scale (see page 92). This therapeutic range of pain allows for maximum benefit to arteries of the legs while exercising. You should stop and rest before exceeding the range. You will need to stop and rest (seated or standing) until the leg pain has completely subsided. When the pain is gone, walking can continue up to the same intensity.

You can also measure heart rate manually by taking your pulse at the carotid artery on your neck or radial artery on your wrist. Find your pulse and count the number of beats over the course of:

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Exercise Intensity

Rating of Perceived Exertion Scale

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<thead>
<tr>
<th>Rating</th>
<th>Description</th>
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<tbody>
<tr>
<td>0</td>
<td>None</td>
</tr>
<tr>
<td>0.5</td>
<td>Very, Very Slight (just noticeable)</td>
</tr>
<tr>
<td>1</td>
<td>Very Slight</td>
</tr>
<tr>
<td>2</td>
<td>Slight</td>
</tr>
<tr>
<td>3</td>
<td>Moderate</td>
</tr>
<tr>
<td>4</td>
<td>Somewhat Severe</td>
</tr>
<tr>
<td>5</td>
<td>Severe</td>
</tr>
<tr>
<td>6</td>
<td>Very Severe</td>
</tr>
<tr>
<td>7</td>
<td>Maximal</td>
</tr>
<tr>
<td>8</td>
<td>Very, Very Severe (almost maximal)</td>
</tr>
<tr>
<td>9</td>
<td>Maximal Exertion, Couldn't Do More</td>
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Modified Rating of Perceived Dyspnea Scale

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<thead>
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<tbody>
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<tr>
<td>0.5</td>
<td>Very, Very Slight (just noticeable)</td>
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<td>1</td>
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Claudication Pain Scale

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</thead>
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<td>3</td>
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<td>Severe Pain</td>
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Your exercise intensity will depend on how you’re tolerating exercise and your fitness goals. Talk with your health care providers about learning to gauge the intensity of your exercise by using the Rating of Perceived Exertion (RPE) and Modified Rating of Perceived Dyspnea (RPD) scales.
Signs of Overexertion

When exercising, it’s vital that you stay within your limitations to avoid overexerting yourself to the point of a possible cardiac event. You should always exercise at an intensity that gives you the intended health benefits but doesn’t put you at risk. Remember that moderate intensity exercise is effective for increasing health.

One of the worst things you can do after recovering from a cardiac event is to try to do too much too soon. Always listen to your body and don’t ignore any abnormal signs or symptoms. Each person’s signs and symptoms of overexertion may be different, so it’s important to understand how your body responds to exercise.

This is why we often measure your exercise intensity using more than one method (target heart rate zone, the RPE scale, the “talk test”). We also want you to avoid overuse injuries with exercise, which can cause tissue damage from repetitive demand overtime.

As someone with heart disease, the phrase “no pain, no gain” does not apply to you. Watch for these common signs and symptoms of overexertion:

- Pain, discomfort, burning, tightness, heaviness, or pressure in your chest, shoulders, arm, neck, or jaw
- Unusual shortness of breath
- Palpitations or noticeable change in heart rhythm (racing or skipping beats)
- Extreme fatigue
- Lightheadedness, dizziness, or nausea

If you feel any of these symptoms, or any other abnormal signs, symptoms, or discomfort, stop exercising immediately! If you feel them while at cardiovascular rehabilitation, report them right away to staff. If they occur while you’re at home, call 911 immediately.
To continue improving your health and fitness, you have to increase different components of your exercise intensity. When you place a certain workload on your body, it begins to condition itself to overcome the workload. This is called the “overload principle,” and it applies to both cardiovascular and strength exercises.

Once your body overcomes the workload and can comfortably perform exercise at that level, it stops making improvements and only does what you ask of it. That’s when it’s time to move to the next level. To continuously make gains toward your health, fitness, and activity goals, you must make exercise progressions.

- Follow the FITT principle, in which each component of an exercise regimen (frequency, intensity, time, type) can be manipulated until your goals are achieved.
- Follow a set order and rate of progression, which is outlined below.
- Progress at a safe rate to avoid undue shortness of breath, excessive fatigue, muscular soreness, injury, or a possible cardiovascular event.
- If you’re unsure how to safely progress your exercises, talk with an exercise physiologist before changing your exercise regimen.

### Principles of Progression for PAD

If you have peripheral artery disease and intermittent leg pain that’s relieved with rest, walking on the treadmill will allow you to achieve progression of your exercise prescription and walking duration. The goal walking time is less than 8 minutes with leg pain. If you walk more than 8 minutes in consecutive bouts, the exercise prescription should be increased by speed (mph) or incline (%). The progression walking prescription includes:

- Initial treadmill speed goal of 2 mph at 0% incline.
- Once 2 mph goal is achieved by walking more than 8 minutes, increase elevation slowly by 1-2%, up to 10%.
- If you can walk more than 8 minutes at 2 mph at 10%, increase the speed by 0.1-0.2 mph.
- Talk to an exercise professional about advanced exercise progression before making any changes.
Principles of Progression

**Frequency**
- Start out performing moderate-intensity exercise 3-5 times per week.
- Start near the lower end of the spectrum and work toward a goal of 5 days of exercise.
- Work toward completing 30 minutes of continuous cardiovascular exercise at each session.
- Performing 30 minutes of exercise 5 times per week equals 150 minutes of cardiovascular exercise. This is the minimum recommendation set forth by the American College of Sports Medicine (ACSM) to achieve fitness.
- Work toward 300 minutes of cardiovascular exercise for weight loss and weight maintenance.

**Intensity**
- Once your frequency and time goals have been met, focus on exercise intensity.
- There are many ways to increase your intensity, depending on the equipment you use:
- On a treadmill, increase the speed and elevation.
- On a bike, increase pedal resistance and revolutions per minute (RPMs).
- Change the type or mode of exercise, such as going from walking to jogging or from a recumbent bike to an upright bike.

**Guidelines**
- Don’t manipulate more than one variable during a single exercise session. For example, don’t increase both your exercise duration and intensity in the same day.
- Follow the 10% rule when progressing exercise; that is, don’t increase any exercise variable by more than 10% in a given week. For example, if you exercise for 30 minutes one week, you should only increase to 33 minutes the next week. Or, if you exercise at 5 METs one week, you should only increase to 5.5 METs the next week.
- Remember that everyone has different responses and limits to their exercise and fitness levels. Genetics, medical conditions, and other factors all play a role.
- Once you’ve achieved your goal or high level of fitness, don’t stop exercising. You’ve just reached the maintenance phase of your exercise program. You must continue to move to maintain the progress you’ve made. Just as your body adapts to exercise, it can adapt back to a sedentary lifestyle.
- As always, anytime you make a change to your exercise prescription, you need to listen to your body. If you’re having any abnormal responses to exercise, stop the exercise immediately and notify your health care provider.
Interval training is a trending topic in both the general fitness world and the cardiovascular rehabilitation world. It’s been shown to greatly improve patient outcomes with minimal increase in associated risks.

Interval training combines bouts of higher intensity exercise with bouts of lower intensity exercise. This mix allows you to achieve higher workloads by utilizing active recovery periods. Interval training can be performed as moderate intensity interval training (MIIT) or high intensity interval training (HIIT). You must use heart rate monitoring to make sure you’re achieving the appropriate training responses, both during the peak and recovery intervals.

There are several variables you can manipulate to achieve your high interval and recover during your low interval, depending on the equipment you use and your exercise tolerance and safety. It’s crucial that you understand what you’re doing before attempting to manipulate your workloads. As always, check with an exercise professional before starting or adjusting any exercise regimen.

**Benefits of interval training:**
- Increased peak MET level
- Increased time to fatigue
- Increased ejection fraction
- Improvement in oxygen consumption
- Lower peak and resting heart rates
- Improvement in exercise tolerance
- Improvements in blood pressure
- Improvements in lipid panel
- Improvements in managing blood sugar
- Improvements in body measurements such as weight, body mass index (BMI), and body fat percentage

**Interval Training Intensity Ranges**

**MIIT:**
- Peak intensity interval = 60-80% HRR, RPE = 4-6, and RPD = 4-6
- Recovery interval = 40-60% HRR, RPE = 2-4, and RPD = 2-4

**HIIT:**
- Peak Intensity interval = 80-95% HRR, RPE = 5-8, and RPD = 5-8
- Recovery interval = 50-70% HRR, RPE = 2-5, and RPD = 2-5

**HRR:** Heart Rate Reserve (see page 84)
**RPE:** Rating of Perceived Exertion (see page 83)
**RPD:** Rating of Perceived Dyspnea (see page 83)
A consistent home exercise program is vital to your success in your phase II cardiovascular rehabilitation program. You’ll see us in the rehab center for up to three visits per week, which is not enough to achieve your exercise, health, and fitness goals.

You should be performing 30 minutes of cardiovascular exercise at least 5 days per week. Your minimum goal is to achieve 150 minutes of cardiovascular exercise per week, with a maximum goal of 300 minutes per week. The exercise you do at home, combined with your exercise during your cardiovascular rehab sessions, should add up to your recommended amount of cardiovascular exercise.

Always check with your rehab case manager or exercise physiologist before starting your home exercise program. He or she can help you design a program that is safe and effective as you work toward your health and exercise goals.

If you’ve started on an interval training program during your cardiovascular rehab sessions, the routine should generally only be performed on rehab days. This is because interval training is often more intense than moderate continuous training, requiring more recovery. Even competitive athletes typically will not do interval training during each workout, but instead will mix both continuous and interval training exercise routines into their training program. If you’re doing interval training during your cardiovascular rehab sessions, ask your case manager or exercise physiologist to help design a moderate continuous training program for your home workouts.

Home Exercise Guidelines
• Begin each exercise session with a 5-10 minute warm-up to prepare your body for exercise.
• Follow with 30-60 minutes of cardiovascular exercise using a piece of equipment you’re familiar with. Ideally, use something comparable to what you’re doing in your cardiovascular rehab sessions. This will help ensure your safety.
• Keep your exercise intensity at the same level or slightly below what you’re doing at rehab to ensure your safety. Do not attempt to push yourself to higher exercise intensities than what you’re doing in rehab.
• Follow with a 5-10 minute cool-down. This gradually allows your heart rate and blood pressure to safely return to a resting state.
• Remember, after exercise is the time when the risk for a cardiovascular event is highest, especially if there is no cool-down.
• As always, closely monitor your response to exercise using the talk test, RPE scale, or HR monitor. If you feel any abnormal responses to exercise, stop the exercise immediately and notify your health care provider, or if necessary, call 911.
Tips for Staying Consistent and Motivated

Life can get busy, and often it’s our exercise routine that pays the price by getting cut out of our day. But as a heart patient, you can’t afford to let your exercise routine take a back seat. You’ve taken the important steps to adopt an exercise lifestyle by regularly participating in cardiovascular rehabilitation. Your long-term health depends on maintaining motivation and keeping consistent with your exercise routine. Follow these tips for continued success:

• **Find an exercise partner** who’ll help keep you accountable. This can be a spouse, child, friend, or even a dog. There will be some days you may not want to exercise, and your partner may talk you into it, or vice-versa.

• **Follow the 5-minute rule.** Some days you may not have the want or vigor to exercise. But if you can at least talk yourself into just trying to exercise for 5 minutes, it might be all you need to get you over the “hump” to exercise that day. Often, after just a few minutes of exercise, you’ll feel better. If you don’t feel better after 5 minutes, stop and take that day off.

• **Incorporate activity into your day.** Park at the back end of the parking lot, take the stairs instead of the elevator, or go for a short walk after meals. Remember, all these easy ways add up to increase your daily activity.

• **Schedule exercise into your day.** Just like your other appointments, exercise should be a priority. If it’s on the schedule, you’ll plan your days around it rather than trying to squeeze it in.

• **Set goals for yourself.** Set a step goal for the day or a goal to exercise a certain number of days. This keeps you on track and is a great way to follow your progress and stay consistent.

• **Log your activity.** Using an activity or fitness tracker, such as a pedometer or myfitnesspal (app or website), can help build accountability and make you aware of your daily activity levels.

• **Exercise needs to be convenient** or you won’t do it. Join a gym close to home or along the route of your daily commute. If your gym isn’t convenient, you’re much less likely to show up regularly.

• **Always have your gym bag packed** and with you. That way, if you find time within your day to sneak exercise in, you’ll be ready to go.

• **Make exercise fun!** Try to exercise outdoors as much as possible. Boise and the surrounding areas have an abundance of parks and trail systems. You could also join an exercise class, club, or recreational league to meet new people.

Discover Hidden Opportunities to Move

• Take a long-cut instead of a short-cut when walking. Pick a longer walking route to your destination.

• When talking on the phone, get up and walk around.

• Exercise outside for fresh air and sunshine. There are many opportunities with the foothills and multiple parks.

• Find ways to move at work:
  • Stand to stretch
  • Stand and work if possible
  • Take stairs instead of the elevator
  • Park father away from the building.
  • Go on a walk during your lunch break.
Seasonal Exercise

It’s great to exercise outdoors, but you want to do it safely. With the changing of seasons, it’s important to be aware of environmental factors that could affect your exercise performance and tolerance.

Stay hydrated in every season.
- Always be properly hydrated before you exercise, then hydrate during exercise, and replenish fluid loss post-exercise.
- Strive to drink 7-10 ounces of fluid every 15-20 minutes during exercise.
- Chances are, by the time you actually feel thirsty, your body is on its way to becoming dehydrated.
- If you aren’t properly hydrated, you could place an increased workload on the heart, cause a low blood pressure response, or cause dizziness.
- If you’re on fluid restrictions, talk to your healthcare provider about further guidelines regarding hydration concerns.

Dress appropriately for the weather.
- Dress in layers so you’ll never be underdressed for whatever weather conditions arise.
- Your base layer should be a polyblend material that wicks moisture away from the body.
- Avoid cotton because it soaks up sweat, becomes wet, and doesn’t allow for proper cooling of your body. Under hot and cold conditions, cotton doesn’t allow for appropriate temperature regulation.
- A second layer can be worn over the polyblend to offer protection from the sun, wind, or precipitation. Even if you don’t think you’ll need this layer, it’s always nice to have on hand should conditions change.

Wear proper shoes.
- During warm months, wear shoes that are breathable.
- During wet months, make sure your shoes are waterproof.
- Be sure your shoes provide appropriate traction and ankle support.

- Your feet are vital to enjoyable, safe, and tolerable exercise. You don’t want to be stuck with shoes that cause discomfort, injury, or an unpleasant experience.

Check the heat.
- Pay attention to the time of day if you’re exercising outside.
- On hot days, you may want to postpone exercise until later in the day.
- Or plan ahead and beat the heat by working out early in the morning.

Don’t shovel snow.
If you have heart disease, we recommend that you do not shovel snow, especially if you have had a recent heart event.
Shoveling, even pushing a heavy snow blower, can cause a sudden increase in blood pressure and heart rate, and the cold air can cause blood vessels to constrict and decrease oxygen to the heart.
1. **You’ll burn more fat if you exercise longer at a lower intensity.**

The most important focus in exercise and weight control is not the percentage of exercise energy coming from fat but the total energy cost, or how many calories are burned during the activity. The faster you walk, step, or run, for example, the more calories you use per minute. However, high-intensity exercise is difficult to sustain if you’re just beginning or returning to exercise, so you may not exercise very long at this level. It’s safer, and more practical, to start out at a lower intensity and work your way up gradually.

2. **If you’re not going to work out hard and often, exercise is a waste of time.**

This kind of thinking keeps a lot of people from maintaining or even starting an exercise program. Research continues to show that any exercise is better than none. For example, regular walking or gardening for as little as an hour a week has been shown to reduce the risk of heart disease.

3. **Yoga is a completely gentle and safe exercise.**

Yoga is an excellent form of exercise, but some styles are quite rigorous and demanding—both physically and mentally. As with any form of exercise, you need qualified, careful instruction for a safe, effective workout.

4. **If you exercise long and hard enough, you’ll always get the results you want.**

In reality, genetics play an important role in how people respond to exercise. Studies show a wide variation in how different exercisers respond to the same training program. Your development of strength, speed, and endurance may be very different from that of other people you know.

5. **Exercise is one sure way to lose all the weight you desire.**

As with all responses to exercise, weight gain or loss is impacted by many factors, including dietary intake and genetics. All individuals will not lose the same amount of weight on the same exercise program. It’s possible to be active and overweight. Exercise alone cannot guarantee your ideal weight, but regular physical activity is one of the most important factors for successful long-term weight management.

6. **If you want to lose weight, stay away from strength training because you’ll bulk up.**

Cardiovascular exercise and strength training are both valuable for maintaining a healthy weight. Strength training helps maintain muscle mass and decrease body fat percentage.
Busting 10 Exercise Myths

7. **Water fitness programs are primarily for older people or exercisers with injuries.**
   Recent research shows that water fitness programs can be highly challenging and effective for both improving fitness and losing weight. Even top athletes integrate water fitness workouts into their training programs.

8. **The health and fitness benefits of mind-body exercise like tai chi and yoga are questionable.**
   In fact, research showing the benefits of these exercises continues to grow. Tai chi, for example, has been shown to help treat low-back pain and fibromyalgia. Improved flexibility, balance, coordination, posture, strength, and stress management are just some of the potential benefits of mind-body exercise.

9. **Overweight people are unlikely to benefit much from exercise.**
   Studies show that obese people who participate in regular exercise programs have a lower risk of all-cause mortality than sedentary individuals, regardless of weight. Both men and women of all sizes and fitness levels can improve their health with modest increases in activity.

10. **Home workouts are fine, but going to a gym is the best way to get fit.**
    Research shows that some people find it easier to stick to a home-based fitness program. In spite of all the hype on trendy exercise programs and facilities, the “best” program for you is the one you will participate in consistently.

Do you have other exercise myths you’re wondering about? Have you seen something on TV, read about something on the internet, or heard something from a friend? Are you wondering if it works or if it’s safe?

Ask your exercise physiologist!
Facts About Falls
• 1 in every 3 Americans aged 65+ fall each year.
• 1 out of every 5 falls causes a serious injury such as a fracture or head trauma.
• Every 29 minutes, an elderly person dies from a fall.
• More than 2 million older adults are treated in the emergency department for nonfatal fall injuries each year.
• More than 90% of hip fractures among older adults are due to falling.
• Medical costs for fall injuries total over $28 billion annually.

Fall Risk Factors
You’re at a greater risk for falls if you:
• Have any issues with vision, cognition, balance, muscle weakness, or forward rounding of your back.
• Walk at decreased walking speeds.
• Use a cane or walker improperly.
• Take medications that can cause dizziness or drowsiness, or are on multiple medications.

How You Can Help Prevent Falls
Fall-proof your home.
• Remove hazards from your floor.
• Repair loose carpet or raised areas in your floors.
• Install grab bars and use non-skid mats in your bathroom.

Maintain an exercise regimen.
• Continue cardiovascular and resistance training exercises along with flexibility and balance. Chair sit-to-stands and toe-to-heel raises are great balance exercises.
• Incorporate balance into everyday activities, such as decreasing your base of support while brushing your teeth or washing dishes. To do this, put your feet together, rather than shoulder-width apart, with one foot in front of the other or standing on one leg.
• Remember, if you don’t use your balance, you lose your balance!

Use eyewear and keep it clean.
• Use sunglasses on bright days to help prevent glare.

Wear comfortable shoes with good support, a broad heal, and non-skid soles.

Maintain a healthy diet.

Watch for medication side effects.
• Make sure you ask about your medications if you aren’t sure, because some prescription medications can contribute to falls, especially if you take three or more medications.
• If you start to feel dizzy, speak with your doctor or cardiovascular rehab staff immediately.

Fall Resources
• Schedule a balance consultation with a physical or occupational therapist at cardiovascular rehab.
• Fit and Fall Proof classes are offered in the area. Visit healthandwelfare.idaho.gov and search by “fit and fall proof.”
• Delay the Disease classes are available for people who have Parkinson’s disease or other neurological disorders. Visit ymcatvidaho.org and search by “delay the disease.”
Sarcopenia is the loss of muscle mass, muscle strength, and function related to the aging process. It’s most common in those who are not active, but naturally occurs in everyone. It’s why it’s especially important to maintain an exercise regimen along with other healthy lifestyle habits to help slow muscle loss, strength, and function.

- The process of sarcopenia begins at age 40 and becomes more rapid after age 75.
- A sedentary lifestyle puts you at higher risk, as inactivity reduces muscle mass.
- This reduction in muscle mass and long-term inactivity can lead to falls or fear of falling in older individuals.
- Research has shown that resistance training helps improve muscle activation and the making of protein, which helps maintain muscle mass.
- Cardiovascular exercise and flexibility also help with strengthening muscles.
- Poor dietary habits can also contribute to sarcopenia. Malnutrition, protein deficiency and diets high in acid-producing foods (like meats and cereal grains) put you at higher risk.
- Studies show that adults aged 50 or older consume less than the recommended dietary allowance of protein (1.0-1.2 grams per kilogram of body weight per day).
- Fruits and vegetables are examples of non-acid producing foods that have a positive effect on muscle mass, so make sure to include more of these in your diet.
Chapter 10: Emotional Health and Healthy Habits

Sex and Your Heart

Sex is part of a healthy life. It can be safe for people who have a heart problem. But some people may worry about having sex, or they may have problems having or enjoying it.

If you’re having sexual problems, talk with your health care provider. He or she can help you get information, support, and advice so you can enjoy sexual activity again.

Should I avoid sex?

If you have a heart problem, you may worry about having sex. Maybe you’re afraid you’ll have symptoms, such as chest pain. Or maybe you think you won’t have enough energy. You may even worry that sexual activity can cause a heart attack.

But sex is actually safe for most people with heart disease. They don’t have any more sex-related heart attacks than other people do.

Some heart patients may have reasons to avoid sex for a while. If you have serious heart problems and have symptoms, like chest pain, when you do anything active, you probably should avoid sexual activity until you talk to your health care provider.

If you’ve just had heart surgery, make sure the cut (incision) has healed well before you start to have sex again.

Ask your health care provider if or when it’s okay for you to have sex. If you need help dealing with feelings of worry or fear, you can also try professional counseling.

Is it safe for me to have sex?

As far as your heart is concerned, sexual activity is like doing any mild to moderate exercise. Mild exercise would be slow walking, and moderate activity would be brisk walking.

If you can do moderate exercise, you’re probably ready to start having sex again. Your health care provider might tell you that if you can climb two flights of stairs without having symptoms, such as chest pain, it’s fine for you to have sex.

Being physically active—getting regular exercise—can help you build up stamina and become stronger so that sex is more enjoyable.

Can I take ED (erectile dysfunction) medications?

Medications prescribed for ED called phosphodiesterase inhibitors (or PDE-5 inhibitors for short) with names like sildenafil (Viagra), vardenafil (Levitra), and tadalafil (Cialis) can be used by most heart patients safely.

However, if you’re taking medications containing nitroglycerin, there can be a dangerous interaction with the ED medication that can cause death. These nitroglycerin medications include isosorbide, ismo, isordil, nitroglycerin patch, and the need to use nitroglycerin under the tongue for angina.

Note: If you develop heart symptoms like chest pain and are prescribed erectile dysfunction medications, you need to alert any medical personnel who are treating you as to when you last took the medication so they can avoid giving you nitroglycerin products for at least 24-48 hours after you ingested the Viagra, Levitra, or Cialis.
Living in the Moment

Mindfulness is a state of active, open attention on the present. When you’re mindful, you observe your thoughts and feelings from a distance, without judging them as good or bad. Instead of letting your life pass you by, mindfulness means living in the moment and awakening to experience.

**Mindfulness is paying attention:**
- On purpose
- In the present moment
- Non-judgmentally

**Non-judging**
- Impartial witness to your own experience.
- We tend to categorize things as “good” or “bad.”
- We spend a lot of time “liking” or “not liking” things.
- When the mind starts categorizing, acknowledge it and let it go.

**Patience**
- Things unfold in their own time.
- When “it” gets here, it is our reality. Why miss “now” by living in the future?
- Why rush through moments to get to “better” ones? Enjoy now.
- Be completely open to each moment as it happens.

**Beginner’s Mind**
- Often, we get blocked with what we already “know,” as though we can’t (or don’t want to) learn new modes of thinking.
- Be willing to see everything as if it were for the first time.
- The truth is simple.

**Trust**
- Trust your intuition even if you make mistakes.
- Honor your feelings as valuable.
- Become more of yourself instead of what you think you should be.
- The more you trust yourself, the more you’ll be able to see the goodness in others.
Non-striving
- Almost everything we do is for a purpose, to get something or get somewhere.
- Unrealistic expectations set us up to feel as though we have failed if we don’t achieve list of “to-do.”
- The way to achieve your goals is to stop striving.
- It will unfold if you invite it to happen.

Acceptance
- Seeing things as they are in the present.
- We often try to force situations to be as we want them to be, which creates more tension and internal conflict.
- In order to change, we must accept ourselves the way we are.
- Continue to break free from destructive habits.
- We have the opportunity to accept each moment as it reveals itself.

Letting Go
- Our mind tries to hold on to certain thoughts and feelings.
- We try to prolong those feelings and bring them back again and again.
- We judge ourselves for revisiting these memories…
- Holding on is the opposite of letting go.
- “Mindfulness” allows us to simply observe this and release it.
- Letting go is not foreign to us—we let go every night when we go to sleep. Translate that to waking hours.

The Power of Breathing: Diaphragmatic Breathing
- Most of us have learned to breathe with our chest.
- Helps awareness of breathing pattern.
- Focus on your belly.

- Promotes relaxation and oxygenation.
- Stimulates lymphatic drainage.
- Transitions from “fight or flight” to “rest and repair.”

Mindfulness
The Power of Breathing: Diaphragmatic Breathing
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Body Scan
• Sit in a comfortable position.
• Focus on every part of your body, starting at your head.
• Focus your attention and energy on the details. Acknowledge and let go.
• When feeling out of control, picture your body wrapped in an “envelope” of your own skin. You are contained and safe.

Meditation
• Assume a comfortable position.
• Become mindful of your breathing.
• Whenever your attention moves elsewhere, note it and let it go.
• Refocus on the rising and falling of your belly.

Mindful Eating
• Many people eat for emotional comfort.
• Think about where your food came from, how it was prepared.
• Don’t distract yourself while eating (television…).
• Make nourishing your body sacred.

Mindful Walking
• Walking is a miracle—so many people are unable to walk.
• Use your breathing skills and body scan.
• Translate this to the slow process of walking.
• Feel your muscles move, the ground under your feet.
• Make a time goal.
• Be present in each moment.

You will find...

When you are focused on the present...
When you let go of the past...
When you trust the future to be as it should...

You will become happier and full of gratitude.

It takes practice!
• This change happens over time.
• Start small without defining “shoulds.”
• Be gentle with yourself.
• Increase time each practice.
• Relax into acceptance.

“The present moment is filled with joy and happiness. If you are attentive, you will see it.”
— Thich Nhat Hanh
Stress and Your Heart

What is stress?
Stress is what you feel when you have to handle more than you’re used to. Stress is a fact of life for most people, and it affects everyone differently. What causes stress for you may not be stressful for someone else.

A lot of things can cause stress. You may feel stress when you go on a job interview, take a test, or run a race. This kind of short-term stress is normal and even useful. It can help you if you need to work hard or react quickly. For example, stress can help you finish an important job on time.

Stress also can last a long time. Long-term stress is caused by stressful situations or events. Examples of long-term stress include long-term health problems, ongoing problems at work, or conflicts in your family. Long-term stress can harm your health.

How does stress affect your health?
When you’re stressed, your body responds as though you’re in danger. It makes hormones that speed up your heart, make you breathe faster, and give you a burst of energy. This is called the “fight-or-flight” stress response. If the stress is over quickly, your body goes back to normal and no harm is done.

But if stress happens too often or lasts too long, it can have bad effects. Long-term stress can make you more likely to get sick, and it can make symptoms of some diseases worse. If you tense up when you’re stressed, you may develop neck, shoulder, or low back pain. Stress is linked to high blood pressure and heart disease.

Stress also harms your emotional health. It can make you moody, tense, or depressed. Your relationships may suffer, and you may not do well at work or school.
Managing the Stress in Your Life

**Mindfulness**
- Stay focused on the **present moment** instead of past events or future worries to foster increased stress resilience. This is a tool to help you focus your mind and deal with negative thoughts.
- Slow down! Focus on the details of **NOW** through your senses. Smell the fresh air, listen to your favorite music, notice the soft feeling of the fur on your pet, taste the crispness of a sweet apple, or look at nature around you.
- For more information on ways to start a mindfulness practice of your own, refer to “A Mindfulness-Based Stress Reduction Workbook” by Bob Stahl, PhD and Elisha Goldstein, PhD.
- For a more comprehensive and in-depth look at mindfulness, refer to “Full Catastrophe Living” by Jon Kabat-Zinn.

**Gratitude**
- Develop a gratitude practice. Every day, identify something that gives you joy or that you are simply thankful for. Some days are harder than others. It can range from “I’m so glad I’m breathing easily today” to “I am thankful I have a job to go to each day and support my family.” A gratitude practice increases personal happiness and resilience to life stressors. It has also been shown to keep you healthy!
- For more information about incorporating gratitude into your daily life, refer to “Living in Gratitude: A Journey That Will Change Your Life” by Angeles Arrian.
- Check out happify.com for daily gratitude exercises.

**Relax Your Mind**
- Write. It may help to write about things that are bothering you. This helps you find out how much stress you feel and what’s causing it. When you know this, you can find better ways to cope.
- Let your feelings out. Talk, laugh, cry, and express anger when you need to. Talking with friends, family, a counselor, or a member of the clergy about your feelings is a healthy way to relieve stress.
- Do something you enjoy. Listen to music, go to a movie, read a book. Practice your hobby or do volunteer work.
- Meditate. This helps you relax, because you aren’t worrying about what happened before or what may happen in the future. A daily practice increases inner calmness, builds happiness, and helps you live longer.
- Try guided imagery. Imagine yourself in any setting that helps you feel calm. You can use audiotapes, books, or a teacher to guide you.

**Relax Your Body**
- Do something active. Exercise or activity can help reduce stress. Walking is a great way to get started. Even everyday activities such as housecleaning or yard work can help.
- Do breathing exercises. For example:
  1. Take in a deep breath using your diaphragm.
  2. Hold your breath for four seconds.
  3. Exhale as though you are blowing out a candle.
  4. Repeat as many times as needed.
- Try gentle yoga or tai chi. These techniques combine exercise and meditation. You may need some training at first to learn them.

**Preventing Stress**
- Manage your time. This helps you find time to do the things you want and need to do.
- Get enough sleep. Your body recovers from the stresses of the day while you’re sleeping.
- Get support. Your family, friends, and community can make a difference in how you experience stress.
Depression

The definition of depression is severe despondency and dejection typically felt over a period of time and accompanied by feelings of hopelessness and inadequacy.

Criteria for Major Depression
Depressed mood and/or loss of interest or pleasure in life activities for at least two weeks and at least five of the following symptoms that cause clinically significant impairment in social, work, or other important areas of functioning almost every day:

- Depressed mood most of the day
- Diminished interest or pleasure in all or most activities
- Significant unintentional weight loss or gain
- Insomnia or sleeping too much
- Recurrent thoughts of death
- Fatigue or loss of energy
- Feelings of worthlessness or excessive guilt
- Diminished ability to think or concentrate, or indecisiveness
- Agitation or psychomotor retardation noticed by others

Risk Factors
Although the precise cause of depression isn’t known, researchers have identified certain factors that seem to increase the risk of developing or triggering depression:

- Having biological relatives with depression
- Being a woman
- Having traumatic experiences as a child
- Having family members or friends who have been depressed
- Experiencing stressful life events, such as the death of a loved one
- Having few friends or other personal relationships
- Recently having given birth (postpartum depression)
- Having been depressed previously
- Having a serious illness, such as cancer, diabetes, heart disease, Alzheimer’s or HIV/AIDS

- Depression IS more than “the blues.”
- Depression IS a chronic illness and usually requires long-term treatment.
- Depression is NOT a weakness.
- Depression is NOT something you can just “snap out” of.
- Most people with depression feel better with medication, counseling or other treatment.
Depression

- Having certain personality traits, such as having low self-esteem and being overly dependent, self-critical or pessimistic
- Abusing alcohol, nicotine or illicit drugs
- Taking certain high blood pressure medications, sleeping pills or certain other medications (Talk to your doctor before stopping any medication you think could be affecting your mood.)
- Life events. Certain events, such as the death or loss of a loved one, financial problems, and high stress, can trigger depression in some people.
- Early childhood trauma. Traumatic events during childhood, such as abuse or loss of a parent, may cause permanent changes in the brain that make you more susceptible to depression.

Complications
Depression is a serious illness that can take a toll on individuals and families. Untreated depression can result in emotional, behavioral and health problems that affect every area of your life. Complications associated with depression can include:

- Alcohol abuse
- Substance abuse
- Work or school problems
- Family conflicts
- Relationship difficulties
- Anxiety
- Self-mutilation, such as cutting
- Premature death from other medical conditions
- Suicide
- Social isolation

Treatments and Drugs
Psychotherapy is a key treatment for depression.

- You talk about your condition and related issues with a mental health provider.
- Also known as therapy, talk therapy, counseling or psychosocial therapy.
- It helps you learn about the causes of depression so you can better understand it.
- You learn how to:
  - Identify and make changes in unhealthy behavior or thoughts.
  - Explore relationships and experiences.
  - Find better ways to cope and solve problems.
  - Set realistic goals for your life.

Biological Causes
It’s not known exactly what causes depression. It appears that there are many factors involved:

- Biological differences. People with depression appear to have physical changes in their brains. The significance of these changes is still uncertain but may eventually help pinpoint causes.
- Neurotransmitters. These naturally occurring brain chemicals linked to mood are thought to play a direct role in depression.
- Hormones. Changes in the body’s balance of hormones may be involved in causing or triggering depression. Hormone changes can result from thyroid problems, menopause or a number of other conditions.
- Inherited traits. Depression is more common in people whose biological family members also have this condition. Researchers are trying to find genes that may be involved in causing depression.
Psychotherapy can help you regain a sense of happiness and control in your life and help ease depression symptoms such as hopelessness and anger. It may also help you adjust to a crisis or other current difficulty.

**Medications:** A number of antidepressant medications are available to treat depression. There are several different types of antidepressants. You should work with your primary care provider or a mental health specialist to find the right medication for you.

**Alternative medicine:** When it comes to depression, alternative treatments aren’t a substitute for medical care. Talk with your primary care provider about any alternative medications you may want to try.

**Lifestyle and home remedies:** Depression generally isn’t an illness that you can treat on your own. But you can do some things for yourself that will help. In addition to professional treatment, follow these self-care steps:

- **Stick to your treatment plan.** Don’t skip psychotherapy sessions or appointments, even if you don’t feel like going. Even if you’re feeling well, resist any temptation to skip your medications. If you stop, depression symptoms may come back, and you could also experience withdrawal-like symptoms.

- **Learn about depression.** Education about your condition can empower you and motivate you to stick to your treatment plan.

- **Pay attention to warning signs.** Work with your doctor or therapist to learn what might trigger your depression symptoms. Make a plan so you know what to do if your symptoms get worse. Contact your doctor or therapist if you notice any changes in symptoms or how you feel. Ask family members or friends to help watch for warning signs.

- **Get exercise.** Physical activity reduces depression symptoms. Consider walking, jogging, swimming, gardening or taking up another activity you enjoy.

- **Avoid alcohol and illegal drugs.** It may seem like alcohol or drugs lessen depression symptoms, but in the long run they generally worsen symptoms and make depression harder to treat. Talk with your doctor or therapist if you need help with alcohol or substance abuse.

- **Get plenty of sleep.** Sleeping well is important for both your physical and mental well-being. If you’re having trouble sleeping, talk to your doctor about what you can do.
Coping Skills

**Simplify your life.** Cut back on obligations when possible and set reasonable goals for yourself. Give yourself permission to do less when you feel down.

**Consider writing in a journal.** Journaling can improve your mood by allowing you to express pain, anger, fear, or other emotions.

**Learn ways to relax and manage your stress.** Examples include meditation, yoga and tai chi.

**Structure your time.** Plan your day and activities. You may find it helpful to make a list of daily tasks, use sticky notes as reminders, or use a planner to stay organized.

**Don't make important decisions when you're down.** Avoid decision-making when you’re feeling very depressed, since you may not be thinking clearly.

**Prevention**
There is no sure way to prevent depression; however, taking steps to control stress, increase your resilience and boost low self-esteem may help. Friendship and social support, especially in times of crisis, can help you weather the tough spells. Treatment at the earliest signs of a problem can keep depression from worsening. Long-term maintenance treatment also may help prevent a relapse of depression symptoms.

Source: Mayo Clinic Staff

Don’t become isolated. Try to participate in social activities and get together with family or friends regularly.

Take care of yourself. Eat a healthy diet, exercise regularly, and get plenty of sleep.
Gratitude

What is gratitude?
Gratitude is the appreciation for what you receive, either material or non-material. This can be anything from positive feedback from your boss to a hug from your grandchild or a smile from the clerk at the grocery store.

Why is it important?
Do you get caught up in focusing on what’s missing? “I would be happier IF,” “When I finally have THAT, I’ll be happy.” Consequently, all the good things surrounding you are lost while your focus remains on the imaginary outcomes of a situation that may not even happen at all!

While you’re busy thinking about the bigger and better boat you need, you may miss the look on your grandson’s face when he catches his first fish.

When you’re able to find gratitude in difficult situations, beauty will start becoming more visible in the world around you. Instead of saying “This line is too long, I’m wasting an entire afternoon waiting to pay for this darn stuff,” think “Wow, I’m thankful I have the money to buy these groceries to feed my family. Not everyone has that privilege.”

Gratitude is such a simple intervention!
It has been shown to:

- Increase resilience from trauma-induced stress
- Help people recover quickly from illness
- Help people enjoy more robust physical health
- Decrease feelings of depression
  - Feel more positive emotions
  - Improve health
  - Relish good experiences
  - Deal with adversity
  - Build strong relationships
  - Exhibit alertness
  - Be determined
  - Have fewer physical symptoms
  - Be more optimistic
  - Make progress toward important life goals

Gratitude and Depression
One of the best treatments for depression is to practice gratitude. Some people can’t think of things to be grateful for, saying, “I’m broke, I’m sick, I have no friends, even my dog doesn’t like me.” But try listing at least five things you’re grateful for, like “My legs work. I have a roof over my head. I was able to get up this morning.” Some days may be so difficult, you can only list one or two things. But as you exercise this “muscle,” you’ll become fluent in the language of gratitude.

Gratitude and Mindfulness
Gratitude and mindfulness are connected! Mindfulness is the practice of focusing on the present, not the past or the future. When you’re mindful, you’re unable to ruminate over the mortgage that’s due next week, or the divorce you went through 10 years ago. You’re forced into looking at things in this very moment and finding beauty in it. How do you feel sitting in that chair? What does your body feel like after your workout? Your muscles worked hard to get you through so many tasks today. How wonderful. When you’re mindful, you’re also grateful.

“But I’m not grateful for...that.”
What if something really bad happened? How can you be grateful for that? You can feel gratitude that the bad thing has passed, that you learned something from it, and that it may not happen again. Perhaps you lost a loved one. Focus on the time you did have with that person. How very special those experiences were. It’s okay to acknowledge sad things and to feel sad when they happen. It’s also within your control to manage your emotions through mindfulness and gratitude to avoid potential triggers for depression and anxiety. Try it!
Self-Care

What is self-care?
The attitudes that contribute to the maintenance of well-being and personal health and promote human development.

What does that mean?
We often focus so much energy on caring for others that we forget about ourselves. When was the last time you took time for you? Has ignoring your own needs impacted your life? What are some adverse consequences of neglecting yourself?

Over time, disregarding your own needs can lead to a variety of physical and psychological ailments. Picture a gas tank. If you have a lot of appointments to get to, you aren’t going to get very far with an empty tank. You have to fill up your tank first! Likewise, you have to fill up your own tank before you can give your energy to others or you will burn out.

What is burnout?
Burnout is a cluster of symptoms you experience when you’re overextended and fail to refuel your “tank” with wellness-sustaining self-care over time. Do any of these feelings of burnout sound familiar?

- Every day is a bad day.
- Caring about work or home is a total waste of energy.
- I’m exhausted all the time.
- Tasks are either too dull or overwhelming
- Nothing I do is appreciated.
- I lack motivation to participate in life.

If you’re experiencing burnout, you may exhibit frustration, cynicism, or cognitive problems. You may use food, drugs, or alcohol to feel better, or to not feel at all. You may stop taking care of yourself, and may eventually experience health problems.

So I’m burned out…what now?
The key to combatting burnout is to recognize, reverse, and become resilient. When you recognize burnout, you can identify the warning signs. You can reverse or undo the damage by managing stress and seeking support. You can build your resilience to stress by taking care of your physical and emotional health.

- Physically: Care for your body, and make healthy food choices—it’s your fuel! Take time to exercise regularly, relax, and sleep well.
- Emotionally: Spend time with friends who refresh you, serve the community if possible, connect to your family if that serves you, and always share your troubles with another person so you don’t have to carry them alone.
- Mentally: Engage in a mindfulness practice so you can focus on the here and now. Give your brain sustenance; you’re never done learning new things!
- Spiritually: Take time to meditate or sit in the quiet, just being present with yourself. Listen to music that feeds you and spend quality time with yourself—you’re great company! Connect to nature when possible, and take a time-out (it’s not just for toddlers anymore). If you have a higher power, connect to it in ways that contribute to your personal wellness.
- Ask yourself every day: Did I engage in a pleasurable activity? What is my stress level on a scale of 1-10? What can I say no to? What can I say yes to? Am I being kind to myself? Do I have appropriate boundaries?
- Start today!
A Sense of Life Purpose

Living a Healthier, Happier Life

What is life purpose? It’s a sense of meaning and direction, that life is worth living.

A lot of people struggle with finding purpose after major life shifts including “empty nest,” retirement, a health event or loss of a family member. This is an extremely common issue in cardiovascular rehabilitation because every patient has been challenged with a health event or chronic condition that may hinder them from doing the things they once loved.

Where did my life purpose go?

If your identity or role changes, you might feel that your life purpose is lost or changed.

Many people take on an identity in life: I’m a mother, I’m a trucker, I’m a hunter, but when something happens to change their capacity to fill that role, they feel lost and may even suffer depression. Often people aren’t aware they’re experiencing grief from that lost role, even if it’s a positive change. Honoring the loss of your previous identity while actively pursuing new passions or purpose appears to be the key for long-term health and happiness.

• What is your reason for waking up in the morning? For a lot of people, life becomes a monotonous rerun of Groundhog Day: watching the news, going to the grocery store and walking the dog.

• Some people believe that a passion will just fall into their lap given time. The truth is that finding a passion can be hard work. You have to try on a few new hobbies or activities before you know it’s going to be a good fit. Who knows what your potential is? You have to try to find out.

Why is life purpose so important anyway?

• In a meta-analysis covering 10 studies and over 137,000 participants, they found that those with a low sense of purpose are more likely to die or experience cardiovascular events.

• People with life purpose also live longer, benefit from heart protection against future MIs, handle pain well, have better relationships and have a reduction in the incidence of Alzheimer’s.

• In studying thousands of elderly subjects, Dr. Patricia Boyle, a neuropsychologist at the Rush Alzheimer’s Disease Center in Chicago, found that people with a low sense of life purpose were 2.4 times more likely to get Alzheimer’s disease than those with a strong purpose.

One study found that a high sense of purpose is associated with a 23% reduction in death from all causes and a 19% reduced risk of heart attack, stroke, or the need for coronary artery bypass surgery (CABG) or a cardiac stenting procedure.

“Living retirement with a passion helps resolve personal and financial issues common among both new and longer-term retirees, including replacing one’s work identity, staying socially connected, and remaining mentally sharp as well as physically strong. It can give retirees something to be thankful for every night, and a reason to wake up in the morning.”

–Forbes Magazine
A Sense of Life Purpose

What is the retirement effect? The most vulnerable times in a person’s life are the first 12 months after birth and the year following retirement. One study of retired employees of Shell Oil found that men and women who retired early (age 55) were more likely to die early than those who retired at age 65.

Lessons from the Blue Zones
According to the Blue Zones study, there are consistently shared traits among the world’s longest-lived people. These are referred to as the Blue Zones Lessons. They include the following suggestions to apply to your own life for increased happiness and longevity.

1. **Move naturally.** The world’s longest-lived people don’t pump iron or run marathons. Instead, their environments nudge them into moving without thinking about it.

2. **Purpose.** Why do you wake up in the morning? Knowing your sense of purpose is worth up to seven years of extra life expectancy.

3. **Downshift.** Stress leads to chronic inflammation, associated with every major age-related disease. The world’s longest-lived people have routines to shed that stress.

4. **80% rule: “Hara hachi bu.”** The Okinawans say this mantra before meals as a reminder to stop eating when their stomachs are 80% full.

5. **Plant slant:** The cornerstone of most centenarian diets? Beans. They typically eat meat—mostly pork—only five times per month.

6. **Wine @ 5:** Moderate drinkers outlive non-drinkers, especially if they share those drinks with friends.

7. **Belong:** Attending faith-based services four times per month—no matter the denomination—adds up to 14 years of life expectancy.

8. **Loved ones first:** Centenarians put their families first. They keep aging parents and grandparents nearby, commit to a life partner and invest in their children.

9. **Right tribe:** The world’s longest-lived people chose or were born into social circles that support healthy behavior.

Challenge yourself to take the time to reflect on these suggestions and think of ways you may find or improve upon your own life purpose to increase your physical and emotional health.

You will know you have found your life purpose when you can say that your pursuit of it is timeless, tireless, and it causes contagious energy.

Six Ways to Find Purpose in Retirement
If you’re not yet retired, this list can help you to plan for retirement or even to find purpose while you’re still working.

1. **Don’t consider yourself retired.** Instead, think of yourself as pursuing other options. This is a new beginning in your life.

2. **Get to know people with diverse interests.** Don’t hesitate to get to know new people as you build existing relationships.

3. **Maintain your health.** Continue with your regular annual health checkups. Join the YMCA. Look into improving your overall well-being through swimming, walking, yoga or meditation. The better you feel, the more enjoyable retirement (and life!) will be.

4. **Join a worthwhile cause.** Not only will reaching out to the less fortunate improve your self-esteem, but you will make the world a better place and enrich lives, including your own.

5. **Learning is a lifelong process,** so take time to take that class you’ve always wanted to take.

6. **Think young.** Be energetic and enjoy the time you now have on your hands. Retirement doesn’t mean giving up everything. Age is a number, and attitude is everything.
Life Satisfaction

Give a score, out of 10, for how SATISFIED you are with your life overall. (10 is very satisfied)

1  2  3  4  5  6  7  8  9  10

Give a score, out of 10, for how FUN your life is overall. (10 is very fun)

1  2  3  4  5  6  7  8  9  10

Is there an area of your life that you could make more exciting? Briefly describe.

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

What areas of your life do you want to improve? I want to:

☐ Improve my relationship
☐ Heal my heart
☐ Understand my life purpose
☐ Learn to be more efficient with time management
☐ Feel more confident
☐ Change or move forward my career
☐ Achieve my goals
☐ Be happier in life
☐ Live my life with ease and flow, rather than stress and frustration
☐ Feel more at peace
☐ Learn to trust myself more/Be my authentic self
☐ Other ______________________________

I am ready to take ACTION and make changes in my environment, habits and life.

☐ Maybe    ☐ Yes    ☐ No

Ask yourself the following three questions:

What have I done that didn’t seem like work?

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

What have I done that I’ve never grown tired of doing?

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

What have I done that energized me, either intellectually or emotionally?

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
Barriers to Change

Why can’t I just change my behavior overnight?
Change takes time. It’s a process with several identified stages.

- **Precontemplation:** You may not recognize that change is needed. You may even say you want to continue the behavior you would benefit from changing. This is also known as “denial.”

- **Contemplation:** You’re able to identify that a behavior should be changed. You weigh the pros and cons of making a change. You ask, what will life be like after this change? You may stay in this state for weeks or years without taking the next step.

- **Preparation:** You start telling people about your plan to change. You research what kind of help is available. You might experiment by making small changes.

- **Identify Your Barriers:**
  - Your family or friends are resistant to change. They may say, “If you stop eating cheeseburgers, I’ll have to stop, too!”
  - You have financial limitations. “Healthy food is expensive.”
  - You lack resources. “I don’t have time to make it to the gym every day.”
  - Your motivation dips. “I like the way I’m living. Change is hard.”
  - You have poor coping strategies. “I had a crummy day. Let’s get a box of wine and some cheesecake and watch The Bachelor!”
  - You face mental health issues. “I’m too depressed to deal with change right now.”

- **Action:** This stage requires commitment. You believe that change is possible. You put appropriate supports in place, and you’re open to receiving help. You avoid situations that put you at risk. For example, you avoid going to the bar if you’re cutting down on alcohol.

- **Maintenance:** You actively work to maintain the change. You put plans in place for relapse prevention. At this stage, relapse is less tempting. You’re more confident that you can continue this way of life.

- **Relapse:** Relapse occurs when you return to the previous stages of change. If you’re falling back into old behaviors, what can you identify as a trigger? What tools can you put into place to reduce your risk of relapse? Relapse is not the end. Don’t quit; return to previous stages of change on the continuum.

How do I know if I need extra help?

- Depression
- Anxiety
- Helplessness
- Hopelessness
- Thoughts of worthlessness
- Thoughts of self-harm or suicide

*If you’re feeling any of these, please contact a counselor, social worker, or your health care provider as soon as possible.*
Let’s practice!

Precontemplation: ________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

Contemplation: _________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

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Preparation: _________________________________

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Action: _________________________________

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Maintenance: _________________________________

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Relapse: _________________________________

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__________________________________________________________________________________________
Nicotine Dependence Treatment

ALL forms of tobacco cause cardiovascular disease, and tobacco use is the #1 preventable cause of cancer in the world. It’s linked to an innumerable number of diseases including diabetes, back pain, and even rheumatoid arthritis.

Tobacco is the toxin, but nicotine causes the ongoing addiction. When people stop using tobacco, they experience nicotine withdrawal symptoms that are often severe and difficult to overcome. Because of this, most people who quit “cold turkey” are back to using tobacco within 30 days.

Nicotine withdrawal symptoms include anxiety, depression, restlessness, irritability, “foggy” brain, insomnia, hunger, and headache. But the good news is that your nicotine withdrawal symptoms can be controlled with the help of both prescribed and over-the-counter medications. These medications are generally very safe and well tolerated. They include varenicline (Chantix), bupropion (Zyban), and nicotine patches.

Over-the-counter nicotine gum and lozenges can also be used in addition to these medications to curb urges and cravings, which will aid your success.

The use of medical nicotine as part of tobacco treatment does not contribute to ongoing addiction. It actually helps to break the addiction. Please talk to your health care provider about your desire to become tobacco-free, and ask for help.

Ask for a referral, or refer yourself, to a St. Luke’s Nicotine Dependence Treatment Clinic in the Treasure Valley by calling (208) 706-7050. In the Magic Valley, call (208) 814-3672 to find out about local tobacco treatment resources.

• Physician-supervised clinic with registered nurses and licensed clinical social workers trained as personal tobacco treatment counselors.
• Intensive support through behavioral counseling and medications, if needed, to help suppress your nicotine withdrawal symptoms.
• Working with you and your primary care provider, making medication recommendations, and providing frequent follow-up through both clinic visits and telephone calls.

If you would like to pursue quitting on your own, call 1-800-QUIT-NET for free nicotine products and additional help.
Other resources to help you quit

• Quitnow.net/Idaho: Project Filter’s web-based quit program. By signing up, you can receive a limited supply of FREE nicotine replacement therapy products (patches, gum, or lozenges). You’ll find:
  • Quitting Aids to help you decide what type, dose, and schedule of nicotine replacement or other medication is right for you. They’ll also teach you how to use nicotine replacement products.
  • Quit Guide, an easy-to-use workbook you can use in any situation to help you stick with your quitting plan.
  • Quit Coach for expert support and assistance whenever you need it, over the phone, from coaches who specialize in helping people quit tobacco.
  • Web Coach for access to a private, online community where you can complete activities, watch videos, track your progress, and join in discussions with others in the program. There are more than 25,000 active members.

• QuitLine 1-800-Quit-Now (1-800-784-8669): You can talk with expert coaches and receive private counseling, support, and advice on creating your quit plan, developing skills to break your tobacco habits, and deciding which quitting products or medications will work for you.

• smokefree.gov: information about quitting smoking and an online Quit Guide

• Clearing the Air: Quit Smoking Today: Order this booklet at cancer.gov or call 1-800-4-CANCER (1-800-422-6237)

• Quitting Smoking Timeline: Video about how the body restores itself after quitting smoking, from quitsmoking.com on YouTube

E-cigarettes or vaping

The harm from smoking is not from nicotine but from dangerous chemicals added to tobacco. The same is true of e-cigarettes, or vaping. The safety or danger of vaping is completely unknown at this time. More research is needed before experts can say for sure whether e-cigarettes are safer than real cigarettes, or even an effective option for quitting tobacco. The U.S. Food and Drug Administration (FDA) has not approved e-cigarettes for use in helping people quit smoking.

The real danger of e-cigarettes may be that they’re completely unregulated. They could contain any number of substances that could be toxic to a human being and could cause lung disease, cancer, and other problems. They’ve already been shown in studies to expose the user to high levels of formaldehyde—a human carcinogen.

Because the FDA does not regulate the production of e-cigarettes, there is no government oversight or standard for how much or what chemicals are put in nicotine cartridges. This means the contents printed on the cartridges may not even be true.

If you’re thinking about using e-cigarettes to help you quit smoking, talk to your health care provider first.
How Tobacco Damages Your Health

**Smoking**
Smoking is the leading cause of cancer in the United States, and increases the risk of many types of cancer:

- Acute Myeloid Leukemia
- Cervical
- Bladder
- Pancreatic
- Lung
- Stomach
- Kidney
- Throat
- Mouth
- Nasal Cavity

Smoking is also linked with many other diseases and health problems:

- Stroke
- Cataracts
- Emphysema
- Heart Disease
- Bronchitis
- Bone Disease
- Trouble Becoming Pregnant

**What makes tobacco so harmful?**
When you smoke a cigarette, you’re literally inhaling poison. When burned, a cigarette releases over 4,000 chemicals into your body. Many of these chemicals are poisons, including cyanide, arsenic, and lead! They cause serious health problems—heart disease, heart attack, stroke, lung cancer, and blood vessel problems, to name just a few.

**Acetic Acid** Vinegar Ammonia Toilet Cleaner Arsenic Poison Butane Lighter Fluid Cadmium Batteries Carbon Monoxide Hexamine Barbecue Lighter Methane Sewer Gas Methanol Rocket Fuel Nicotine Insecticide Paint Stearic Acid Candle Wax Toluene Industrial Solvent
**How does nicotine work?**
Nicotine works like a lock and key in the nicotinic receptors in the brain. When the nicotine hits the brain from one drag of a cigarette (in just 10 seconds), the nicotine attaches to these receptors and releases dopamine, which makes you feel ahhhhh....

As you continue to smoke, these receptors multiply into the millions in your brain. So when you don’t smoke, all these receptors scream for more nicotine to feed the need for dopamine or pleasure. This is why it’s so difficult to quit smoking!

**How do I quit? I’ve tried before and failed!**
Quitting smoking is one of the most difficult things a person can do. But every time you quit and relapse, you increase your chances of staying quit the next time. Today, there are more tools to quit than ever before. If you’ve felt overwhelmed by trying to quit in the past, you’ll be amazed at all the tools available today to help you quit.

**What is available to me?**
St. Luke’s Nicotine Dependence Treatment program is staffed by trained nurses who can help you with tools and behavioral strategies to make this quit lifelong. To make an appointment, call (208) 706-7050. See page 120 for other resources.

**What about medications?**
Several medications are helpful, depending on your unique needs. Nicotine replacement is vital to avoid withdrawal symptoms. Each cigarette you smoke has 1 mg of nicotine. If you smoke a pack per day, you need at least 20 mg to replace the nicotine your body is used to in order to avoid withdrawal symptoms that can lead to relapse. This nicotine replacement can be delivered through a nicotine patch (7, 14, or 21 mg), nicotine lozenge or gum (2 or 4 mg), over the counter. Vaping and e-cigarettes are not recommended for nicotine replacement as they are not regulated by the FDA. Although many people see this as harm reduction, there is no research to support its safety.

**What is available that isn’t nicotine replacement?**
There are two primary medications for people who are quitting smoking: Wellbutrin/Bupropion and Chantix. Wellbutrin is also used as an antidepressant and replaces the dopamine that your body is no longer being rewarded with through smoking. Chantix is the only medication that was created specifically for smoking cessation. It works to partially block the nicotinic receptors, so smoking doesn’t give you the reward that it used to.

*Any of these medications can be taken in combination together. Please meet with a nurse with the Nicotine Dependence Treatment program for further recommendations.*
What else can I do to help me quit smoking?

Pick a quit date! When you get the appropriate medications on board, pick a date within two weeks of deciding to quit. Then:

- Prepare your home, friends, and family for this change.
- Clean out your smoking areas and car. Some people even get their car detailed so they can enjoy the fresh start. Fill your car ash tray with nicotine gum/lozenges or hard candy.
- Have a “fire plan” for when stress gets to you: write in a journal, go for a walk, drink a glass of water, call a friend, go for a drive, or exercise. Always have a plan in place for when a craving hits.
- **Don’t forget to use your nicotine replacement liberally!**
- Try to avoid alcohol for the first few months, if possible. Drinking lowers your inhibitions, and every drink makes it easier to “burn” one off of a friend.
- Reward yourself with the money you save from not smoking!

“This smoking is a big part of my identity.”

Most smokers have smoked for many decades and can’t remember a time when they didn’t smoke! Your cigarettes may be the longest relationship you’ve had with anything—longer than your spouse or children. Your cigarettes have always been there for you through good times and bad, so it’s hard to imagine life without them. Try writing a goodbye letter to your cigarettes. This chapter has ended. It’s time to make being a “non-smoker” part of your identity!

### The Cost of Smoking

<table>
<thead>
<tr>
<th>Amount</th>
<th>1 Day</th>
<th>1 Week</th>
<th>1 Month</th>
<th>1 Year</th>
<th>10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ Pack</td>
<td>$2.52</td>
<td>$17.64</td>
<td>$70</td>
<td>$917</td>
<td>$9,172</td>
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<tr>
<td>1 Pack</td>
<td>$5.05*</td>
<td>$35.35</td>
<td>$141</td>
<td>$1,838</td>
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<td>$12.62</td>
<td>$88.34</td>
<td>$353</td>
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<td>$45,936</td>
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</tbody>
</table>

*Source: expatistan.com (cost of living index)*
Chapter 11: Heart-Healthy Eating

The Nutrition Plate

The more veggies and the greater the variety, the better!

- Oatmeal
- Quinoa
- Brown rice
- Barley
- Bulgur
- Whole wheat bread

Limit refined grains like white rice and white bread.

- Beans: Pinto, Kidney, Garbanzo, etc.
- Lentils

Limit red meat, cheese, bacon, cold cuts and other processed meats.

- Potatoes
- Sweet potatoes
- Corn
- Peas
- Winter squash

- Nuts
- Fish
- Poultry

HEALTHY OILS

Use healthy oils like olive oil, avocado oil, and canola oil. Limit butter and avoid partially hydrogenated fats.

WATER

Drink water, unsweetened tea or coffee, or low-fat milk. Avoid all juice and sugar-sweetened beverages.

Enjoy fruit for dessert. Eat a variety of fruits of all colors. Eat the fruit rather than drinking fruit juice to get the most fiber.
Low Salt/Sodium Diet

• It’s important to limit your sodium intake to no more than 2,000 mg per day, unless your healthcare provider tells you a different amount.
• Too much sodium makes your body retain water, which can make symptoms of heart failure worse.
• You may want to limit the sodium content of meals to no more than 600 mg.
• Before using a salt substitute, talk to your healthcare provider about which ones are safe.
• Sea salt and kosher salt are the same as table (normal) salt.

Sodium is the chemical in salt that makes you hold onto fluid.

Tips for a Low Sodium Diet

• The key word to less sodium is FRESH! FRESH! FRESH!
• Get rid of the salt shaker and don’t add salt when cooking. Just ¼ teaspoon of table salt or sea salt has almost 600 mg of sodium!
• Avoid canned and processed foods.
• Avoid prepackaged frozen meals with more than 600 mg of sodium in each serving.
• Limit or avoid restaurants; for long trips, pack a cooler with fruits and vegetables.
• Foods made from scratch are best.
• Use herbs and spices to flavor food rather than salt.
• Look for foods labeled “no added salt.”
• Cut out the salt used in cooking, such as water for pastas, rice, and hot cereals.
• In place of salt use onions, garlic, peppers, dry mustard, lemon juice, wine, or malt or balsamic vinegars.
• Use fresh or unsalted frozen vegetables. If you must use canned vegetables, choose those labeled “no added salt.”
Top Sources of Sodium*

1. **Bread, rolls, biscuits, muffins, quick breads**
   90-300 mg of sodium per 1 slice
   Surprised? Most people are when they learn breads are the highest source of sodium for people age 50 and older. Cut serving size or frequency of consumption.

2. **Cold cuts and cured meat**
   400-800 mg for 2 ounces
   One serving of deli meat can contain half of your sodium allowance for the whole day. Cured meats, such as bacon and sausage, typically include known carcinogens.

3. **Soup**
   400-940 mg per cup
   A cup of soup can shoot your sodium intake off the charts. Make your own soup with lots of vegetables and low sodium broth.

4. **Meat and mixed dishes**
   400-1,000 mg per serving
   Stroganoff, lasagne, meat loaf and hamburgers are usually high in sodium. Plus, they often invite salty condiments (catsup, mustard, relish, pickles) and rich gravies and sauces.

5. **Sandwiches**
   400-2,200 mg per sandwich
   A sandwich or burger, especially from a restaurant, can contain more than 100% of your daily suggested dietary sodium. Try splitting a sandwich with a companion.

6. **Pasta mixed dishes**
   100-1,000 mg for 1 cup
   Dishes like macaroni and cheese, spaghetti, pasta with Alfredo sauce, and macaroni salad can quickly turn your day into a high sodium/fluid retaining day. Try making your own from scratch with fresh, “no added salt” ingredients.

7. **Poultry**
   80-1,200 mg for 4 ounces
   Chicken and turkey can have sodium solutions injected into them, increasing their sodium content. Plus, poultry products have a wide range of sodium depending on the preparation method. Check food labels before buying.

8. **Cheese**
   40-500 mg for 2 ounces
   Cheese intake has gone up as our beef intake has gone down. Ask for “light or no cheese” for dishes like pizza, sandwiches, and salads. Swiss cheese is one of the lowest in sodium.
Controlling Carbohydrates

How much carbohydrate you need depends on the individual. Some active people can eat more carbohydrates. A good place to start is about 45-60 grams of carbohydrate at a meal. The daily total range for women is 150-200 grams, for men, 200-250 grams. Here is a shortcut method to count your carbohydrates.

Milk 15g
- 1 cup (8 ounces) of skim, non-fat or 1% milk
- (2% and whole have more fat)
- 6 ounces sugar-free flavored yogurt
- 1 cup (8 ounces) of plain, nonfat yogurt

Fruit 15g
- ½ cup any fresh, frozen or unsweetened canned fruit or juice
- ¼ cup dried fruit
- 1 small (mandarin orange, plum) or ½ large piece of fruit (apple, peach, pear, orange)

Bread/Starch 15g
- 1 slice of bread or a 6-inch tortilla
- ½ cup noodles, rice, cereal or quinoa
- ½ cup potatoes, corn, peas, winter squash

Vegetables 0g
- ½ cup cooked vegetables
- ½ cup vegetable juice (V-8, tomato)
- 1 cup raw vegetables
- Any vegetable not listed under starches

Protein 0g
- Eat lean meat.
- Cut off all the fat you can and don’t add any type of fat when cooking.
- Good choices are lean beef, pork, chicken, turkey, fish, tofu, hemp seed, nutritional yeast, low-fat cheese and cottage cheese.

Fat 0g
- High in calories but low in carbohydrates, 100 calories per tablespoon.
- Good choices are canola and olive oil.
- Avoid saturated fat lunch meat and dairy fat.
- Avoid trans fats in fried foods, commercial sweets and chips.
Limiting Added Sugar

Eating added sugar raises blood sugar, body weight and triglycerides. Sugar provides ZERO nutritional benefit: It’s high in calories and has no vitamins, minerals or fiber.

Why limit?

- Body weight
- Blood sugar
- Triglycerides
- Tooth decay
- HDL cholesterol (the “good” cholesterol)
- Prevent hypoglycemia
- Prevent heart disease

How to limit?

- Read food labels to cut back added sugar.
- Buy unsweetened cereal.
- Eat fewer and smaller desserts.
- Reduce sugar in recipes when cooking.
- Choose fresh fruit over processed sweets.
- Drink coffee without added sugar.
- Choose something other than sweets as a reward.

Forms of sugar:

- Dextrose
- Fructose
- Galactose
- Lactose
- Maltose
- Mannose
- Sucrose

Other common forms:

- Brown sugar
- High fructose corn syrup
- Corn syrup
- Honey
- Maple syrup
- Molasses
- Invert sugar
- Raw sugar
- Brown rice syrup
- Malt syrup

Hidden sugar:

Read the label on these foods to look for hidden sugar.

- Canned fruit
- Cereal
- Instant oatmeal
- Fruit yogurt
- Jam or jelly
- Non-dairy coffee creamers
- Peanut butter
- Soups
- Ketchup
- Barbeque sauce
- Spaghetti sauce
- Breads
- Marinades

How much can I have?

Women = 6 tsp (24 gms)
Men = 9 tsp (36 gms)
1 tsp. = 4 grams
Limiting Saturated Fat

Eating foods that contain saturated fats raises the level of cholesterol in your blood. High levels of LDL cholesterol in your blood increase your risk of heart disease and stroke.

The American Heart Association recommends limiting your consumption of saturated fat to less than 5-6% of your daily calories. This means usually limiting saturated fat to 11-13 grams per day.

Saturated fat occurs naturally in many foods. The majority come mainly from animal sources, including meat and dairy products. Many baked goods and fried foods contain high levels of saturated fats. Some plant-based oils—such as palm, palm kernel, and coconut—are high in saturated fats.

Replace foods high in saturated fat with foods high in unsaturated fat, such as olive, canola, sesame and peanut oils, ground flax seed, fish, and nuts.

Heart-Healthy Fats

Mono-unsaturated Fatty Acids
- Olive oil
- Canola oil
- Peanut oil

Poly-unsaturated Fatty Acids
- Safflower oil
- Sunflower oil
- Corn oil

Omega-3 Fatty Acids
- Flaxseed oil
- Fish such as:
  - tuna
  - salmon
  - mackerel

Foods with Plant Sterols
- Granola bars, orange juice, or other foods with added plant sterols
- Vegetable spreads containing stanol and sterol esters

Cholesterol-Raising Fats

Saturated Fatty Acids
- Coconut oil
- Palm oil
- Palm kernel oil
- Beef fat
- Lard
- Butter
- Cheese
- Ice cream

Trans Fats
- Stick margarine
- Foods made with hydrogenated vegetable shortening
All About Fats

Choose Unsaturated Fats

- Try a few olives.
- Spread on natural peanut or almond butter.
- Snack on unsalted nuts.
- Garnish with avocados.
- Use olive, canola, avocado, peanut or sesame oil.
- Snack on seeds.
- Eat fish twice a week (salmon, sardines, trout).
- Dip veggies in hummus.
- Add ground flaxseed to foods.
- Sprinkle chia or hemp seeds on yogurt, salads or cereal.

Limit Saturated and Trans Fats

**Saturated Fats**
Fats solid at room temperature and generally in animal-based foods

- Remove skin on chicken.
- Avoid coconut and palm oil.
- Replace butter with olive oil.
- Occasionally choose lean meats and trim off visible fat.
- Lose the fat in dairy.
- Limit cheeses.

**Trans Fats**
Hydrogenated fats in processed foods

- Avoid deep-fried foods.
- Avoid foods made with vegetable shortening.
- Avoid stick margarine.
- Avoid commercial snacks and sweets.
Limiting Saturated Fat

How much saturated fat is in my food?

**Cheese and Milk Products**
- Regular cheese, 1 ounce: 4-7g
- Low-fat cheese, 1 ounce: 2-4g
- Butter, 1 Tbsp: 7g
- Whole milk, 8 ounces: 5g
- 2% milk, 8 ounces: 2g
- Cream cheese, 2 Tbsp: 6g
- Cream, ½ cup: 14-28g
- Eggnog, 8 ounces: 6-12g

**Cheese and Milk Products**
- Regular cheese, 1 ounce: 4-7g
- Low-fat cheese, 1 ounce: 2-4g
- Butter, 1 Tbsp: 7g
- Whole milk, 8 ounces: 5g
- 2% milk, 8 ounces: 2g
- Cream cheese, 2 Tbsp: 6g
- Cream, ½ cup: 14-28g
- Eggnog, 8 ounces: 6-12g

**Soy**
- Soybeans, 1 cup: 0g
- Edamame, 1 cup: 0g
- Tofu, 3 ounces: 1g
- Soy milk, 8 ounces: 1g

**Soy**
- Soybeans, 1 cup: 0g
- Edamame, 1 cup: 0g
- Tofu, 3 ounces: 1g
- Soy milk, 8 ounces: 1g

**Nuts**
- Nuts, ¼ cup: 2g
- Peanut butter, 2 Tbsp: 2g

**Nuts**
- Nuts, ¼ cup: 2g
- Peanut butter, 2 Tbsp: 2g

**Eggs**
- 1 whole egg: 2g
- 1 egg white: 0g
- Egg substitute, ¼ cup: 0g

**Eggs**
- 1 whole egg: 2g
- 1 egg white: 0g
- Egg substitute, ¼ cup: 0g

**Grains**
- Barley: 0g
- Farro: 0g
- Oats: 0g
- Wheat: 0g
- Brown rice: 0g

**Grains**
- Barley: 0g
- Farro: 0g
- Oats: 0g
- Wheat: 0g
- Brown rice: 0g

**Legumes**
- Pinto beans, ½ cup: 0g
- Kidney beans, ½ cup: 0g
- Black beans, ½ cup: 0g
- Lentils, ½ cup: 0g

**Legumes**
- Pinto beans, ½ cup: 0g
- Kidney beans, ½ cup: 0g
- Black beans, ½ cup: 0g
- Lentils, ½ cup: 0g

**Fruit**
- Mango, 1: 0g
- Berries, 1 cup: 0g
- Apple, 1: 0g
- Kiwi, 1: 0g
- Orange, 1: 0g

**Fruit**
- Mango, 1: 0g
- Berries, 1 cup: 0g
- Apple, 1: 0g
- Kiwi, 1: 0g
- Orange, 1: 0g

**Vegetables**
- Spinach, ½ cup: 0g
- Broccoli, ½ cup: 0g
- Green beans, ½ cup: 0g
- Corn, ½ cup: 0g

**Vegetables**
- Spinach, ½ cup: 0g
- Broccoli, ½ cup: 0g
- Green beans, ½ cup: 0g
- Corn, ½ cup: 0g
Limiting Saturated Fat

Fish and Meat
Typical serving of 4 ounces cooked

1g or less
- Most fish, unless breaded or fried
- Turkey, skinless
- Chicken, skinless
- Wild game: elk, venison, buffalo

2-3g
- Fish: salmon, trout, tuna in oil
- Beef: top round, bottom round, eye of round, top sirloin, tip round, ground beef (5% fat)
- Pork: tenderloin, top or center loin, ham – leg or rump half
- Lamb: shank
- Chicken or turkey with skin

4-6g
- Beef: ground beef (7-10% fat), New York strip, flank steak
- Pork: center rib loin, whole loin or sirloin
- Lamb: sirloin or loin, shoulder
- Veal: shoulder, arm steak, sirloin, loin
- Chicken with skin

7-10g
- Beef: ground beef (15-20% fat), T-bone steak, chuck pot roast, brisket, porterhouse steak
- Pork: pork chop, shoulder arm or picnic

11-16g
- Prime rib, rib eye, spareribs, sausage, duck with skin

Sweets
- Ice cream, 1 scoop: 5-7g
- Ice cream bar: 10g
- Cake, 1 slice: 5-7g
- Doughnut, pastry: 5-12g
- Cookies, 2: 2-6g
- Candy bar: 5-10g

Misc.
- Coconut oil, 1 Tbsp: 12g
- Palm oil, 1 Tbsp: 14g
- Coconut milk, ½ cup: 21g
- Cream Soup, 1 cup: 4-8g
- Cream Sauce, ½ cup: 10-20g
Fiber is a plant material (carbohydrate) which our bodies cannot digest and absorb. Plant foods such as cereals, grains, nuts, fruits, vegetables, and legumes (dried beans and peas) are high in fiber. Foods from animals such as meat, milk products, eggs, and fat have virtually no fiber at all.

If you’re a typical American, you’re getting only half the fiber your body needs. See the chart below to find out how you can increase your fiber to the recommended 30-40 grams a day. Remember to increase your fiber intake slowly, and to drink additional water.

The wonderful benefits of fiber:
- Reduces cholesterol levels
- Stabilizes blood sugar levels
- Promotes weight control
- Enhances good digestion and elimination, acting as a “natural laxative”
- Decreases the risk of colon cancer
- Prevents and treats diverticulosis
- Prevents and treats hemorrhoids and other digestive problems
Top High Fiber Foods

Cereals
- Uncle Sam’s Original, ¾ cup: 10g
- Shredded Wheat, 1 cup: 6g
- Oatmeal, steel cut, raw, ¼ cup: 5g
- Oatmeal, rolled, raw, ½ cup: 4g
- Oat bran, raw, ½ cup: 7g
- Wheat bran, raw, ½ cup: 7g

Fruits
- Raspberries, 1 cup: 8g
- Pear, 1 large: 7g
- Apple, 1 medium: 5g
- Figs, 3: 5g
- Blueberries, 1 cup: 4g
- Banana, 1 medium: 3g

Vegetables
- Artichoke, 1 medium: 10g
- Corn, ½ cup: 5g
- Broccoli, 1 cup: 5g
- Green peas, ½ cup: 5g
- Acorn squash, ½ cup: 4g
- Sweet potatoes, ½ cup: 4g
- Spinach, 1 cup: 4g
- Baked potato, 1 medium: 4g
- Brussel sprouts, 1 cup: 4g
- White potato, 1 medium: 3g

Pasta/Grains
- Bulgur, cooked, ½ cup: 4g
- Wasa multi-grain crackers, 2: 4g
- Popcorn, 3 cups: 4g
- Whole wheat noodles, ½ cup: 3g
- Barley, cooked, ½ cup: 3g
- Quinoa, cooked, ½ cup: 2.5g
- Brown rice, cooked, ½ cup: 2g
- Whole wheat bread, 1 slice: 2g

Beans
- Kidney beans, ½ cup: 7g
- Black beans, ½ cup: 6g
- Pinto beans, ½ cup: 5g
- Lentils, ½ cup: 5g
- Split peas, ½ cup: 5g
- Edamame, ½ cup: 4g

Nuts and Seeds
- Chia seeds, 1 Tbsp: 6g
- Almonds, raw, ¼ cup: 4g
- Pecans, raw, ¼ cup: 3g
- Flaxseeds, 1 Tbsp: 3g
- Walnuts, raw, ¼ cup: 2g
- Peanut butter, 1 Tbsp: 1g
- Hemp seeds, 1 Tbsp: 1g

Aim for 30-40 grams of dietary fiber a day.
Healthy Snacking Options

Carb Choice + Protein Choice = Snack with Staying Power

Together they’ll fill you up and give you the extended energy you need.

**Carb Choices**
- Fruit
- Vegetables
- 100% low-sodium vegetable juice
- Whole grain, low fat, low salt crackers
  - Ry Krisp, Ak-mak, Wasa, Finn Crisp, Kavli, Triscuit
- Whole grain, low fat, low salt chips
  - Baked chips and tortilla chips
- Rice cake snacks
- Whole grain, low sugar cereals
  - Wheaties, Mini-wheats, Raisin Bran, Wheat Chex, Cheerios
- 100% whole grain mini-bagels, bagel thin, Thin Bun
- Graham crackers

**Protein Choices**
- Edamame*
- String cheese, fat free, light
- Cream cheese, fat free
- Cottage cheese, fat free or low fat
- Greek yogurt, fat free or low fat
- All natural nut butter*
- Low sodium turkey breast, chicken or other lean meats
- Hummus*
- Raw nuts*
- Hardboiled egg

**Protein + Carb Examples**
(100-200 Calories)
- Small size apple with string cheese
- 1 cup edamame
- 3 hardboiled egg whites filled with ¼ cup hummus
- Small piece of fruit with 12 almonds
- 4 whole grain crackers with 1½ Tbsp almond butter or string cheese
- ½ cup non-fat Greek yogurt, ½ cup berries, 1 Tbsp ground almonds
- Sliced raw veggies with ¼ cup hummus
- ½ cup cooked quinoa and 1/3 cup avocado
- 1 hardboiled egg and 4 whole grain crackers

*Includes healthy fats (see “Heart-Healthy Fats” section on previous pages)
Blood Values Related to Your Diet

Types of Cholesterol

• Your liver makes most of your cholesterol, and it packages it up into lipoprotein so your blood can carry it. Three kinds of lipoproteins are HDL, LDL, and VLDL. Total Cholesterol = HDL + LDL + VLDL

• HDL is called the “good cholesterol” because it removes that “bad cholesterol” from the vessel wall and takes it to the liver to be excreted. To remember HDL, think “H for healthy.”

• LDL is called “bad cholesterol” because it is easily deposited or stuck along the vessel wall. To remember LDL, think “L for lousy.”

• Triglycerides are not a type of cholesterol. They’re the major fat in food and in fatty tissues of the body. Elevated blood values are associated with an increased risk of coronary artery disease. Elevated triglycerides may be a signal that your lipoproteins are out of balance.

Blood Values

<table>
<thead>
<tr>
<th>Blood Values</th>
<th>Desirable</th>
<th>Your Values</th>
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</thead>
<tbody>
<tr>
<td>Total Cholesterol</td>
<td>Less than 200 mg/dL</td>
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</tr>
<tr>
<td>HDL - High Density Lipoprotein</td>
<td>40 mg/dL or higher men</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 mg/dL or higher women</td>
<td></td>
</tr>
<tr>
<td>LDL - Low Density Lipoprotein</td>
<td>Less than 100 mg/dL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- If directed by a doctor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Less than 70 mg/dL</td>
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</tr>
<tr>
<td>Triglycerides</td>
<td>Less than 150 mg/dL</td>
<td></td>
</tr>
<tr>
<td>Glucose - Blood Sugar</td>
<td>Less than 100 mg/dL</td>
<td></td>
</tr>
<tr>
<td>HgbA1C</td>
<td>Less than 5.7%</td>
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</table>

If your A1C falls between 5.7-6.4%, you’re in the prediabetic range. Your goal is less than 5.7%.
If your A1C is above 6.5%, you’re in the diabetic range. Your goal is less than 7%.
## Elevated Blood Values Through Diet

### Cholesterol and LDL
- Low saturated fat: 5-6% of total energy (about 11-13g per day)
- Avoid trans fats: less than 1g per day
- High fiber: 30-40g per day (fruits, vegetables, legumes, oats, barley, whole grains)

### HDL
- Weight control
- Quitting smoking
- Physical activity
- Monounsaturated fats (olive and canola oil, avocados)

### Triglycerides
- Weight control
- Physical activity
- Controlled carbohydrate intake
- Low or no alcohol intake
- Manage blood glucose (blood sugar) levels

### HgbA1C
- Weight control
- Controlled carbohydrate intake
- Balanced mealtimes
- Physical activity

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The Common Thread is Lifestyle!
- Weight management
- Physical activity
- Healthy diet
Make Eating Out Healthier

1. Choose salad over higher calorie options.
2. Pack up half your meal. Ask for a to-go bag before you eat.
3. Skip the extras: bread, chips, sides, desserts.
4. Leave out the salt. Request that the chef not add salt to your food.
5. Choose grilled, broiled or steamed. Avoid fried or battered food.
6. Asian: Extra veggies, hold the noodles.
7. Pizza: Thin crust and light or no cheese.
8. Mexican: Taco or a bowl, not a burrito.
9. Steak: Sirloin or filet mignon (3-ounce portion).
10. Choose whole wheat bread on your sandwich and hold the mayo and cheese.
11. Skip the soda.
12. Double the veggies.
13. Potato: Order sour cream not butter, and use sparingly.
14. Think small: Split a meal, choose an appetizer or ask for the lunch portion.
15. Coffee shop: Choose nonfat milk and limit added sugar.
16. Know before you go. Learn about the restaurant’s nutrition information online or on-site.
Score Your Plant-Based Plate

Scientific studies show that people who follow a plant-based diet enjoy better health than those who don’t. Find out your plate score today: Give yourself 1 point for each yes below and 0 for each no.

If yes, score 1. If no, score 0

I eat ___ Vegetables
• 2½ cups or more of raw or cooked vegetables per day

I eat ___ Fruit
• 2 or more servings of fruit per day, 1 cup fresh or ½ cup dried

I eat ___ Whole grains
• 2 or more servings of whole grains per day. For example: ½ cup cooked grain, ¾ cup dry cereal, 1 slice bread, 1 small tortilla, 3 cups plain popcorn
• Bulgur, quinoa, faro, brown rice, barley, oats, wild rice, whole wheat rye, millet, spelt, amaranth, popcorn, freekeh, whole grain bread, whole grain unsweetened cereal, whole wheat or corn tortillas, whole wheat pasta

I eat ___ Omega 3 fats
• Fish (salmon, sardines, tuna, mackerel): 2 or more servings per week OR
• Flaxseed, chia, hemp, or walnuts: 2 tablespoons per day

I eat ___ Legumes and beans
• ½ cup or more per day of cooked beans, ¼ cup of hummus or bean dip
• Black beans, kidney, garbanzo, pinto, soy

I eat ___ Nuts and seeds
• A handful of raw, unsalted nuts most days (about ¼ cup)

I limit ___ Unhealthy fats
• Limit unhealthy fats such as butter, mayo, ranch/blue cheese dressing, cheese, shortening, fried foods

I limit ___ Red or processed meats
• Limit to 2 or less of a 3-ounce portion/serving per month
• Red meat: ground beef, steak, lamb, pork
• Processed meat: smoked, cured or salted meats; bacon, salami, sausage, hot dogs, deli or lunch meat

I limit ___ Sweets and sweet drinks
• Limit added sugar to 24g (women) or 36g (men) per day
• Soft drinks, sports drinks, juice, sweetened coffee and tea, hot chocolate, ice cream, cookies, cake, candy bars, sweet breads, muffins, doughnuts

MY TOTAL SCORE

Ranking my score:

8–9
Long life! Your eating habits follow a plant-based diet closely.

6–7
You’re doing well. How could you add another point or two?

4–5
A good start, but you can do better to improve your health.

3–0
Time to turn your life around. Talk to a dietitian about changes you can make.

If your score was lower than you’d like, pick one category every month and start to change your eating habits for the better.
Optimal Plant-Based Food Pyramid

**Processed & Red Meats, Sweets, Cheese & Processed Foods**
Rarely or never

**Eggs, Oil, Fish, Poultry & Dairy**
Less than 10% of calories

**Seeds, Nuts & Avocados**
1-2 servings per day
¼ cup = 1 serving

**Fruits**
2-4 servings per day
1 cup = 1 serving

**Vegetables**
Unlimited amounts;
eat a variety of color to ensure maximum nutritional benefit

**Beans, Peas & Lentils**
1-3 servings per day
½ cup = 1 serving

**Whole Grains**
3-6 servings per day
½ cup = 1 serving
1. **Awareness.** Write down what you eat, when you eat and how much you eat. Measuring your food portions for the first couple of weeks will really help.

2. **Determine what area you want to work on first.** Choose a focus area. Pick just one so you don’t get overwhelmed. Here are some ideas:

<table>
<thead>
<tr>
<th>I want to:</th>
<th>Food Log</th>
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<tbody>
<tr>
<td>“Eat healthier”</td>
<td>Tally the number of fruits and vegetables</td>
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<td>Add up the ounces of protein/lean meat</td>
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<td>Tally whole grains and legumes</td>
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<td>Circle numbers of sweets</td>
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<td>Underline number of fatty snacks</td>
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<tr>
<td>“Lose some weight”</td>
<td>Count grams of total fat, then carbohydrates</td>
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<td>“Lower my LDL cholesterol”</td>
<td>Count saturated fat grams, then fiber</td>
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<td>“Lower my blood sugar or triglycerides”</td>
<td>Count carbohydrates grams, then total fat</td>
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<tr>
<td>“Lower my blood pressure”</td>
<td>Count sodium mgs, then tally fruits, vegetables, and dairy servings</td>
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3. **Be consistent with your food logs.** Your registered dietitian can review your food logs and show you quick and easy ways to improve your diet.

4. **Progress to your next goal.** Continue to work with your registered dietitian for guidelines and tips.
## Food Log

Day __________________________________________ Date __________________________________

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- **BREAKFAST**
- **LUNCH**
- **SNACK**
- **DINNER**
- **SNACK**
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St. Luke’s Clinic – Lifestyle Medicine
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3525 E. Louise Drive, Suite 500
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Meridian, Idaho 83642
(208) 706-7050

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