

WELCOME TO THE U-M NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD) PROGRAM

We are glad you have chosen our program to help manage your liver disease.

This folder is a resource to help you take an active role in your medical care. The information included is aimed to help you better understand your liver disease and how it will impact your life. We have included information regarding treatment options for your liver disease, particularly focused on healthy eating and physical activity recommendations. In addition, resources for other programs that may be of interest to you are included.

Providing quality, patient-centered care is our number one goal. We are a team of physicians, advanced practice practitioners, registered nurses, and dietitians. We want to partner with you to make sure you receive the best care possible for your liver disease. We look forward to working with you.

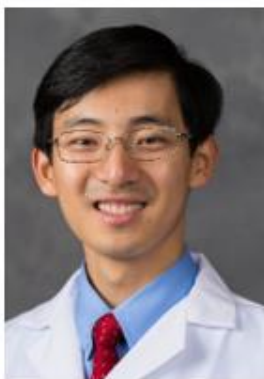
In this folder you will find

- An Overview of Non-Alcoholic Fatty Liver Disease (NAFLD)
- Healthy Eating Recommendations for Patients with NAFLD
- Physical Activity Recommendations for Patients with NAFLD
- Weight and Physical Activity Tracking Sheets
- Summary of Additional Resources and Programs Related to NAFLD

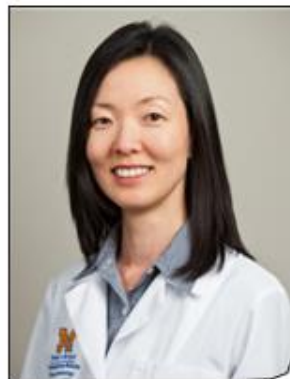
How to Contact Us

To contact your doctor, call the nurse who works with your physician or send a message via the Michigan Medicine Patient Portal.

- *Appointments, questions for the nurse, and other routine issues:* (844) 233-0433 or Portal
- *After hours and Weekends:* (734) 936-4000 and ask for Gastroenterology Fellow on Call
- *To Fax Records:* (734) 998-1453



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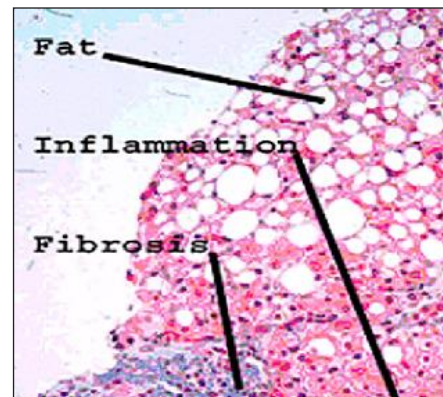
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WHAT IS NAFLD?

Nonalcoholic fatty liver disease (NAFLD) is caused by a buildup of fat in the liver in patients with little or no alcohol use. The exact cause of NAFLD is unknown, but it is usually associated with other medical issues like diabetes, obesity and high cholesterol. NAFLD is the most common liver disorder in the United States and the rest of the industrialized world: up to 30% of the US population, or about 80 million Americans, are estimated to have NAFLD! This rate is even higher in certain populations, such as Hispanics, Asians and Indians. As obesity and diabetes are increasing in frequency, so is NAFLD.



What causes NAFLD?

NAFLD is caused by a number of things:

Insulin resistance- Patients with NAFLD generally have high levels of the hormone insulin but are resistant to some of the actions of insulin (insulin resistance). Because of insulin resistance, the liver does not process nor mobilize fat normally and fat accumulates inside the liver.

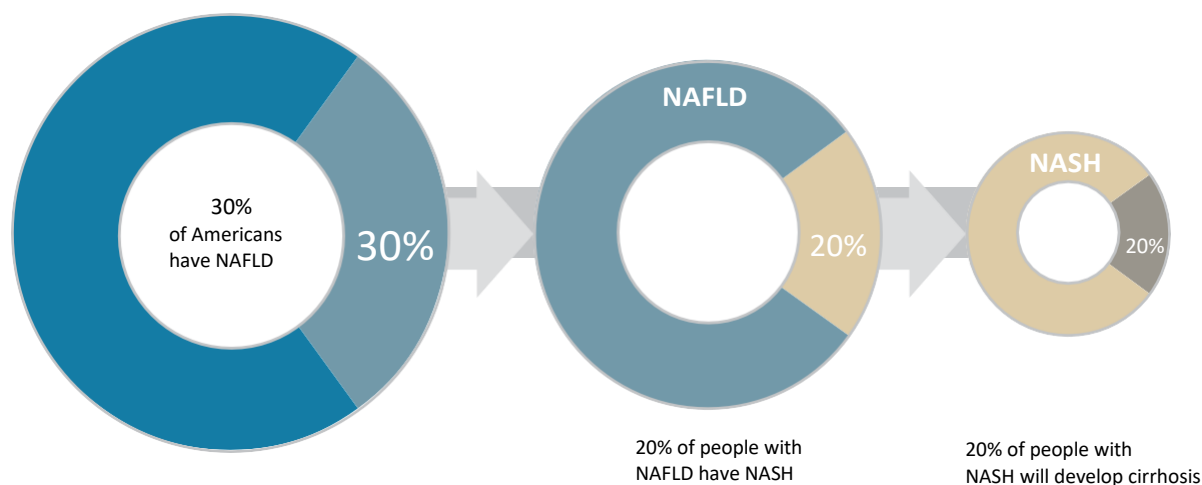
Diet- Diets that contain high amounts of carbohydrates and sugars (including fructose and high fructose corn syrup) can increase fat production in the liver cells.

Inflammation- Chronic inflammation within the liver is linked to higher risk of NAFLD-related complications.

Genetics- A number of common genetic mutations are linked to NAFLD and advanced disease with NAFLD. However, testing for these like PNPLA3 is not currently recommended

There are two types of NAFLD

1. **Nonalcoholic fatty liver (NAFL)** is when there is fat buildup in the liver without inflammation or damage to the liver cells. Fat accumulation without inflammation is also called simple steatosis. Around 95% of patients with NAFLD have NAFL.
2. **Nonalcoholic steatohepatitis (NASH)** is when there is inflammation and liver cell injury associated with the buildup of fat. About 5% of the US population, or about 15 million Americans, are estimated to have NASH. NASH is a more severe form of NAFLD where inflammation causes liver damage. This damage consists of cell death and scar tissue (also called fibrosis). Fibrosis can get worse over time and about 20% of people with NASH may develop severe scarring called cirrhosis.



WHAT ARE RISK FACTORS FOR NAFLD?

Patients with NAFLD tend to also have one or more features of the “metabolic syndrome”:

Metabolic Syndrome

Defined as having 3 or more of the following features:

- Obesity (BMI ≥ 30): particularly those with a large waist line or abdominal obesity, also known as being “apple shaped”
- Pre diabetes or diabetes
- Low HDL cholesterol (low levels of good cholesterol)
- High lipids called triglycerides
- High blood pressure

WHAT ARE SYMPTOMS OF NAFLD?

Patients with NAFLD typically have no symptoms or specific findings on physical exam. Occasionally, patients will report vague discomfort in their right upper abdomen or fatigue.

Abdominal imaging is often performed for other reasons and fatty liver is found incidentally.

HOW IS NAFLD DIAGNOSED?

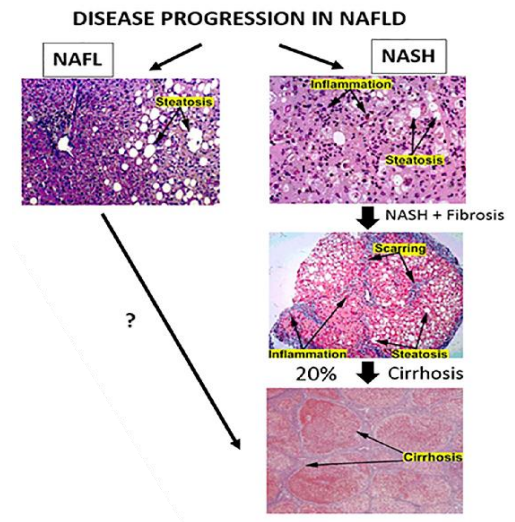
Diagnosis is not always simple because patients usually have no symptoms and liver blood tests like serum AST and ALT can be normal. Even if they are elevated, liver tests alone cannot tell us how severe it is. Diagnosis is most commonly made based on liver fat on imaging tests (like ultrasound, CAT scan or MRI), and if there is no other cause of liver disease that can explain these findings.

Other tests frequently used in management of NAFLD include:

- **Liver biopsy** is the only way to accurately differentiate between NAFLD and NASH. Biopsy can also determine the extent of the damage and measure the degree of fibrosis (scar tissue).
- **Fibroscan** (transient elastography), can also estimate the amount of fat and scar tissue in the liver. Fibroscan is a safe and simple non-invasive test that can be repeated periodically to track liver damage over time. Patients need to fast for at least 4 hours prior to the test and then have a probe placed on their right side over their liver to determine liver stiffness in < 10 minutes.
- **Magnetic resonance elastography (MRI)** can also non-invasively estimate the amount of fat, scar tissue and iron in the liver. This test is scheduled through radiology and requires prior approval. Patients lay flat in an MRI scanner and an external pulsating device is fastened over the liver to generate a pulse that can be transmitted into a liver stiffness, steatosis, and iron score.

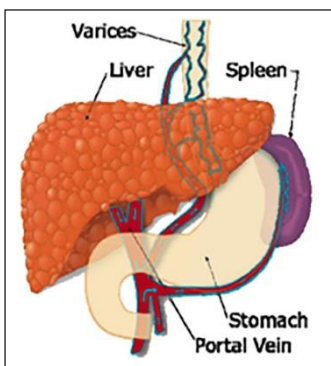
WHAT ARE THE RISKS ASSOCIATED WITH NAFLD/NASH?

- Advanced liver disease including cirrhosis. The risk of developing cirrhosis low in people without NASH but moderate in those with NASH (i.e. 1-2 % per year).
- Heart disease is the number one cause of death in patients with NAFLD.
- Risk of some cancers is increased in NAFLD, such as colon, pancreas, breast, uterus, breast, and liver cancers.



CIRRHOSIS

When something causes injury to the liver, liver cells are killed and scar tissue forms (fibrosis). When the entire liver is scarred, the liver becomes stiff and shrunken. This is called cirrhosis. Cirrhosis changes the way blood can flow through the vessels in the liver and can cause high pressure in those blood vessels (portal hypertension). As normal liver cells are replaced with scar tissue, the liver stops performing some of its important functions like making proteins. Over time, patients with cirrhosis have increased risk of developing complications related to their liver disease. Potential complications include:



Large blood vessels (varices) with possible internal bleeding:

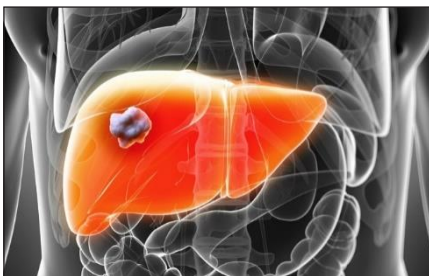
Because cirrhotic livers are very stiff, pressure can build up in the blood vessels that feed the liver. This pressure makes the blood vessels around the liver grow larger than normal. Large vessels are called **varices**. Large varices that form inside the esophagus (food tube) and stomach can rupture and bleed into the gastrointestinal tract.

Fluid accumulation in the abdomen (ascites) and legs:

High pressure in the veins of the liver also causes fluid to leak into the abdominal cavity, which is called **ascites**. The feet and legs can get swollen too (**edema**). This can become very uncomfortable and make eating and breathing difficult. But the most dangerous problem associated with ascites is **infection**, which can be life threatening.

Confusion (hepatic encephalopathy):

When the liver is unable to clear away toxic substances they can build up in the blood stream and go into the brain. This can cause changes in behavior and sleep pattern as well as confusion and sleepiness. These changes are called **hepatic encephalopathy**.



Liver Cancer:

Livers with significant amounts of scar tissue or cirrhosis have an increased risk of developing liver cancer, called **hepatocellular carcinoma**.

The majority of patients with liver cancer will have an elevated serum tumor marker called, alpha fetoprotein (AFP) but up to 30% with cancer may have a normal blood level.

HOW IS NAFLD TREATED?

Active research is ongoing, but for now there are **no specific medications that can cure NAFLD**. However, studies have shown that both fat, inflammation and scar tissue can improve. This means that NAFLD and NASH can be **reversible**.

Lifestyle Modification

Improving liver fat and inflammation is possible when people lose weight and/or modify their lifestyle. This is the **first line treatment** for NAFLD/NASH.

- Lifestyle modification includes adopting a healthy diet as well as increasing physical activity. The goal is that these changes will become a permanent part of a daily routine and will be sustained for a lifetime.
- **Losing 10% of your total current body weight** increases the likelihood that the amount of liverfat and inflammation will improve. Weight loss should be gradual (a goal of **1-2 pounds** per week), as rapid weight loss can worsen liver disease.

Medications: Vitamin E

Patients without diabetes and with NASH diagnosed with a liver biopsy will sometimes be asked to start Vitamin E (alpha-tocopherol).

- Vitamin E is an antioxidant that is thought to help reduce liver inflammation.
- This medicine has not been as well-studied in people with diabetes and is not safe to use with significant heart disease so do not start this medication without first talking with your liver doctor.
- Vitamin E is typically prescribed as **400 international units twice a day** for non-diabetic patients with biopsy proven NASH. Over the counter and prescription formulations of vitamin E are available for use.

Managing other Diseases

- Improving control of other metabolic diseases such as diabetes, high blood pressure and high cholesterol/lipids can also help NAFLD.

Avoiding Alcohol

Moderate or heavy alcohol use can cause additional damage and fat accumulation in the liver in people with NAFLD. Therefore, patients with NAFLD should avoid alcohol entirely if possible. If you do not think you can completely stop drinking alcohol, it is important to minimize alcohol intake (less than 1 drink per day).

Medication Safety in NAFLD/NASH

- Patients with cirrhosis must avoid pain medications called “non-steroidal anti-inflammatories (NSAIDs)”. These include over-the-counter medications such as ibuprofen (Motrin®, Advil®), naproxen (Aleve® or Naprosyn®), as well as some prescription medications. Ask your doctor if any of your medications are NSAIDs.
- It is safe to use Tylenol® (acetaminophen) at doses of up to 2,000 mg/day (no more than 6 regular strength or no more than 4 extra strength tablets each day). Some cold medicines and prescription pain medicines contain acetaminophen, so read the labels and make sure you don’t take too much by mistake.
- If otherwise indicated, **statin medications are completely safe** for patients with NAFLD/NASH.

Vaccinations

Those who are not immune to hepatitis A and B should undergo a vaccination series at 0, 1, and 6 months. This will prevent significant liver damage if exposed to either of these viruses. The yearly influenza vaccination (flu shot) is also recommended as well as COVID and zoster vaccines.

ADDITIONAL NAFLD RELATED PROGRAMS AND RESOURCES

Structured Nutrition and Exercise Programs

- University of Michigan Metabolic Fitness Program: 12 or 24-week lifestyle program through the UM Preventive Cardiology Program. www.umcvc.org/mfp
- University of Michigan Weight Management Program: 3-month Diet and Physical activity program through the UM Metabolism, Endocrinology & Diabetes Program. <https://www.uofmhealth.org/conditions-treatments/endocrinology-diabetes-and-metabolism/adult-weight-management> University of Michigan Gastroenterology and Hepatology Nutrition/Dietician Referral: Specialized dietitians who provide individual consultation and recommendations for patients with NAFLD. (844) 233-0433
- University of Michigan MHealthy Programs: Programs and resources for patients including exercise classes, recipes and other educational resources. www.hr.umich.edu/benefits-wellness/health/mhealthy/patient-community/services-patients-community
- Weight Watchers: Popular weight management program available through your community or online. www.weightwatchers.com/us

Weight Loss Procedures

- University of Michigan Endoscopic Bariatric Therapy program: Endoscopic options for weight loss. <https://www.uofmhealth.org/conditions-treatments/digestive-and-liver-health/endoscopic-bariatric-therapy-ebt>
- University of Michigan Bariatric Surgery Group: Surgical options for weight loss. www.med.umich.edu/bariatricsurgery

Free Online Calorie Counter and Exercise Journals:

- MyFitnessPal: www.myfitnesspal.com
- SparkPeople: www.sparkpeople.com

Websites for Healthy Recipes

- SparkRecipes: recipes.sparkpeople.com
- EatingWell: www.eatingwell.com
- Physician Committee for Responsible Medicine (PCRM) recipes of the week: www.pcrm.org/health/diets/recipes
- Eat Right: www.eatright.org/food

Current and Future NAFLD-related Research Studies

- University of Michigan Hepatology Website www.med.umich.edu/hepatology/trials/NAFLD-NASH

PHYSICAL ACTIVITY RECOMMENDATIONS FOR PATIENTS WITH NAFLD

Being physically active is one of the best things you can do to get fit and stay healthy. Studies have shown that increases in physical activity can help decrease the amount of fat in your liver. Even just 5% of their current body weight loss can make a difference. Increasing your physical activity and improving your fitness is good for your heart, lungs, bones, muscles, and joints in addition to helping improve your liver health. Physical fitness lowers your risk for falls, heart attack, diabetes, high blood pressure, and some cancers. If you already have one or more of these problems, getting more fit may help you control other health problems and make you feel better. Being more fit also can help you to sleep better, handle stress better, and keep your mind sharp.

Key Points:

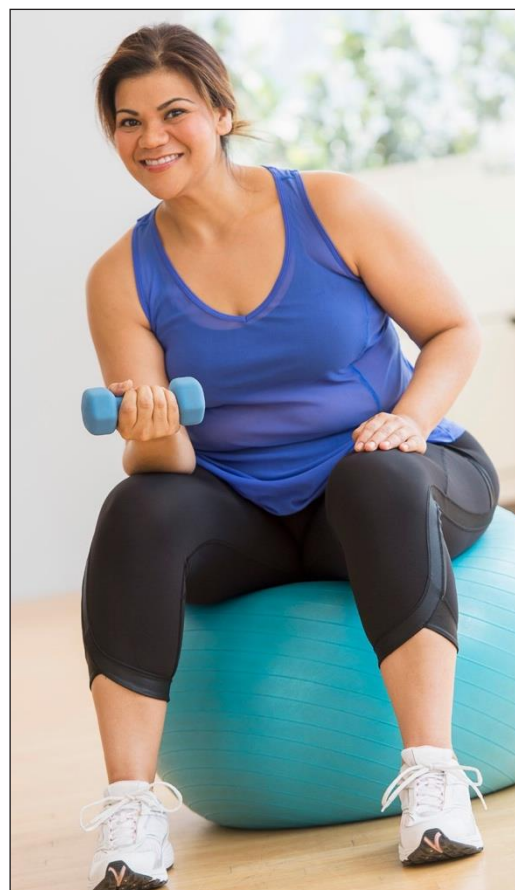
- A **decrease in total calorie intake combined with an increase in physical activity** can reduce the amount of fat in the liver.
- No one physical activity program has been proven to be more effective than another. Below are overall recommendations for increasing your physical activity level. What is most important is to find activities that work for you and that are able to do regularly.
- Even in the absence of significant weight loss, being more physically active has overall health benefits, including possibly decreasing the amount of fat in your liver.

WHAT IS PHYSICAL ACTIVITY & FITNESS?

Physical activity is any kind of activity that gets your body moving. The types of physical activity that can help you get fit and stay healthy include:

- **Aerobic or “cardio” activities:** these activities make your heartbeat faster and make you breathe harder. Examples include brisk walking, riding a bike, swimming or running. Aerobic activities strengthen your heart and lungs and build up your endurance.
- **Strength training activities:** these activities make your muscles work against, or “resist,” something and focus on building stronger muscles and bones. Examples include lifting weights, doing push-ups or using resistance bands.
- **Stretching activities:** these activities work on flexibility and the ability to move your joints and muscles through their full range of motion. Stretching helps you be more flexible and avoid injury.

Fitness means being able to perform physical activity. It also means having the energy and strength to feel as good as possible. Getting more fit, even a little bit, can improve your health. You don't have to be an athlete to be fit. A brisk half-hour walk every day can help you reach a good level of fitness. And if this is hard for you, you can work toward a level of fitness that helps you feel better and have more energy.



HOW CAN YOU BE MORE PHYSICALLY ACTIVE?

Moderate physical activity is safe for most people. It is always a good idea to talk to your primary care doctor before becoming more active, especially if you haven't been very active or have health problems.

If you're ready to add more physical activity to your life, here are some tips to get you started:

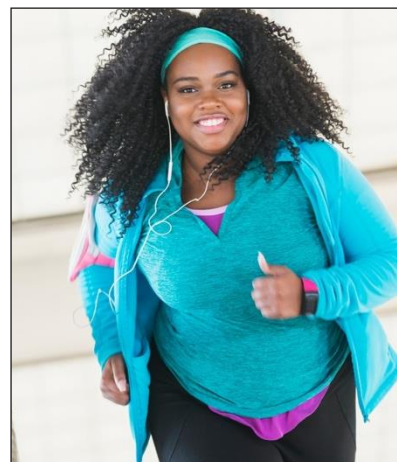
- **Make physical activity part of your regular day.** Make a regular habit of using stairs, not elevators, and walking to do errands near your home.
- **Start walking.** Walking is a great fitness activity that most people can start doing. Make it a habit to take a daily walk with family members, friends, coworkers, or pets.
- **Find an activity partner.** This can make exercising more fun.
- **Find an activity that you enjoy,** and stay with it. Vary it with other activities so you don't get bored.
- **Use Interactive Tools** such as smart phone applications or pedometers/ activity trackers to monitor your physical activity level and find out how many calories you burn during exercise and daily activities.



Walking for Wellness

Walking is one of the easiest ways to get the exercise you need to stay healthy. Think of walking as an easy way to burn calories and stay fit while you go about your daily routine.

- Start with a short-term goal. For example, walk for 5 or 10 minutes every day. Or increase your number of steps by 300 to 500 each day.
- After you've made walking a habit, set a longer-term goal. You may want to set a goal of walking briskly for at least 30 minutes a day or work up to 10,000 steps a day. You can try to do this 5 days a week or more.
- You can use a phone app or wear a pedometer to track your steps each day. The first time you use it, count how many steps you normally take in a day. Track your activity every day, and set a goal for increasing the number of steps each day. At first, try to add 300 to 500 steps to your day. Then work toward 2,000 more steps a day. A good long-term goal is to get 10,000 steps a day.
- To stay motivated, find a walking partner, such as a family member, friend, or coworker. Daily dog walks are also a great way to keep up your walking routine.
- Try to incorporate more walking into your everyday activities. Add steps in whenever you can. Examples include:
 - Taking the stairs instead of the elevator
 - Parking further away in a parking lot to your destination.
 - At work, get up and move around once an hour.
 - When possible, walk to the grocery store, doctor appointments, work, school, or shopping. Walk a lap around the grocery store before you start shopping. Walk during TV commercials.



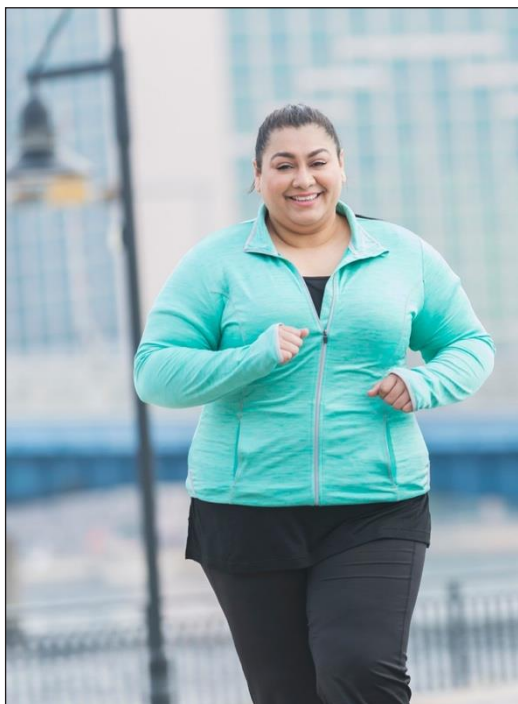
Safety Tips for Starting a Walking Program

- Know your surroundings. Walk in a well-lighted, safe place.
- Carry a cell phone for emergencies.
- Wear comfortable shoes and socks that cushion your feet.
- Pay attention to your walking surface. Use sidewalks and paths.
- When the weather makes walking outdoors not possible, take comfortable shoes to the mall and walk several laps inside.
- Drink plenty of water before, during, and after you are active. This is very important when it's hot outside and when you do intense exercise. Take a water bottle with you when you walk.

HOW MUCH PHYSICAL ACTIVITY DO YOU NEED FOR HEALTH-RELATED FITNESS?

Experts say your goal should be one, or a combination, of these:

- Do some sort of moderate aerobic activity, like brisk walking, for at least 2½ hours each week. It is up to you how many days you want to exercise, but it is best to be active at least 3 days a week. Be active for at least 10 minutes at a time. For example, you could:



- Take a 10-minute walk 3 times a day. Do this 5 days a week.
- Take a half-hour walk 3 days a week. On the other 4 days take a 15-minute walk.
- Take a 45-minute walk every other day.
- Or do more vigorous activities, like running, for at least 1¼ hours a week. This activity makes you breathe harder and have a much faster heartbeat than when you are resting. You can spread out these 75 minutes any way you want to. It is better to be active at least 3 days a week for at least 10 minutes at a time. For example, you could:
 - Run for 25 minutes 3 times a week.
 - Run for 15 minutes 5 times a week.

Here's an easy way to tell if your exercise is moderate: You're at a moderate level of activity if you can talk but not sing during the activity. If you can't talk while you're doing the activity, you're vigorously exercising.

HEALTHY EATING RECOMMENDATIONS FOR PATIENTS WITH NAFLD

A healthy diet includes a variety of foods including fruits and vegetables, while limiting foods high in starchy carbohydrates, sugar, unhealthy fats, and sodium. Healthy food habits can help reduce excess body weight. Studies have shown that a 10% reduction in body weight leads to significant improvement in the amount of fat in the liver.

You don't need to make huge changes to eat healthier and you don't have to change your habits all at the same time. It's best to set small goals and change your habits a little bit at a time. Over time, small changes can make a big difference in your health.

Key Points:

- Reduction of the amount of fat in the liver results from an **overall decrease in total calorie intake combined with an increase in physical activity.**
- No one diet has been proven to be more effective than another. Below are overall recommendations for healthier eating habits. Focus first on identifying a few areas you might be able to improve on rather than trying to make all these changes at once.
- Limiting high fructose corn syrup and excess sugar may be a good place to start for many patients depending on your current eating habits.
- Even in the absence of significant weight loss, healthier eating has overall health benefits, including decreasing the amount of fat in your liver.
- For personalized recommendations, meeting with a nutritionist or dietician can provide more specific information for you.

HOW CAN I GET STARTED ON A HEALTHY DIET?

Watch Your Portions

- Did you know portion size and serving size are not the same thing? The National Institutes of Health provides helpful definitions of each:

Portion is how much food you choose to eat at one time, whether in a restaurant, from a package, or in your own kitchen. A portion is 100 percent under our control.

Serving Size is the amount of food listed on a product's Nutrition Facts label. All of the nutritional values you see on the label are for the serving size the manufacturer suggests on the package.

If you eat more than 1 serving (a bigger portion), you get more calories and nutrients. Being aware of the serving size can help you decide how much you want to eat of that food.

- Use tools! Measuring cups and spoons allow you to measure out exact portions of food at meals until you can estimate the right amount of food to serve yourself.
- You can also use a visual approach and divide your plate into sections:
 - Fill half of your meal plate with fruits and vegetables
 - $\frac{1}{4}$ of your plate with a grain, preferably a whole grain like brown rice, whole wheat pasta
 - $\frac{1}{4}$ with a protein source like lean meats, beans, or tofu. Incorporate low fat dairy into your meals and or snacks



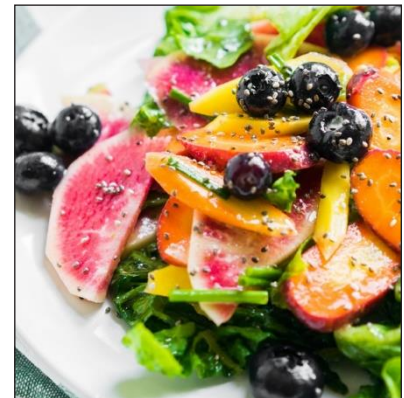
HOW CAN I GET STARTED ON A HEALTHY DIET? (CONT.)

Watch Your Portions

- To keep your energy level up and keep you from feeling hungry, avoid skipping meals. This usually leads to overeating at the next meal. It is best to eat at regular intervals throughout the day such as 3 meals and 1 or 2 healthy snacks per day.
- Eat only the number of calories you need to stay at a healthy weight. If you need to lose weight, eat fewer calories than your body burns (through exercise and other physical activity).
- Try keeping a food log to see how many calories you are eating. The quality of calories is just as important as the quantity. A dietitian can advise you on a good calorie goal. Focus on the nutrient-dense foods listed below instead of highly processed snack foods, sugar-sweetened beverages, refined (white) grains, refined sugar, fried foods, foods high in saturated and trans fats.

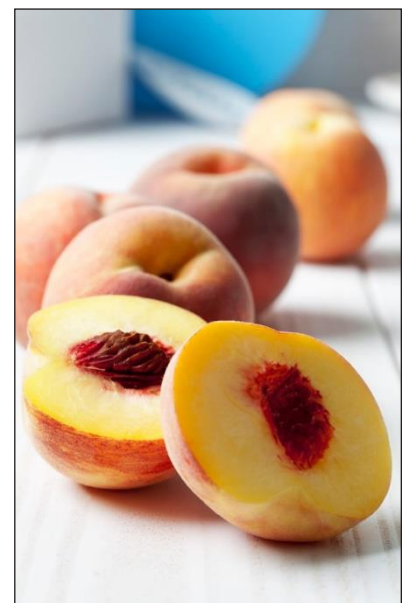
Eat More Fruits and Vegetables

- Eat a variety of fruit and vegetables every day. Dark green, deep orange, purple, red, or yellow fruits and vegetables are especially good for you. Examples include spinach, red cabbage, carrots, peaches, and berries.
- Aim for at least 5 (1/2 cup) servings of fruits and vegetables (combined) daily. However, aim to eat more vegetables than fruit overall.
- Keep fruits and vegetables handy for snacks. Store them in an easy to grab location so that you will be tempted to eat them.
- Cook dishes that have a lot of veggies in them, such as stir-fries and soups.



Limit Sugar and Excess Carbohydrates

- Limit or avoid drinks and foods with added sugar. Common examples include candy, desserts, and soda pop. Less obvious examples include cereals, granola bars, flavored yogurts, salad dressings, and condiments.
- **High-Fructose Corn Syrup** containing foods and beverages are important to avoid to promote weight loss and liver health.
- Although 100% fruit juices may not contain added sugar, fruit juice gives your body a large amount of sugar to process at one time and liquid calories are not as filling as whole foods. Choose a piece of fruit over juice. If you decide to drink juice, choose 100% and limit the amount to 4 ounces per day.
- Limiting the total amount of carbohydrates may be of benefit in NAFLD. On average, the total amount of carbohydrates for an adult ranges from 45-60 grams per meal and 15-30 grams per snack. A standard serving size of carbohydrate food contains about 15 grams of carbohydrates.
- High carbohydrate foods include bread, cereal, rice, pasta, beans and starchy vegetables. Sweets also tend to be high carbohydrate foods.



HOW CAN I GET STARTED ON A HEALTHY DIET? (CONT.)

Significantly Limit or Completely Avoid Alcohol

- For your liver health we recommend completely avoiding alcohol intake. If you do not feel that you can completely avoid alcohol, it is very important to limit alcohol (more than 2 drinks a day for men, and 1 drink a day for women is considered excess alcohol). Too much alcohol can cause many different health problems, add excess calories that contribute to weight gain, and further damage your liver.

Limit Saturated and Trans Fat

Diets high in saturated fat increase bad cholesterol (LDL) and total cholesterol levels. Trans fats also raise LDL cholesterol.

Examples of Food High in Saturated Fat:

- Animal products: Fatty cuts of meat (beef, lamb, pork), Poultry with skin, Whole and 2% milk, Butter, Cheese, Lard
- Plant sources: Palm kernel oil, Palm oil, Coconut oil, Cocoa butter

Examples of Foods High in Trans Fat:

- Commercially baked goods (crackers, cookies, cakes, donuts)
- Hard margarines
- Commercially produced white breads
- French fries and other fried foods
- Trans fat is found in processed foods that use partially hydrogenated oils



Tips to Minimize Saturated and Trans Fat:

- Use olive, avocado, or canola oil when you cook.
- Bake, broil, grill, or steam foods instead of frying them.
- Choose lean meats such as chicken or turkey breast, fish, eggs, and lean cuts of beef and pork like tenderloin or sirloin. When buying ground beef or turkey choose at least 90% lean/10% fat meats. Ground turkey can contain dark meat and skin so it's important to look for >90% lean turkey or ground turkey breast.
- Drain off any excess fat after cooking meats.
- Cut off all visible fat when you prepare meat and remove skin from chicken and turkey.
- Avoid high-fat meats such as hot dogs, salami, bologna, and sausages.
- Eat more plant-based proteins such as beans, lentils or tofu as these have very little saturated fat and no trans fats.
- Choose low-fat or fat-free milk and dairy products instead of whole-fat dairy or try unsweetened almond or cashew milk.



HOW CAN I GET STARTED ON A HEALTHY DIET? (CONT.)

Limit Sodium

Almost all foods naturally contain sodium. Added salt in food preparation and food processing are the major sources of salt in our diet. Healthy adults require only 2400 milligrams sodium per day, yet the average American consumes 6000-8000 mg sodium daily. Limit how much salt and sodium you eat to help lower your blood pressure and reduce water retention.

Examples of Foods High in Salt/Sodium:

- Cured meats, sausages, luncheon meats
- Canned vegetables, soups, beans, fish
- Soy sauce, miso
- Commercially prepared main-course meals
- Box dinners (seasoning packets)
- Frozen meals
- Cheeses, especially processed cheese
- Condiments and other dressings: Mayonnaise, salad dressings, Ketchup, Sauces (barbecue, steak, Worcestershire)



Tips to Minimize Sodium:

- Taste food before salting. Add only a little salt when you think you need it. With time, your taste buds will adjust to less salt.
- Eat fewer snack items, fast foods, and other high-salt, processed foods. Check food labels for the amount of sodium in packaged foods.
- Choose low-sodium versions of canned goods (such as soups, vegetables, and beans).
- Use herbs and spices such as garlic, oregano, basil, onion, and pepper instead of salt.
- Use low sodium condiments whenever available such as ketchup, mustard, and salad dressings.

Eat Fish

- Eat at least two servings of fish a week. Certain fish, such as salmon and tuna, contain omega-3 fatty acids which may have health benefits.

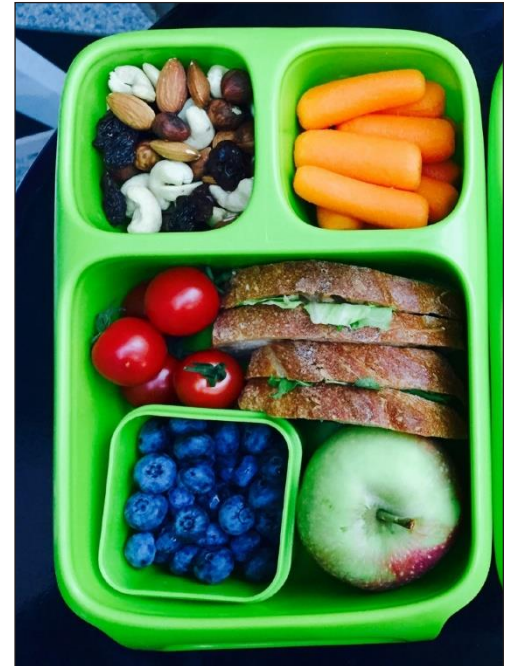
Eat Foods High in Fiber

- Fiber, in addition to lean protein, helps you feel fuller longer and may allow you to eat less calories each day.
- Choose whole-grain products. Examples include oats, whole wheat bread, quinoa, and brown rice.
- Buy whole-grain breads and cereals, instead of white bread or pastries.
- Fruits, vegetables, beans, nuts and seeds are all good sources of fiber. Add walnuts or chia seeds to oatmeal or have almonds with a piece of fruit for an afternoon snack.



HOW CAN I GET STARTED ON A HEALTHY DIET? (CONT.)**What are Other Strategies for Healthy Eating?**

- Keep more fruits, low-fat dairy products (low-fat milk and low-fat yogurt), vegetables, and whole-grain foods at home and at work. Focus on adding healthy food to your diet, rather than just taking unhealthy foods away.
- Buy a healthy-recipe book such as a Mediterranean Diet cookbook, and cook more meals at home. Chew gum when you cook so you won't be tempted to snack on the ingredients.
- Pack a healthy lunch and snacks for work. This lets you have more control over what you eat.
- Limit eating out as much as possible. When you do eat out, use above suggestions and split your meal or package half to take home for another meal.
- Put your snacks on a plate instead of eating from the package. This helps you control how much you eat.
- Don't skip or delay meals, and be sure to schedule your snacks. If you ignore your feelings of hunger, you may end up eating too much or choosing an unhealthy snack. If you often feel too hungry, it can cause you to focus a lot on food.
- Eat your meals with others when you can. Relax and enjoy your meals, and don't eat too fast. Try to make healthy eating a pleasure, not a chore.
- Drink water instead of high-sugar drinks (including high-sugar juice drinks). Sometimes dehydration can be confused with hunger. Aim to drink at least 6-8 cups of water daily.
- Try to substitute meatless main dishes 2-3 times per week. For example, use dried beans, split peas, lentils, quinoa, or soy in place of meat in dishes.
- Use low fat frozen yogurt, sorbets, ice milk, "nice" cream, etc. as a dessert in place of ice cream.
- Bake, broil, and steam foods instead of frying them.



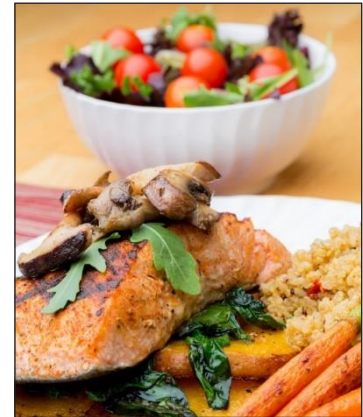
WHAT ARE OTHER STRATEGIES FOR HEALTHY EATING?

The Mediterranean diet features foods eaten in Greece, Spain, southern Italy and France, and other countries that border the Mediterranean Sea. It emphasizes eating a diet rich in fruits, vegetables, nuts, and high-fiber grains, and limits meat, cheese, and sweets.

This diet contains more fat than other healthy diets. But the fats are mainly from nuts, unsaturated oils, such as fish oils, olive oil, and certain nut or seed oils (such as canola or flaxseed oil) that have been shown to have health benefits.

What to Eat

- Eat a variety of fruits, vegetables, and legumes each day, such as grapes, blueberries, tomatoes, broccoli, peppers, figs, olives, spinach, eggplant, beans, lentils, and chickpeas.
- Eat a variety of whole-grain foods each day, such as oats, brown rice, and whole wheat bread, pasta, and couscous.
- Eat fish at least 2 times a week. Try tuna, salmon, mackerel, lake trout, herring, or sardines.
- Eat moderate amounts of low-fat dairy products each day or weekly, such as milk, cheese, or yogurt.
- Eat moderate amounts of poultry and eggs every 2 days or weekly.
- Choose healthy (unsaturated) fats, such as nuts, seeds, olive oil, and avocados.
- Limit less healthy (saturated) fats, such as butter, palm oil, and coconut oil. And limit fats found in animal products such as meat and dairy products made with whole milk. Try to eat red meat only a few times a month in very small amounts.
- Cut out processed meats such as hot dogs, chicken nuggets, baloney, etc.
- Avoid trans fats such as margarine and partially hydrogenated oil.
- Limit sweets and desserts to only a few times a week or month. This includes sugar-sweetened drinks like soda.



Tips for Changing your Diet

- Dip bread in a mix of olive oil and fresh herbs instead of using butter.
- Add avocado slices to your sandwich instead of bacon.
- Have fish for lunch or dinner instead of red meat. Brush the fish with lemon and olive oil, and broil or grill it.
- Sprinkle your salad with seeds or nuts instead of cheese.
- Use avocado oil or olive oil instead of butter or oils that are high in saturated fat.
- Switch from 2% milk or whole milk to 1% or fat-free milk.
- Dip raw vegetables in a vinaigrette dressing or hummus instead of dips made from mayonnaise or sour cream.
- Have a piece of fruit for dessert instead of a piece of cake. Try baked apples with cinnamon or strawberries topped with low fat Greek yogurt.

BREAKFAST

½ cup oatmeal, ½-1 cup fresh berries, walnuts, made with skim/1% or plant-based milk of choice

Greek yogurt layered with crunchy cereal, chia seeds, and blueberries for a breakfast parfait

2 eggs, 1 slice whole grain toast ½-1 cup cantaloupe

2 egg omelet with sautéed veggies: tomatoes, spinach, mushroom etc., 1-ounce low fat cheese, roasted potatoes

Hard-boiled egg slices with sliced vegetables (cucumber, tomatoes, bell peppers) in a whole-wheat pita

Toasted whole-wheat bread topped with sliced avocado, slice of low sodium turkey, cumin, black pepper, with 1/2 cup pineapple

Whole-grain bagel or 2 slices of toast with nut butter, 100% fruit preservatives, hummus, or tahini

Breakfast burrito-beans, veggies, salsa and avocado

1 cup low fat cottage cheese, sliced peach or other fruit, 1 tbsp nuts/seeds

LUNCH/DINNER

Sandwich on whole-wheat bread, lean turkey, hard cheese, lettuce, tomato, mustard, with 1 cup (15-17) grapes

Homemade lentil soup, whole grain crackers, ½ cup mandarin oranges

Tacos or burrito filled with beans, lettuce, tomato, salsa, guacamole, brown rice, and lean protein (chicken, lean ground turkey, tofu, or tempeh)

Large tossed salad with lean protein (chicken, tuna, or chickpeas), cucumber, tomato, shredded carrots, feta, and olive oil/balsamic vinegar or vinaigrette dressing, sunflower or pumpkin seeds, apple or orange

Lean turkey burger with lettuce, tomato, mustard on a whole-grain bun, sweet potato fries

Stir-fry: firm tofu or lean chicken sautéed with bok choy, carrots, red bell pepper, broccoli bits, onion, with ½ cup brown rice and low sodium soy sauce

Grilled chicken, medium baked potato, 1 tbsp sour cream, roasted carrots

1-2 slices veggie pizza with low fat cheese (try making at home), side salad



LUNCH/DINNER (CONT.)

Baked pork chop, ½ cup sweet potato Spinach salad with olive oil/balsamic vinegar or vinaigrette dressing

Grilled scallops, quinoa with sautéed vegetables (peppers, broccoli bits, carrots, corn, garlic, onion, etc.), 1 cup raspberries

Grilled kabobs with chicken, green bell pepper, tomato, mushroom, onion, zucchini, brown rice or quinoa

Whole-wheat or lentil pasta with tomato sauce plus vegetables (mushrooms, tomatoes, eggplant, peppers, spinach), parmesan cheese

Grilled salmon or white fish with lemon, herbs Baked potato or brown rice, 1 cup steamed broccoli, spinach or other veggie of choice.

Sushi – California roll, salmon avocado, spring roll, etc. low sodium soy sauce, side of edamame

SNACKS

5-7 whole-grain crackers or pita with 1-ounce low fat cheese or ¼ cup hummus

Piece of fruit and a handful of nuts or 1-2 tbsp of natural nut butter

Edamame

Sliced bell peppers, carrots, cucumbers and ¼ cup hummus

3 cups air-popped popcorn tossed with 1 teaspoon olive oil or avocado oil

Greek yogurt topped with 2 tablespoons natural granola and/or strawberries

Half of a sandwich made with whole-grain bread

Baked apples with cinnamon

Initial Weight (lb): _____ Initial BMI: _____ 5% Total Body Weight Loss: _____ 10% Total Body Target Weight Loss (lb) : _____
 (3 month goal) (6 month goal)

(aim for approx. 1 entry/week)

Date	Weight (lb)	BMI	Labs (if/when drawn)
Week 1:			Hemoglobin A1c: _____ LDL: _____ HDL: _____ Triglycerides: _____
Week 2:			
Week 3:			
Week 4:			
Week 5:			
Week 6:			
Week 7:			
Week 8:			
Week 9:			
Week 10:			
Week 11:			
Week 12:			Hemoglobin A1c: _____ LDL: _____ HDL: _____ Triglycerides: _____
Week 13:			
Week 14:			
Week 15:			
Week 16:			
Week 17:			
Week 18:			
Week 19:			
Week 20:			
Week 21:			
Week 22:			
Week 23:			
Week 24:			Hemoglobin A1c: _____ LDL: _____ HDL: _____ Triglycerides: _____

Week: ____ / ____ / ____ – ____ / ____ / ____

Goals: _____

Date	Activity	Duration (min)	Intensity (<i>indicate with X</i>)	Notes
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	

Week: ____ / ____ / ____ – ____ / ____ / ____

Goals: _____

Date	Activity	Duration (min)	Intensity (<i>indicate with X</i>)	Notes
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	

Week: ____ / ____ / ____ – ____ / ____ / ____

Goals: _____

Date	Activity	Duration (min)	Intensity (<i>indicate with X</i>)	Notes
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	

Week: ____ / ____ / ____ – ____ / ____ / ____

Goals: _____

Date	Activity	Duration (min)	Intensity (<i>indicate with X</i>)	Notes
			Low: ____ Moderate: ____ High: ____	
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			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	

Week: ____ / ____ / ____ – ____ / ____ / ____

Goals: _____

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			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	

Week: ____ / ____ / ____ – ____ / ____ / ____

Goals: _____

Date	Activity	Duration (min)	Intensity (<i>indicate with X</i>)	Notes
			Low: ____ Moderate: ____ High: ____	
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			Low: ____ Moderate: ____ High: ____	
			Low: ____ Moderate: ____ High: ____	

Week: ____/____/____ — ____/____/____

Goals:

Date	Activity	Duration (min)	Intensity (indicate with X)	Notes
			Low:____ Moderate:____ High:____	
			Low:____ Moderate:____ High:____	
			Low:____ Moderate:____ High:____	
			Low:____ Moderate:____ High:____	
			Low:____ Moderate:____ High:____	

PHYSICAL ACTIVITY INTENSITY GUIDE:

- **Low Intensity:** These activities do not change your heart rate. You can still carry on a normal conversation during the activity. Some examples include walking at a normal pace or stretching/resistance based exercises.
- **Moderate Intensity:** These activities cause your heart rate to increase. You can talk but not sing during the activity. Some examples include brisk walking, running at a moderate pace, or biking at a moderate pace.
- **High Intensity:** These activities cause your heart rate to increase a lot. You can only have 3-5 word breathy sentences during the activity. Some examples include rapid power walking, running at a fast pace, swimming or biking at a fast pace. It is important to only exercise at High intensity for shorter periods of time based on your fitness level. Consult with your primary care physician before engaging in high intensity physical activity.

PHYSICAL ACTIVITY CATEGORIES:

- **Cardio:** These activities make your heart beat faster and make you breathe harder. Examples include brisk walking, riding a bike, swimming or running.
- **Strength:** These activities make your muscles work against, or “resist,” something and focus on building stronger muscles and bones. Examples include lifting weights, doing push-ups or using resistance bands.
- **Stretching:** These activities work on flexibility and the ability to move your joints and muscles through their full range of motion.

PHYSICAL ACTIVITY DURATION GUIDE:

Experts say your goal should be one, or a combination, of these:

- Do some sort of moderate aerobic activity, for at least 2½ hours each week. It is up to you how many days you want to exercise, but it is best to be active at least 3 days a week. Be active for at least 10 minutes at a time.
- Or do more vigorous activities, for at least 1½ hours a week. You can spread out these 75 minutes any way you want to. It is better to be active at least 3 days a week for at least 10 minutes at a time.