

# Understanding Exercise, Healthy Eating and Lung Disease



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**Respiratory Institute**



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# Respiratory Institute

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The Mount Sinai – National Jewish Health Respiratory Institute was formed by the nation’s leading respiratory hospital National Jewish Health, based in Denver, and top ranked academic medical center the Icahn School of Medicine at Mount Sinai in New York City.

Combining the strengths of both organizations into an integrated Respiratory Institute brings together leading expertise in diagnosing and treating all forms of respiratory illness and lung disease, including asthma, chronic obstructive pulmonary disease (COPD), interstitial lung disease (ILD) and bronchiectasis. The Respiratory Institute is based in New York City on the campus of Mount Sinai.

# Understanding Exercise, Healthy Eating and Lung Disease

An educational health series from National Jewish Health®

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Note: This information is provided to you as an educational service of National Jewish Health. It is not meant as a substitute for your own doctor.

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## **Exercise and Healthy Eating**

At National Jewish Health, health care providers believe people with chronic lung disease can lead active, full lives. Our goal is to help people with chronic lung disease take charge of their breathing and maintain their quality of life. A healthy lifestyle is important for everyone, including people with chronic lung disease. A healthy lifestyle includes exercise and healthy eating.

### What Are Your Goals for Exercise and Healthy Eating?

What are a few goals you have related to exercise or healthy eating. Think about the different aspects of your life and where you would like to make changes.

- Would you like to exercise on a regular basis and feel good doing it?
- Would you like to be less short of breath?
- Would you like to learn how to select and prepare healthy meals?
- Would you like to lose or gain weight?

These are common goals for many people with chronic lung disease. What are your goals?

**List your goals below.**

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You can reach your goals! You can take control of your chronic lung disease. Work with your healthcare team and focus on reaching your goals.

### Why Should You Exercise?

Exercise and staying active are an important part of rehabilitation for chronic lung disease. You may believe that people with chronic lung disease are too short of breath to exercise. This is a myth. The truth is that regular exercise can help you feel less short of breath. Regular exercise improves your heart and muscles. It can help you feel good about yourself. Exercise specialists at National Jewish Health developed this list of the benefits of exercise. Remember, exercise is good for you!



Exercise will put you on a path to better health.

#### EXERCISE INCREASES

- Energy level
- Endurance (Cardiopulmonary)
- Muscle strength
- Bone density
- Ability to fight infection
- Ability to relax
- Restful sleep

#### EXERCISE DECREASES

- Shortness of breath
- Risk factors of heart disease
- Blood pressure
- Side effects of medicine (steroids)
- Depression
- Blood sugar levels

### How Do You Start an Exercise Program?

If you have been exercising on a regular basis, the following information will help you improve your exercise program. If you have not exercised regularly, talk with your health care provider to develop an exercise program for you.

## Exercise

Your doctor will help you develop an exercise program to meet your goals. This program will put you on the path to better health. As part of your exercise program, your doctor may prepare written guidelines not only on how to get started, but also how to continue your progress. Be sure to ask questions and discuss any concerns you may have.

Your doctor may refer you to a rehabilitation program. A rehabilitation program is a program to restore your health and quality of life through education, exercise and proper nutrition. You may work with a variety of healthcare providers in a rehabilitation program; Physical Therapists, Occupational Therapists, Recreational Therapists, Registered Nurses and Registered Dietitians.

Once in a rehabilitation program you will complete an evaluation to make sure you are ready to begin an exercise program with the least risk of injury. Members of the rehabilitation team will design the right exercise program for you.

### What Should An Exercise Program Include?

The components of an exercise program should include:

- Warm-up
- Endurance (Cardiopulmonary) Exercise
- Resistance (Strengthening) Exercise
- Flexibility (Stretching) Exercise
- Cool-down

The following pages will give you more information about each component.



Talk with your doctor about an exercise program.

### WARM-UP AND COOL-DOWN

Warm up and cool-down are usually 5 to 10 minutes and may involve gentle stretching or exercise at a lower intensity or workload. It prepares your heart, lungs and muscles for the work to be done during exercise and cools them after a workout to prevent muscle soreness or injury.



Consider choosing an activity you can do with a friend or family member.

### ENDURANCE (CARDIOPULMONARY) EXERCISE

Your exercise program will include a walking or cycling program that is designed to improve your endurance so that you can do the tasks you enjoy with less shortness of breath. This portion of your program is the cornerstone. Endurance exercises are needed to decrease the breathlessness and fatigue you experience with daily activities.

A thorough program will include endurance exercises for your arms and your legs. You should perform this routine five to seven times per week and your rehabilitation team and doctor will assist you in mastering how to adjust the time, effort and frequency needed to improve and maintain a feeling of health and fitness.

Creating the exercise habit will come easier if you choose an activity you will enjoy. Consider choosing an activity you can do with a friend or family member.

### RESISTANCE (STRENGTHENING) EXERCISE

Resistance or strength training is recommended to improve or maintain our ability to perform the activities of daily living at home, work and play. Muscle strength and endurance impact our posture and our ability to perform sustained work or recreational activities. Without good muscle strength, we cannot perform the activities that require effort over time.

The old adage, Move It or Lose It!, applies here. Your exercise program for strength should include all of the major muscle groups of your trunk, legs and arms. Typically this can be accomplished with 10 to 15 exercises. You can use flexible exercise bands, free weights, or machines to increase the resistance and challenge yourself to improve. You can also use canned goods and other household items initially while forming the exercise habit.

### FLEXIBILITY (STRETCHING) EXERCISE

Gentle stretching exercises can be used as a warm-up or cool-down activity. Stretching can be done on a daily basis. Move into the stretch position until you feel a gentle stretch or awareness in the target muscle. Hold for 10 to 30 seconds — DON'T BOUNCE!

### What Kinds of Exercise Can You Do?

When selecting an exercise, choose something you enjoy. If you enjoy walking, begin your exercise program with walking. If you enjoy the water, swimming may be a good sport for you. Build your exercise program around the types of activities you enjoy.

You also should choose an activity you can do easily in your environment and as part of your lifestyle. For example, if you live near a park or lake, walking or biking around the trails may be both enjoyable and convenient. If you belong to a health club and enjoy the social aspect of exercising with friends, using the treadmill machines, taking exercise classes or playing tennis would fit into your lifestyle. If you live in a cold climate, you might consider walking in the shopping mall. Some shopping malls have “mall-walker” programs and incentives.



You can use flexible exercise bands, free weights, or machines to increase the resistance and challenge yourself to improve.

In addition to what you enjoy, look at what you need to be able to do. Your exercise program can include a variety of activities specific to your goals.

### YOUR PERSONAL EXERCISE PROGRAM MAY INCLUDE:

- Types of activity (stretching, strengthening, endurance)
- How often to do each activity (frequency)
- How long to do each activity (duration)
- How hard and how many of each type of activity to do (intensity)
- Medicines to take before exercise

### THE RATING PERCEIVED EXERTION SCALE

The Rating Perceived Exertion Scale (RPE) can help you determine how hard you are exercising (intensity). Typically a perceived exertion of moderate (RPE3) or somewhat strong (RPE4) is recommended. This is a guideline for exercise intensity.

#### Rating Perceived Exertion Scale (Intensity of Activity)

0	Nothing at all	5	Strong (heavy)
0.5	Very, very weak (just noticeable)	6	Very strong
1	Very weak	7	Very strong
2	Weak (light)	8	Very strong
3	Moderate	9	Very, very strong (almost maximal)
4	Somewhat strong	10	Maximal

To use the Rating Perceived Exertion Scale try to think of how hard the activity is. Think of how hard the activity feels and how tired you are. Try not to focus on one feeling such as leg pain or shortness of breath. How does your whole body feel. What number relates to how you feel? Think honestly and objectively about how you feel.

## Your Personal Exercise Program

Ask your doctor or healthcare team to help you start your program.

### ENDURANCE (CARDIOPULMONARY) EXERCISE

- Walking
  - Treadmill
  - Cycling
  - Other (specify) \_\_\_\_\_
- Frequency: \_\_\_\_\_ days per week  
Duration: \_\_\_\_\_ minutes per session  
Intensity: \_\_\_\_\_ 1 - 10

### RESISTANCE (STRENGTHENING) EXERCISE

- Frequency: \_\_\_\_\_ days per week  
Duration: \_\_\_\_\_ minutes per session  
Intensity: \_\_\_\_\_ 1 - 10

### FLEXIBILITY (STRETCHING) EXERCISE

- Frequency: \_\_\_\_\_ days per week  
Duration: \_\_\_\_\_ minutes per session  
Intensity: \_\_\_\_\_ 1 - 10

### NOTES

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### PURSED-LIP BREATHING

If you have chronic lung disease pursed-lip breathing is another part of your exercise program. By practicing pursed-lip breathing, you can move more air in and out of your lungs more easily. This will help you feel less short of breath.

Practice this exercise every day. Do pursed-lip breathing when you feel short of breath. It will help you think about your breathing and relax. Also, do pursed-lip breathing when you are active.

1. Breathe in slowly through your nose with your mouth closed. Try to breathe in a normal amount of air.
2. Purse your lips lightly, like you are going to whistle.
3. Exhale slowly through your mouth. Breathe out for twice as long as you breathe in.

Do not take in a large deep breath. Never try to force all the air out of your lungs.



Inhale 1,2



Exhale 1,2,3,4

### How Can You Stay Active?

Staying active presents a challenge to all types of people. Many people find it difficult to maintain an exercise program. The key is do not give up. If you skip a day, or even a week, it's okay. You can start right back where you left off.

As we discussed, pick an activity that works well with your interests, lifestyle and what is available. Start your exercise program slowly to build up your strength and endurance. Avoid doing a month's worth of exercising in the first week. You will get burned out and possibly injured if you begin too fast. Make exercise a priority. Choose activities you enjoy. It is an important part of your life. Make time for it each day and you will see the benefits. If you are active, you will have the energy to accomplish more each day.

Set exercise goals for yourself. Walking around several blocks, a half-mile or even a mile, is a goal worth working toward. Set small goals that you can reach and celebrate when you reach them. Many people enjoy being in community walks, mall walks, bike tours, swim-a-thons, family outings and fun runs. If there is nothing available in your community, plan events with your family and friends to stay interested in your exercise program.



Set small goals that you can reach and celebrate when you reach them.

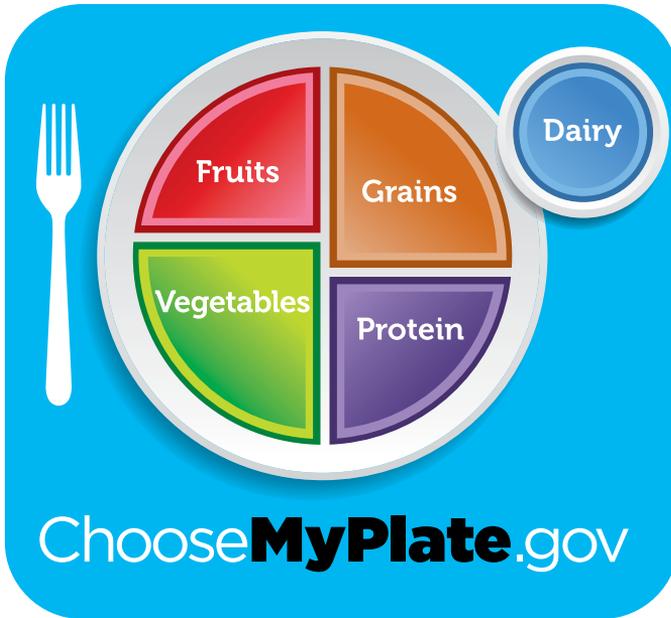


## Eating Well and Maintaining a Healthy Weight

Another important part of a healthy lifestyle for chronic lung disease is eating well. This involves choosing healthy foods that can work to heal and repair your body and make it stronger against disease. In this section we will explore how to eat healthy and achieve a healthy body weight.

In order to educate Americans on the importance of healthy eating and exercise, the USDA and the US Department of Health and Human Services developed the Choose My Plate Food Guide. The Choose My Plate Food Guide helps you choose the foods and amounts that are right for you, and encourages you to be active every day.

Your food choices and activity level affect your health – both now and in the future. To adopt a healthy lifestyle and maintain a healthy weight, set daily nutrition and activity goals.



Suggestions for daily goals:

- Increase daily intake of fruits and vegetables. The goal is to eat 2 pieces (or 2 cups) of fruit and 2 – 3 cups of vegetables every day. Fruits and vegetables are key sources of vitamins and minerals that keep your immune system strong and help your body heal itself.
- Eat at least 3 servings of whole grain foods each day. A serving equals 1 slice of bread, 1 cup of cereal or 1/2 cup of rice. For maximum health benefits, choose whole grain breads and cereals, and wild or brown rice. Look at labels and choose foods that have high amounts of fiber.
- Know your fats! We need 20-30% of our total calories from fat in order to keep our cells and body healthy. Choose unsaturated fats from vegetables, such as olive oil and canola oil, peanut butter, nuts, avocados. Unsaturated fats can lower cholesterol levels, while saturated fats cause increased cholesterol levels and are associated with



Visit [ChooseMyPlate.gov](https://www.choosemyplate.gov) and create a personalized food guide that's just right for you!

heart disease. Saturated fats are found in animal products, such as meats and whole fat dairy foods. Limit saturated fat by choosing lean meats, fish and low-fat dairy foods.

- Remember portion control. To help control portion sizes, eat off of smaller plates. When eating out, take 1/2 the meal home or share an entrée with a friend. Instead of eating a second helping, have a piece of fruit for dessert.

For more suggestions on a healthy diet, and understanding serving sizes, visit [ChooseMyPlate.gov](https://www.choosemyplate.gov) and create a personalized food guide that's just right for you!

Living a healthy lifestyle and following the Choose My Plate Food Guide is important for people of all ages, with and without chronic lung disease. Talk to your doctor or a registered dietitian about your specific nutrition needs.

### **Maintaining Your Weight**

Achieving and maintaining a healthy weight is an important part of treating chronic lung disease. Excess body weight, especially around your stomach, can increase shortness of breath. Insufficient body weight can decrease your ability to fight infections. A good way to determine if you need to gain or lose weight is to look at your body mass index or BMI.

#### **WHAT IS BODY MASS INDEX OR BMI?**

BMI is a calculation of weight relative to height. It is helpful to know your BMI because it can be used as an indicator of overall health. BMI does not account for body composition of muscle and fat. BMI may overestimate body fat in an athlete or a person with

## Eating Well and Maintaining a Healthy Weight

a muscular build. BMI may underestimate body fat in an elderly person or a person with loss of muscle mass. Overall, BMI is a useful tool to help guide recommendations for weight loss or weight gain.

### HOW CAN YOU FIND OUT YOUR BODY MASS INDEX?

Ask your healthcare provider about your BMI. Your healthcare provider can calculate this for you. You can also look at a BMI calculator or table. You can access a BMI calculator or table at this website: [www.nhlbisupport.com/bmi](http://www.nhlbisupport.com/bmi).



**My weight today is**

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**My BMI today is**

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**My goal**

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<b>Under Weight</b>
← 17 18
<b>Normal Weight</b>
19 20 21 22 23 24
<b>Overweight</b>
25 26 27 28 29
<b>Obese</b>
30 31 32 33 34 35 36
37 38 39 40 →

### WHAT DOES THE BMI NUMBER MEAN?

Once you know your BMI, determine what category you are in:

- Underweight: BMI < 18.5
- Normal weight: BMI 18.5-24.9
- Overweight: BMI 25.0-29.9
- Obese: BMI > 30

If your BMI is above 25, focus on losing weight.

If your BMI is below 18.5, focus on gaining weight.

### HOW CAN YOU LOSE WEIGHT?

If weight loss is your goal, focus on establishing a plan that includes a variety of foods. Avoid using the word “diet” as a diet is something you go on and then go off. Try to make healthy lifestyle changes you can maintain for the long term. A healthy rate of weight loss is ½-1 pound per week. Rapid weight loss usually results in loss of fluid or muscle rather than body fat.

Here are some weight loss tips:

- Do not skip meals.
- Include 3 food groups with each meal.
- Limit snacks to designated times, often mid-morning and mid-afternoon.
- Limit sweetened beverages to no more than 12 ounces a day. This includes juice, soda, Kool-Aid and lemonade to name a few.
- Keep high fat or high sugar foods out of the house.
- Limit serving sizes. Refer to the package for information on serving size.
- Be aware that most of today’s foods come in super-sized versions that are not helpful for weight control. Resist the temptation to super-size your order or to purchase super-sized food items. Share an entrée when dining out.

- Limit use of high calorie condiments such as mayonnaise or salad dressing. Use lower calorie versions instead.
- Increase activity to help strengthen your body and lose weight. Remember what you learned in exercise section of this book.
- Meet with a registered dietitian (RD) for additional advice on meal planning.

### HOW CAN YOU GAIN WEIGHT?

The best way to gain weight is to eat more. However people with lung disease often feel full after eating a relatively small amount of food. If this is happening to you, try to eat smaller amounts more often. In addition, try to add calories to everything you eat with extra sauces and gravies.

Here are some tips for weight gain:

- Eat five to six small meals a day and snack whenever you are hungry.
- Keep your favorite foods on hand for snacking and meals (such as frozen dinners).
- Fat is a concentrated source of calories. Small amounts of vegetable oil, butter or margarine can increase the calorie content of any food.
- Use higher calorie versions of foods you eat (butter crackers or cheese crackers instead of soda crackers).
- Avoid “lite” products (skim milk, low fat yogurt and cottage cheese, reduced calorie mayonnaise, low-fat salad dressings, etc).
- Don't fill up on fluids. Drink fluids between meals rather than with meals. Drinking during a meal can make you feel full quickly.
- Avoid filling up on low calorie foods like salad at meal times; instead eat the heartier foods first.

### Suggested Calorie Boosters

- butter/margarine
- cream cheese
- dried fruit
- dry milk powder
- granola
- honey/sugar
- peanut butter/nuts
- vegetable oils

- Choose nutritious drinks, such as whole milk, milkshakes, and juices. Consider supplemental drinks such as Boost®, Ensure®, or Scandishake®. Replace no calorie drinks such as water with calorie-containing fluids, such as whole milk.
- Meet with a registered dietitian (RD) for additional advice on meal planning.



Smaller, more frequent meals are recommended for people with chronic lung disease.

### **Pull Up a Chair! It's Time To Eat.**

If you find yourself short of breath at mealtimes, this section is for you. Shortness of breath can make eating hard work. If you use all your energy preparing a healthy meal, you may find yourself unable to eat and/or enjoy what you have prepared.

Here are a few practical suggestions on how to conserve energy and get the most from your meals:

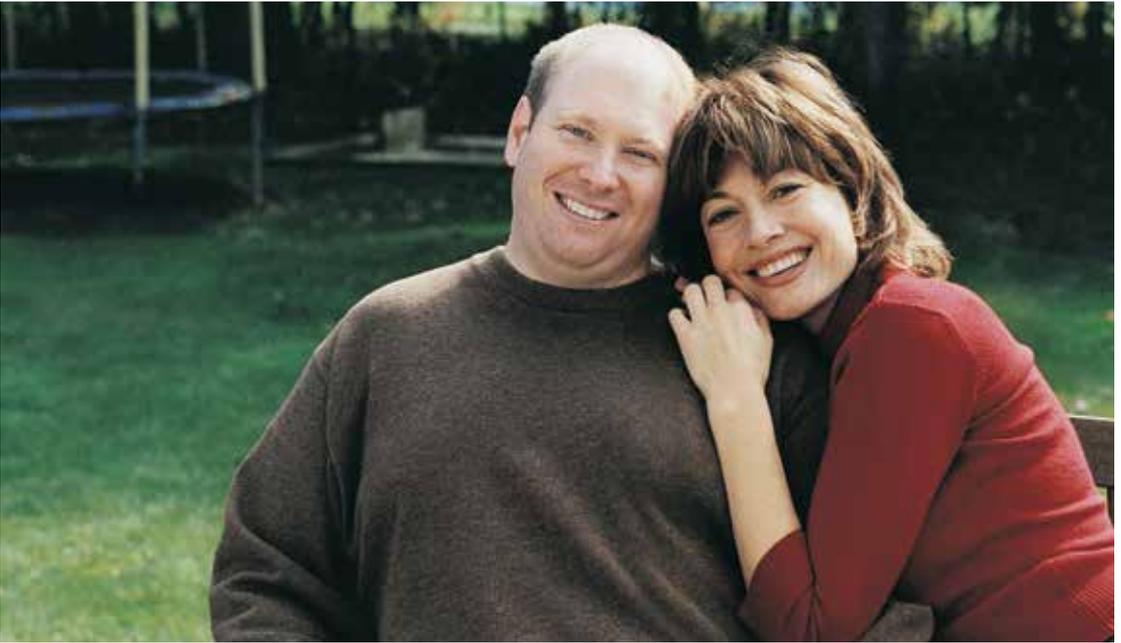
- Eat six smaller meals instead of three big meals. Frequent meals are recommended since many people with chronic lung disease feel more short of breath when their stomach is full. This is because the diaphragm can not work as well when the stomach is full. You can satisfy your nutritional needs, keep your stomach comfortable and help your diaphragm to work better by eating smaller amounts more often.
- Plan to eat before you are too hungry or tired.
- If you do not have an appetite, use the clock to remind you when it's time to eat. Think of food as medicine, and do your best to eat "healthy" foods throughout the day. Try to eat something every 2-3 hours, and do not go longer than 4 hours without eating.
- Breathe evenly while you are chewing and eating. Stop eating if you need to catch your breath. Relax at mealtime.

## Eating Well and Maintaining a Healthy Weight

- When cooking or baking, double or triple your favorite recipes to keep your freezer full for times when you do not feel like cooking.
- Freeze foods in small portions for when you do not feel like cooking.
- Use prepared foods to save time and energy in the kitchen. Frozen meals, prepared foods or take-out meals from a restaurant can make your life easier. Remember, the sugar, salt or fat content of these foods may be higher than homemade.
- Do the tasks that require the most effort when you have the most energy. For example, many people would agree that grocery shopping is a tiring task. This chore can be done when you feel freshest, in the morning or after a rest. Better yet, make a list and have a friend or family member pick up your groceries for you! There are also grocery stores that deliver.
- Don't stand in the kitchen when you can sit. Bring your chopping, cutting and mixing projects over to the kitchen table and sit while you prepare the food or keep a barstool by the kitchen counter. Buy frozen vegetable to decrease preparation.

Another way to avoid that "too full" feeling is to eat less of the foods that cause gas. The following foods are common offenders. Keep a food diary to find out if they are a problem for you.

- asparagus
- beans (pinto, kidney, black, navy)
- broccoli
- brussels sprouts
- cabbage
- carbonated drinks
- cauliflower
- cucumbers
- melons
- garlic
- onions (raw)
- peas (split, blackeye)
- peppers
- radishes
- rutabagas
- sausage
- spicy foods
- turnips



## Living with Chronic Lung Disease

### Gastroesophageal Reflux

Many people with chronic lung disease also have gastroesophageal reflux disease (GERD). Gastroesophageal reflux is a backward flow or reflux of stomach contents into the esophagus. This occurs when the valve of smooth muscle between the esophagus and the stomach does not function properly. This muscle band is called the lower esophageal sphincter.

### SIGNS AND SYMPTOMS OF GERD

Some signs and symptoms of GERD include heartburn, sour taste in the mouth or swallowing problems, but many people with GERD may have no symptoms, but worsening lung disease.

### TREATMENT FOR GERD

The following treatments may be recommended:

#### Lifestyle changes

- If you are overweight, talk with your healthcare provider about losing weight.
- If you smoke, giving up smoking is important. Your healthcare provider will have ideas to help you quit.

#### Dietary measures

- Limit citrus and tomato products, strong spices, caffeinated drinks, carbonated drinks, fatty foods, chocolate, mint and alcohol.
- Eat smaller, more frequent meals rather than three large ones.
- Avoid food or liquids for 2-3 hours before bedtime.
- Avoid lying down after having food or liquids.

#### Physical measures

- Elevate the head of the bed 6-8 inches, by placing blocks under the legs of the head of the bed.
- Avoid bending forward at the waist.
- Avoid wearing tight fitting clothing.

#### Medications

In addition to the above measures, medications may be prescribed to help this condition also.

### Steroids and Diet

Some people with chronic lung disease take steroid pills when sick or on a regular basis. Steroid pills (such as prednisone or methylprednisolone) are strong medicines that decrease swollen airways. They also have the potential to interfere with the way the body uses specific nutrients, including calcium, potassium, sodium, protein and vitamins C and D.



You will do much better with your rehabilitation program if you have support.

If you take steroid pills for chronic lung disease, it is very important to eat a balanced diet that meets the Choose My Plate Food Guidelines. A healthy diet that includes foods from each food group can make up for some of the nutritional effects of steroid therapy. Over a long period of time, steroid pills or liquids, can increase the risk of osteoporosis (loss of bone density). Therefore, it is very important to eat foods high in calcium, such as dairy products. If you do not get adequate calcium from foods, be sure to take a calcium supplement and vitamin D. If you need to control calories, low fat dairy products may be used. To prevent other side effects, limit the use of salt and foods that are high in sodium and decrease the amount of cholesterol and fats in your diet. In many cases, taking a multi-vitamin may help ensure adequate vitamin and mineral intake. Talk with your doctor or a registered dietitian about specific concerns regarding steroids and your diet.

### **Support and Your Family**

Chronic lung disease requires an active partnership. Taking your medicine, staying active, eating healthy and working with your doctor are important. You will do much better with your rehabilitation program if you have support.

Support can come in a variety of forms. Your family is often a support. Your spouse, adult children, siblings or other relatives can help you meet the demands of your rehabilitation program on a daily basis. Other support includes friends, people with chronic lung disease, people with whom you share a hobby, church groups and clergy, neighbors, volunteer organizations

and even a pet! Do not be embarrassed or afraid to ask people for help when you need it.

### **You Can Do It!**

This booklet discusses exercise, staying active, healthy eating and maintaining your weight with chronic lung disease. All of this information can help you take control of your lung disease and your life. Be sure to talk with your doctor if you have questions about this book. Your doctor is your partner in taking care of your chronic lung disease.

Remember the goals you set at the beginning of this booklet? Work toward your goals — make a little progress each day. You can feel better and stay healthy.

## Glossary

**CARDIOPULMONARY** Referring to the heart and lungs.

**DURATION** How long to do an activity.

**ENDURANCE** Exercise to increase your ability to sustain an activity.

**ESOPHAGUS** The tube that connects the mouth and stomach.

**FATIGUE** Feeling weak or tired.

**FLEXIBILITY** Exercise to stretch muscles increasing bloodflow to the muscle.

**FREQUENCY** How often to do an activity.

**INTENSITY** How hard and how many of each type of activity to do. Intensity can be measured using Rating Perceived Exertion Scale.

**NUTRITIONAL INTAKE** The amount of food you eat, usually measured in calories.

**OSTEOPOROSIS** Loss of calcium in the bones.

**RATING PERCEIVED EXERTION SCALE** A measure of the intensity of an activity. Intensity will vary on a scale of 1 (very easy) to 10 (maximal).

**REGISTERED DIETITIAN (RD)** A specialist in nutrition and food selection who is certified by the American Dietetic Association (ADA).

**REHABILITATION** To restore health and quality of life through education, exercise and diet.

**SIDE EFFECTS** An unwanted effect of a medicine.

**STEROIDS** A strong, but effective medication used to treat chronic lung disease.

**STRENGTH** Exercise using weights or other equipment to apply resistance to different movements.

**SYMPTOM** A sign of disease noticed by the patient.

# Notes

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