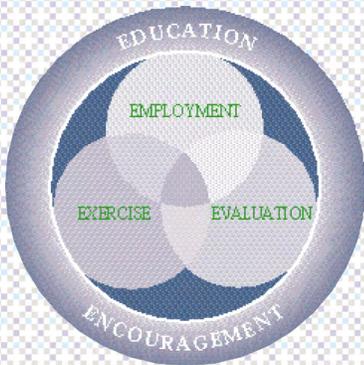


EXERCISE

A Guide for the People on Dialysis

Patricia Painter, PhD



Developed by
The Life Options Rehabilitation Advisory Council

Administered by
Medical Education Institute, Inc.



INTRODUCTION

People with kidney failure can lead full, active lives. You can, too! Learning how to live a good life in spite of kidney failure is what rehabilitation is all about.

For you, rehabilitation may mean keeping your job or going back to work. It may mean doing the things you want to do, like gardening, fixing up your home, participating in sports, or playing with your grandchildren. Or it may just mean being able to live on your own.

A group of dialysis experts and people with kidney failure (the Life Options Rehabilitation Advisory Council) is working to help everyone with kidney failure get the most out of life – through rehabilitation. They have found that five things are very important. They call these things the five E's. They are Education, Encouragement, Employment, Evaluation, and Exercise.

This guide is about the exercise “E” and how it can help you get back on your feet.



If you would like to learn more about rehabilitation, the work of the Life Options Rehabilitation Advisory Council, and the five E's, you can request a copy of the special report called Bridging the Barriers: For Patients and their Families.

*Write to: Medical Education Institute, Inc., Rehabilitation Resource Center,
414 D'Onofrio Drive, Suite 200, Madison, WI, 53719-2803.*

A Guide for People on Dialysis

By Patricia Painter, PhD

Developed of *The Life Options Rehabilitation Advisory Council*

Supported by *An Educational Grant from Amgen Inc.*

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IMPORTANT NOTICE

TALK TO YOUR DOCTOR BEFORE STARTING THIS OR ANY OTHER PROGRAM

This guide is designed to be used in conjunction with a video and under the supervision of your dialysis center staff. None of the activities in this guide should be undertaken without the prior consultation and approval of your physician. This [program is not intended as a substitute for medical or physical training, counseling, or advice, and should not be considered as such. You should recognize that exercise involves certain risks, including the risk of severe injury, disability, or death, which cannot be completely eliminated, even when an exercise program is undertaken under expert supervision. Use of these materials indicates your agreement that Amgen, Inc., the Medical Education Institute, Inc., the authors, and the members of the Life Options Rehabilitation Advisory Council will not be responsible for any loss or injury which you sustain in connection with, or as a result of, the use of this guide.

Susan



For the last 18 months, 54-year-old Susan Petri has gone to hemodialysis every week. Otherwise, she says, "I do the same things that everybody else does. . . wash clothes, clean the house, walk." She also exercises every day.

On dialysis days, Susan exercises at home on her ski machine. Every other day, she walks two miles in the morning and does floor exercises at night.

Since she started exercising, Susan says she has more energy and no longer needs the painkillers she used to take for severe leg cramps. "The more I walked," she explains, "the more it seemed I had less and less pain." Exercise has also allowed Susan to continue her favorite activities, including camping and hiking.

The benefits of exercise and a positive attitude keep Susan going strong. "Whatever is out there, I will try if I can. I won't jump out of a plane, but if I can walk or run a mile to keep up with everybody else, I'm going to keep on exercising."

Susan thinks other dialysis patients should give exercise a try, too. "If every day you do one more thing— if you want to walk, just walk to the corner and back. Before you know it, you'll be walking around the block and farther.

WHY EXERCISE?

If your doctor offered you a pill that could:

- give you more energy
- make your muscles stronger
- help control your blood pressure
- lift your mood and fight depression
- reduce your risk of heart attack

...would you take it? YES!

Unfortunately, there is no such pill, but there is something that just might give you some or all of the same benefits. **REGULAR EXERCISE!**

What Exercise Can Do For You

People on dialysis who exercise regularly get results. They can do more, PLUS they say that they feel better. They have more energy, and they feel less anxious and depressed, perhaps because they have a greater sense of control over their lives.

Some people on dialysis were able to cut down on blood pressure medicine when they exercised regularly; a few people didn't need any at all! Blood pressure control is important for your health and may help to prevent heart problems.

Regular exercise can make muscles stronger and joints more flexible. That means it will be easier to reach, bend stoop, and do other daily activities. Good flexibility can also improve your sense of balance, so you can move more confidently with less risk of falls.

Exercise (along with proper diet) can also help you change the fat and cholesterol content in your blood. And that may reduce your risk of heart problems.

All in all, exercise is one of the best things you can do for yourself. It can help you feel better, stronger, and more in control of your health – even if you need to do dialysis.

“Taking a walk gets your blood to your brain. chases those cobwebs away, gives you a feeling of well-being. I know everyone can't walk, but do what you like and what you can, even if it's only waving your arms two minutes, resting, and doing it again later...”

“Your outlook on life will grow brighter day by day. The secret is to find and do those things you enjoy.”

Effie McKewen,
Dialysis patient
Consumer Quarterly, Fall 1992

Use It or Lose It

What if you don't feel up to exercise? Many people who start on dialysis feel tired and washed out, especially at first. Your family and friends may tell you to "take it easy."

"I noticed with all the lying around and sitting, I was getting weaker and feeling bad. So I decided I needed exercise.

"First I used taped music and sort of stretched and danced to it. This did make me feel better, so I added walking. I began to feel even better and started going to a senior center dance every Friday."

Effie McKewen,
Dialysis patient
Consumer Quarterly, Fall 1992

Even so, it's important to stay active. Your body quickly gets used to doing less. The less you do, the less your body is able to do. Your muscles get weak and flabby. Your heart doesn't bear as strongly, and your lungs don't pull in as much air. Your joints may stiffen up. Some people get so weak they end up needing a cane, a walker, or even a wheelchair, just to get around.

If you don't use your muscles, you will lose them. Don't let this happen to you! Exercise.

WHO CAN EXERCISE?

Almost every person on dialysis can exercise. What's best for you depends on your medical condition and how well you can walk.

If you are healthy except for kidney failure

...you have a lot of choices. You can exercise at home or with a community exercise class. You can also exercise at your dialysis unit if there is a program.

Your doctor may want you to see a physical therapist who can recommend exercises for you. If your doctor does refer you to a physical therapist, several visits will be covered by Medicare. This can help you get started.

If you have – or might have – heart problems

...you may be able to join a cardiac rehabilitation program for your exercise. If your doctor recommends cardiac rehabilitation, it may be covered by Medicare.

Special note: The diet information that you receive in a cardiac rehabilitation program may not apply to you. Stay on your diet and ask your renal dietitian if you have questions.

If you have trouble walking or cannot walk

...you can still exercise. The best place to start is with a visit to a physical therapist to learn what you can do and how to do it. Ask your doctor about a referral; several visits may be covered by Medicare.

Guadalupe



Seventy-two-year-old Guadalupe Lazcano has always been an active, hard-working woman. Since she began hemodialysis five years ago, however, she says exercise has helped her remain active.

Each day, in between loads of laundry and dishes, an apron-clad Guadalupe sneaks in 40 minutes to an hour on a treadmill in her basement. While walking, she even gets in exercises for her arms, swinging them at her sides and doing arm lifts, one at a time. In the summer, she and her husband often take walks outside.

Like many dialysis patients, Guadalupe says there are times when she feels depressed. But whenever she's feeling down or achy, she spends some time on the treadmill. After she works out, she feels revitalized. "The energy it gives you is incredible," she explains.

Guadalupe says that two of the biggest benefits of exercise are the feelings of satisfaction and independence it helps create. "I feel good knowing that I can still take care of and provide for my family instead of them having to provide for me."

WHAT KIND OF EXERCISE DO YOU NEED?

Almost any physical exercise will be good for you, but different kinds of exercise will help in different ways. A complete fitness program includes three kinds of exercise.

Flexibility exercise – to help your joints work smoothly and help you bend, stoop, reach, and move more easily. Flexibility exercises use gentle muscle stretching and slow movements. (See pages 17 to 20 for examples.)

If you have arthritis, you may already do special flexibility exercises. Keep it up! A physical therapist can help you choose more exercises that are safe for your joints.

Strengthening exercise – to make your muscles stronger. Strengthening exercises use resistance (weights, elastic bands, or your own body weight) to make muscles work harder. (See pages to 31 for examples.)

Cardiovascular exercise (also called aerobic or endurance exercise) – to make your heart, lungs, and circulation work more efficiently. Cardiovascular exercises use sustained, rhythmic movements of your arms and/or legs. Cardiovascular exercises improve endurance, so you can be active longer without getting tired. (See pages 32 to 34 for suggestions.)

GETTING A GOOD START

First Things First

Exercise may not be safe for you if your medical condition is not stable.

Check with your doctor to be sure you are getting adequate dialysis, have stable blood pressure control, and are free from infections or other illnesses that need treatment. People with diabetes should have stable glucose control.

You must follow your prescribed diet and take all your medications (including phosphate binders) as directed.

What You Need to Succeed

Commitment. You need to make up your mind to give exercise a try for at least three months. One session of exercise will not help. Only regular exercise over a period of time will get results.

It may help to think of exercise as part of your treatment for kidney disease – a part you can control! Other people may encourage you or check your progress, *but you and only you can do it.*

A Plan. Think about your goals. Then write down exactly what you're going to do to achieve them – and when.

Think about things that might get in the way of your plan and decide how to handle them. (See page 40 for some tips.)

Realistic Expectations. You will be more likely to stick with your exercise plan if you know what to expect.

- Results take time. It took months of inactivity and illness to get into poor condition. It will take time to regain your strength.
- Your muscles may feel tired if they are not accustomed to regular exercise, but they should not hurt.
- You can expect to miss exercise sessions for many reasons, including hospitalizations. Don't quit! Reassess your plan and make changes so you can get back to it.
- You can expect good days and bad days. Lack of sleep, stress, cramping, new medications, a low red blood cell count, depression, the flu, or an infection may result in a bad day. Try to do something. It may actually make you feel better.
- You can expect – in time – to make exercise part of your regular routine. Once you do, you won't want to miss it.

Rich



Rich Lampereur has been on hemodialysis since he was diagnosed with end-stage renal disease in 1993. Before his diagnosis, Rich didn't exercise on a regular basis. Now he works out at a gym at least three times a week, concentrating on stretching, walking, running, and lower body strength training.

Exercise has helped Rich sleep better, keep up with his daily activities, and lose nearly 100 lbs. He also knows that getting into shape will help him if, and when, his transplant comes through.

Rich works full time and admits there are days when he doesn't feel like exercising. To help him get through those days, he has established a set routine to help make exercise a priority. He explains, "It becomes second nature, just like getting up at 8 o'clock in the morning to go to work."

The benefits, he says, are well worth the effort. "Since I've started to exercise," he explains, "I feel more energetic. I have more motivation. I feel a lot better."

The Right Clothes. Any comfortable, loose-fitting clothes will do. If it's cold, wear several layers of light clothing. You can remove layers as you get going and start to warm up, then add layers if you cool down and start to chill. If it's windy, wear a windbreaker.

Comfortable shoes. Athletic shoes with good padding, arch supports, and uppers that allow air to circulate around your feet are ideal. Be sure new shoes feel good on your feet while you are still in the store; uncomfortable spots will probably get worse, not better. If you have diabetes, break in new shoes gradually to avoid blisters and sore spots. See your physician at the first sign of foot problems.

Putting Together an Exercise Plan

Use the worksheet on page 40 to develop your exercise plan. It will help you make decisions about how to incorporate exercise into your life. You will also need to answer these questions:

What kind of exercise will you do?

The best exercise programs include all three kinds of exercise: flexibility, strengthening, and cardiovascular. You should spend most of your exercise time doing cardiovascular exercises. (People who are very weak may need to build strength before they can do cardiovascular exercise.)

Not sure which cardiovascular exercise to choose? See page 32 for help.

How often should you exercise?

Every person's program will be different. Ideally, flexibility exercises should be done daily, strengthening exercises every other day. For cardiovascular exercises, start out slowly and work up to at least three to four times per week.

How long should you exercise?

To get the health benefits of exercise, 30 minutes (or more) of continuous cardiovascular exercise is recommended. That's usually too much at first, so many people start with shorter sessions and gradually increase. If five minutes is your

Cardiovascular Exercise Session

	How Long	How Hard
Warm-up	5 to 10 minutes	Very Light or Light
Conditioning	5 to 30 minutes <i>Slow down if exercise feels "Very Hard" or "Very, Very Hard." At this level you will get tired too quickly.</i>	Somewhat Hard or Hard
Cool-down	5 to 10 minutes	Very Light or Light

limit, start there, then add one or two minutes to your sessions each week. **All in all, exercise is one of the best things you can do for yourself. It can help you feel better, stronger, and more in control of your health – even if you need to do dialysis.**

How hard should you exercise?

The key is to **START SLOWLY AND PROGRESS GRADUALLY**. Push yourself – but just a little bit. Use the Work Effort Scale (see below) to judge how hard you are working. **LISTEN TO YOUR BODY**. If you're tired, go slowly and/or shorten your session. If you feel you can do more, go for it!

How do you make progress?

You can make progress (and build your endurance) by slowly increasing the length of time you exercise at the "somewhat hard" or "hard" level. Adding one to two minutes per week is about right.

As you become more fit, and your body adapts to exercise, you will need to exercise harder or faster to reach the "somewhat hard" level.

Here are some easy ways to measure your progress.

Measure time. Time one of your first exercise sessions. How long can you keep exercising without a rest? About once a month, time yourself again.

Measure distance.

Choose a distance that you can walk, ride, or swim.

Time how long it takes to go the distance at one of your first sessions, and rate your effort. About once a month, time how long it takes to do the same distance and check your effort rating.

Log exercise. Keep a daily record of your exercise sessions: how long you were able to keep going, how far you were able to walk/ride, and your work effort rating. Just watching your progress from week to week will be gratifying!

WORK EFFORT SCALE

6	Rest	
7	Very, Very Light	
8	> Very Light	Warm-Up & Cool-Down
9		
10	Fairly Light	
11		
12	> Somewhat Hard	Conditioning
13		
14		
15	> Hard	
16		
17	> Very Hard	Slow Down!
18		
19	> Very, Very Hard	
20		

How to Use the Work Effort Scale:

Use the scale to rate how hard your exercise feels to you. The number 6 is the work effort you feel just sitting in a chair or doing nothing. As you exercise faster or harder, the work effort will feel harder to you. Check your effort level several times during each exercise session. The same exercises will feel different on different days. As long as you listen to your body, you won't do too much!

A Few Cautions

Be sage when you exercise. Follow these guidelines.

When to Exercise*

- When temperatures are comfortable. Avoid the very hot or cold times of the day if you are exercising outside.

When Not to Exercise*

- When you have a fever (body temperature is over 101.00 F [38.30 C])
- When you have missed a dialysis session
- When you have a new illness that has not been treated
- When exercise causes pain

When to slow down*

- When your effort level feels "very hard" or "very, very hard"
- When you are breathing too hard to talk
- When your muscles get so sore you cannot exercise the next day
- When you do not feel fully recovered one hour after exercise
- When you have an unusually high heart rate (ask your program director what is too high for you)

ALERT YOUR DIALYSIS TEAM

...if you notice problems that start during exercise. You may need to stop. Cool down and stop if you have any of these symptoms:

- Shortness of breath
- Chest pains or pressure
- Irregular heartbeats
- Nausea
- Leg cramps
- Dizziness or lightheadedness
- Pain or pressure in neck or jaw
- Excess fatigue
- Blurring of vision

Before you start exercising again, check with your doctor.

**Adapted from Fitness After Kidney Failure: Building Strength Through Exercise, copyright National Kidney Foundation, New York, New York, 1990, and used with permission.*

DEVELOPING FLEXIBILITY

Your joints and muscles get stiff and tight when you don't use them. Daily stretching can help you stay flexible and make it easier for you to move. Stretching exercises can be done anytime, but they work well as part of a warm-up before cardiovascular exercise.

Simple Rules

Do it right. Think about the muscle(s) you are stretching. Gently stretch until you feel light tension. Stop and hold the stretch for 10 to 20 seconds. DO NOT BOUNCE. The feeling of tension should go away as you hold your stretch. If it doesn't, relax a bit until you can hold your position comfortably.

Take it easy. A good stretch is gentle, never painful. You should never get dizzy or lightheaded or have any burning or pain in your muscles, joints, or back. If you do, relax the stretch and breathe deeply. Pain during or after stretching could be a sign that you are over-stretching. Take it easy!

*Stretching Is
Easy To Learn!*

Breathe. DO NOT HOLD YOUR BREATH WHILE STRETCHING. Breathe slowly and deeply as you stretch. Breathe in as you stretch out. Exhale slowly as you hold the stretch position. Breathe deeply, but don't move your shoulders up and down.

Think tall. Sit or stand up straight when you stretch. Imagine that a string is attached to your head, pulling and lifting your whole body in a very straight line. It is especially important to remember good posture throughout all your exercises.

Flexibility Exercises

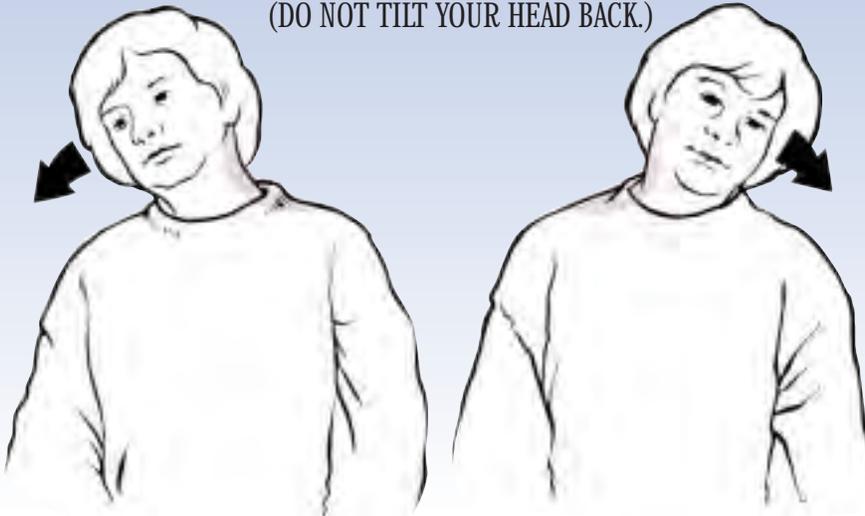
The exercises on pages 17 to 20 make up a basic stretching routine. The illustrations give step-by-step instructions and show you where you should feel the stretch (blue area). Start with your head and neck and work down to your legs. Most of the exercises can be done from a sitting or a standing position.

When you can comfortably and easily hold each stretch for 10 to 20 seconds *and* can do at least three repetitions of each, you're ready to add some new stretches. Check the list of publications on page 43 for where to find more information.

1 Neck Stretch

[Neck]

- Sit or stand up straight. Look straight ahead.
- Slowly lower your right ear toward your right shoulder. Bring your head back up and lower your left ear to your left shoulder. Repeat with right ear to right shoulder. Drop your chin to your chest and slowly roll your chin across your chest until your left ear reaches your left shoulder.
- Lift up your chin until you are looking straight ahead.
(DO NOT TILT YOUR HEAD BACK.)



- Sit or stand up straight.
- Stretch your arms straight out in front of you at shoulder height.
- Stretch out all your fingers, then make a fist and stretch out your fingers again. Repeat.
- Keep your arms stretched out and slowly make small circles with your wrists. First clockwise, then counterclockwise.



2 Arm/Hand Stretch

[Hands and wrists]

3

Shoulder Shrug & Rotation

[Shoulders, upper back, and chest]

- Stand or sit up straight.
- Shrug your shoulders up to your ears. Hold. Lower and repeat.
- Make forward circles with your right shoulder. Then with your left.
- Make backward circles with your right shoulder. Then with your left.

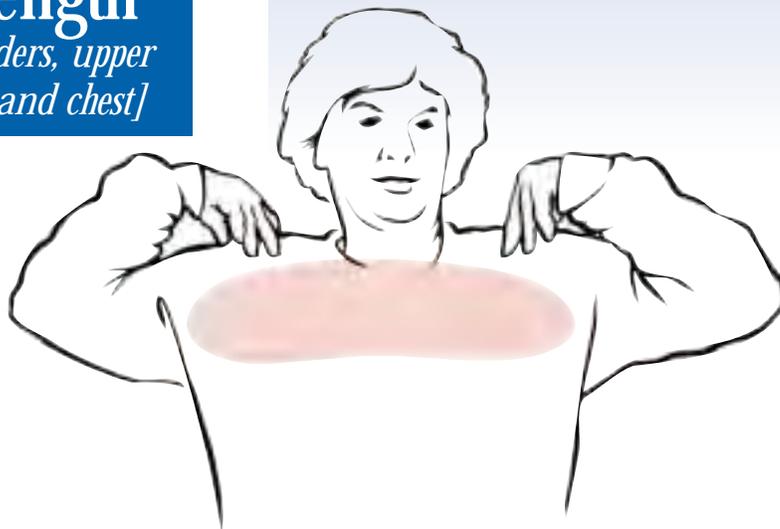


4

Chest & Upper Back Strength

[Shoulders, upper back, and chest]

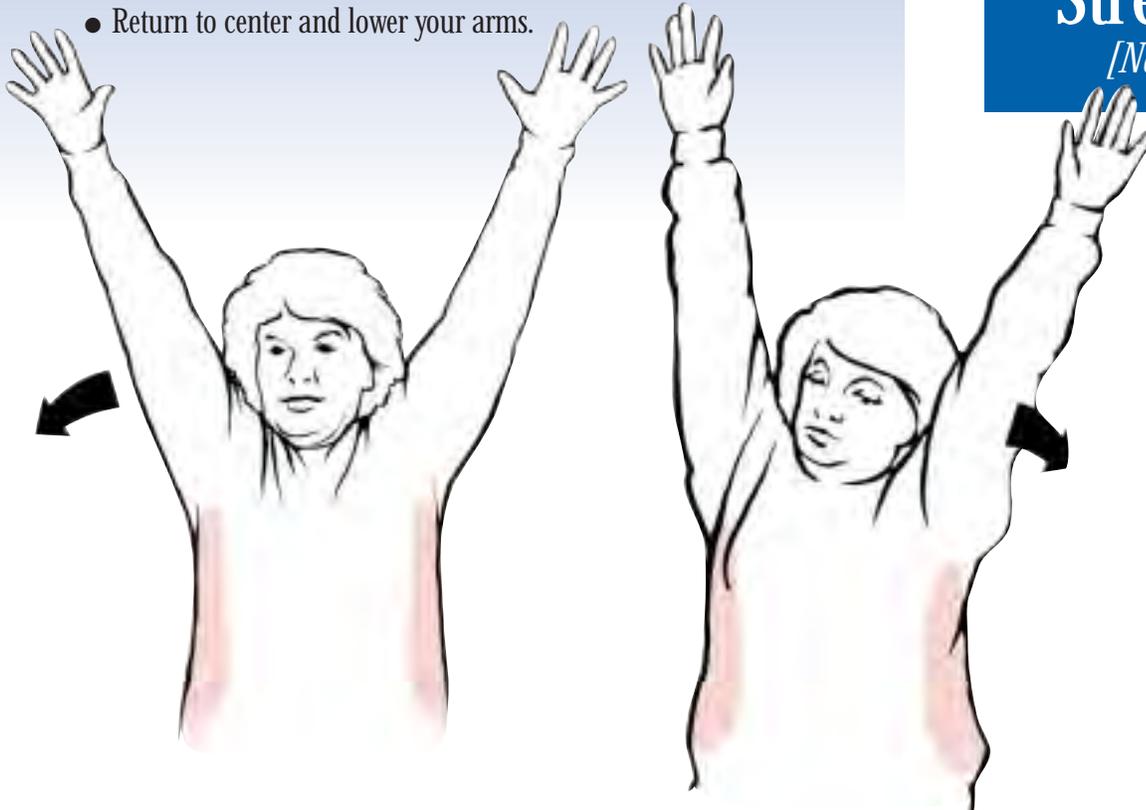
- Stand or sit up straight.
- Put your hands on your shoulders with your elbows out to the side.
- Make circles with your elbows. First forward, then back.
- Stop circling and touch your elbows together in front of your chest.
- Open your elbows out again and squeeze your shoulder blades together. Feel the stretch across your chest. Repeat.



- Stand or sit up straight.
- Reach your arms over your head and stretch up toward the ceiling.
- Reach over your head and lean to your right side. Feel the stretch.
- Come back up straight and reach over your head and lean left. Repeat.
 - Return to center and lower your arms.

5 Side Stretch

[Neck]



- Sit up straight.
- Bend over, grab your left knee with both hands, and pull it toward your chest.
- Tip your chin to your chest and try to touch your forehead to your knee.
- Go as far as you comfortably can. Hold.
- Lower your left knee and repeat the exercise with your right knee.

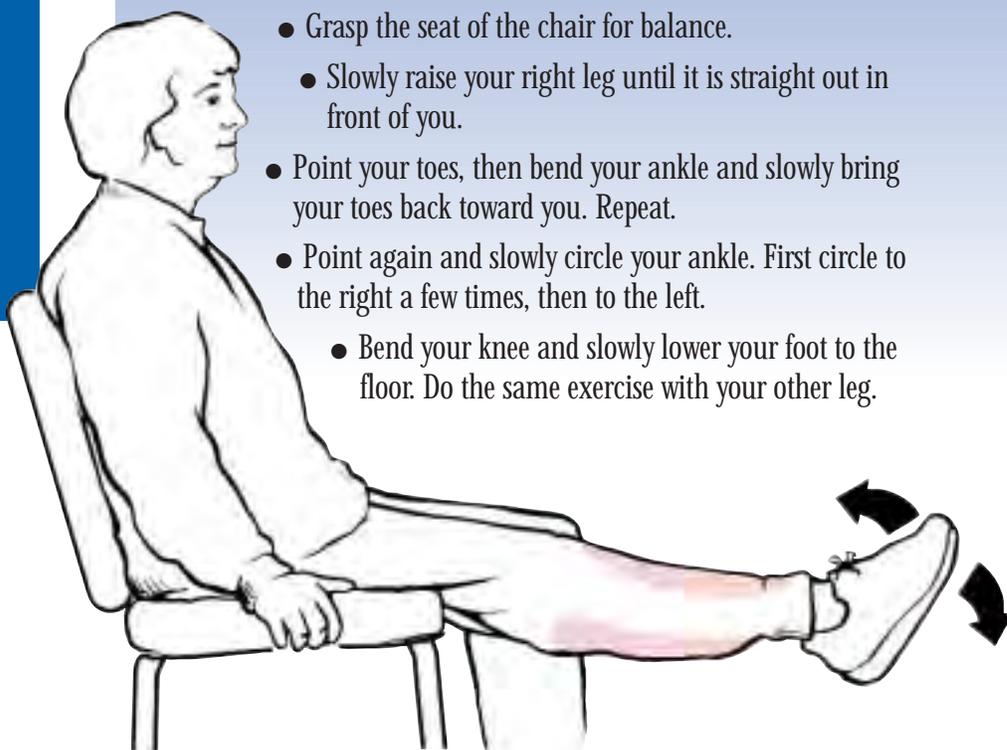
6 Single Knee Pull

*[Lower back,
back of thigh]*



7 Leg Stretch

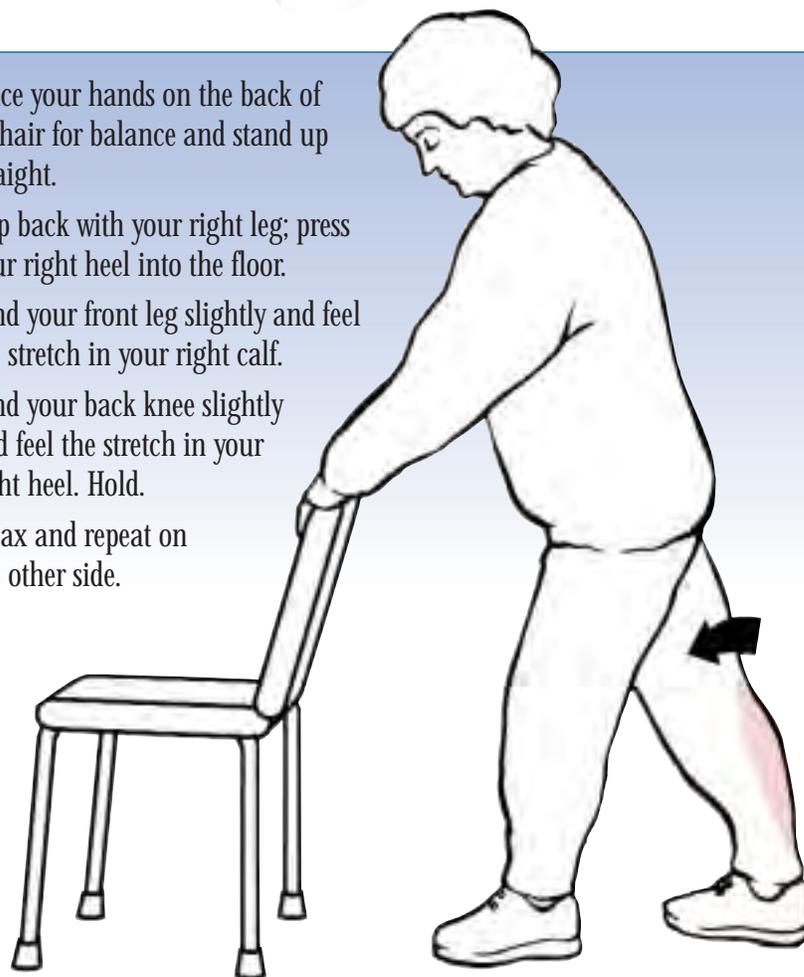
[Legs (front and back), ankle]



- Sit up straight with your feet on the floor.
- Grasp the seat of the chair for balance.
- Slowly raise your right leg until it is straight out in front of you.
- Point your toes, then bend your ankle and slowly bring your toes back toward you. Repeat.
- Point again and slowly circle your ankle. First circle to the right a few times, then to the left.
- Bend your knee and slowly lower your foot to the floor. Do the same exercise with your other leg.

8 Calf Stretch

[Lower Leg]

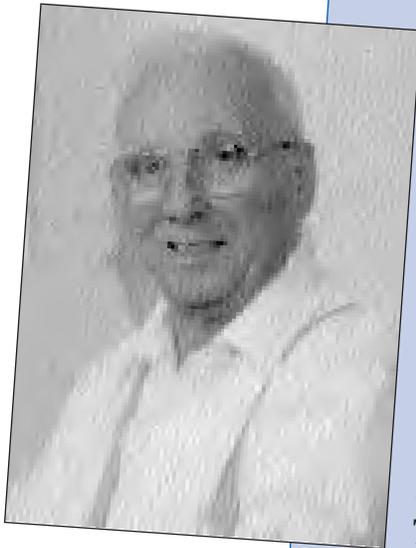


- Place your hands on the back of a chair for balance and stand up straight.
- Step back with your right leg; press your right heel into the floor.
- Bend your front leg slightly and feel the stretch in your right calf.
- Bend your back knee slightly and feel the stretch in your right heel. Hold.
- Relax and repeat on the other side.

Other activities can help you maintain and improve flexibility. Try adding one or more of these activities to your stretching program.

- Water exercises
- Archery
- T'ai Chi
- Yoga
- Horseback riding
- Dancing
- Bowling
- Gardening
- Golf

Simone



In 1994, Simone Vitale spent Thanksgiving in a wheelchair. Just six weeks later, with the assistance of a walker, the 71-year-old dialysis patient was up and around again.

"I shocked everybody," says Simone, who credits exercise for helping him get back on his feet.

For Simone, exercise began as physical therapy after he was hospitalized for severe dehydration. Now, he begins each day with exercise.

Simone's daily routine includes 5 to 10 minutes on an exercise bike and 5 to 10 minutes on a treadmill. In good weather, he walks outside. In addition, he does arm exercises using Thera-Bands® or two and a half pound wrist weights that he hooks on a cane.

"Exercise is very essential to your physical being," says Simone. "It helps prevent cramps, keeps all your joints loose, and keeps your heart pumping like it should."

Simone says exercise has also allowed him to start traveling again—something that he had to stop doing when he wasn't feeling well. In fact, he and his wife are already planning a series of three- to four-day trips around Wisconsin, their home state.

What does Simone's wife have to say about his progress? "It's just good to have him back to normal."

DEVELOPING MUSCLE STRENGTH

Strength training builds muscles by making them work against resistance. You can use weights, elastic bands, or your own body for resistance. Done properly, this type of exercise is safe and effective for people on dialysis.

Simple Rules

Start slowly. Your own body weight will probably provide enough resistance at first. Using too much resistance can cause muscle soreness, joint problems, or injuries.

Progress gradually. Add weight and repetitions very gradually. Slow, careful progress will help you gain strength without injury.

Stretch first. Always warm up your muscles with stretching or light activity. Take frequent breaks to stretch and keep your muscles relaxed.

Be precise. It is important to do your strengthening exercises correctly. Bad form will put extra stress on your joints and won't work your muscles efficiently.

Breathe. DO NOT HOLD YOUR BREATH. Exhale as you lift or exert effort and inhale as you lower or relax. This helps to prevent excessive elevations in blood pressure.

Stay in control. Always perform your exercises in a controlled manner. Lift and lower weights slowly. Quick, uncontrolled movements create uneven resistance and can be harmful to joints.

Be safe. If a joint or muscle hurts at any time, stop. You may be using too much resistance or doing the exercise incorrectly. Try again with less resistance. If you still feel pain, ask for help.

If you have high blood pressure or your blood tests show that your calcium and phosphorus are too high, check with your doctor before you try these exercises.

Strengthening Exercises

The exercises in this section make up a beginning strengthening routine. Exercises 1 through 9 are basic exercises. Exercises 10 through 14 are intermediate.

The illustrations give step-by-step instructions and show you which muscles are working (blue area). Almost all these strengthening exercises can be done either with or without weights. **Do not use weights at first.**

Here's how to build your strengthening routine.

- Start with exercise number one and repeat it as many times as you can (up to ten times). Then, move on to exercise number two.
- Do ten repetitions (**reps**) of each basic exercise (Exercises 1 to 9). This is one **set**.
- Gradually increase the number of reps from 10 to 15. Then, increase the number of sets from one to two.
- When you can comfortably do three sets of the basic exercises (with 15 reps of each), add the intermediate exercises (exercises 10 to 14).
- When you can comfortably do three complete sets (15 reps each) of all the exercises (exercises 1 to 14), you are ready to add weights.

Adding Weights

Use very light weights (about 1- or 2-lb) at first. You can purchase weights or make your own using household items. For upper body/arm weights, use soup cans, or put sand or water into plastic laundry or juice containers that have handles. For ankle weights, put a one-pound bag of rice or beans into an old sock and tie it around your ankle or strap it on with Velcro® or a bungee cord.

When you can comfortably complete three sets with 1-lb weights, you can gradually begin to increase the weight, one or two pounds at a time. (See Sample Strength Training chart.)

Sample Strength Training

Week #	Strength Exercises	# of Reps	# of Sets	Weight
1	#1-#9	10	1	–
2	#1-#9	12	1	–
3	#1-#9	15	1-2	–
4	#1-#9	15	2	–
5	#1-#9	15	2-3	–
6	#1-#9	15	3	–
7	#1-#9	15	3	–
8	#1-#14	10	3	–
9	#1-#14	12	3	–
10	#1-#14	15	3	–
11	#1-#14	10	3	1 lb
12	#1-#14	12	3	1 lb
13	#1-#14	15	3	1 lb
14	#1-#14	10	3	2 lb
15	#1-#14	12	3	2 lb
16	#1-#14	15	3	2 lb

1

Arm Curl

[Upper arm (front)]



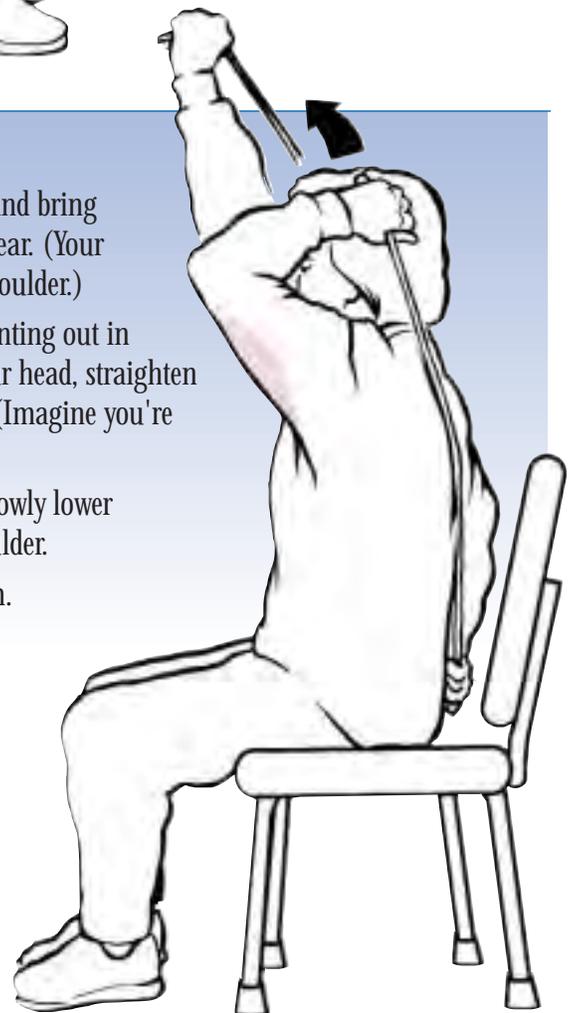
- Stand or sit up straight in a chair.
- Keep your elbows close to your sides and bend your arms at the elbows.
- Turn your palms up and make a fist with each hand.
- Slowly lift one fist (with or without weight) up to your shoulder and lower. Alternate arms.

2

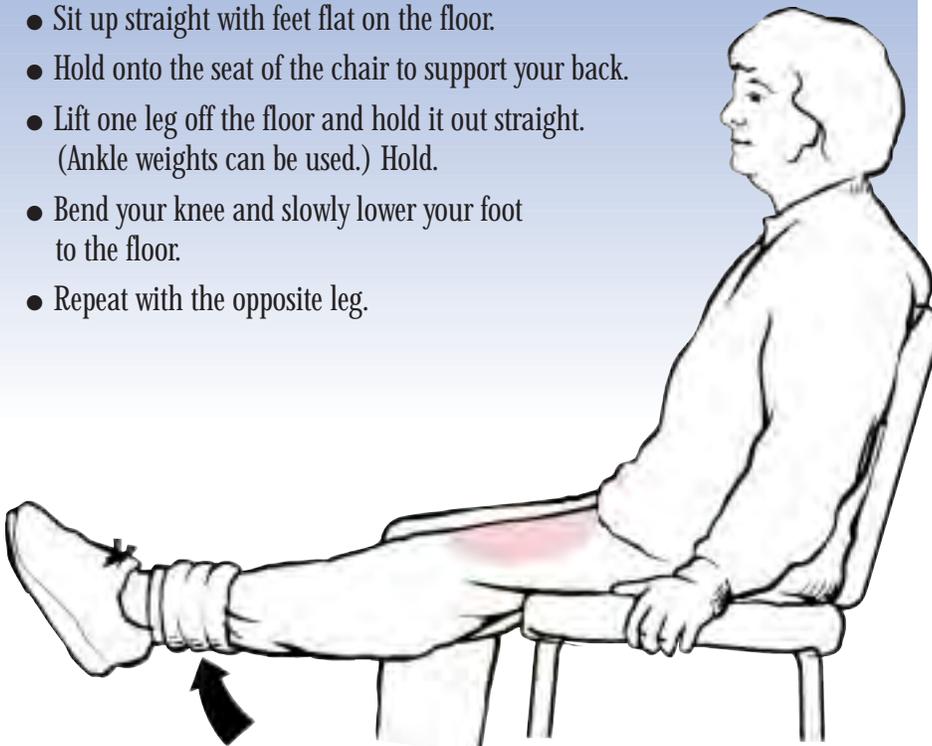
Arm Extension

[Upper arm (back)]

- Stand or sit up straight.
- Bend one arm at the elbow and bring your elbow up close to your ear. (Your hand will go behind your shoulder.)
- Keeping your bent elbow pointing out in front of you and close to your head, straighten your arm above your head. (Imagine you're throwing a baseball.)
- Bend the elbow again and slowly lower your hand behind your shoulder.
- Repeat with the opposite arm.
- Use a stretch band or small weight to add resistance.



- Sit up straight with feet flat on the floor.
- Hold onto the seat of the chair to support your back.
- Lift one leg off the floor and hold it out straight. (Ankle weights can be used.) Hold.
- Bend your knee and slowly lower your foot to the floor.
- Repeat with the opposite leg.



3 Lower Leg Extension *[Thigh]*

- Lean back in a chair with legs raised on a footrest.
- Grasp the arms of the chair or the sides of the seat for balance.
- Slowly lift your whole leg -- without bending the knee. (Ankle weights can be used.) Count to five.
- Slowly lower. Repeat with the opposite leg.



4 Straight Leg Extension *[Thigh]*

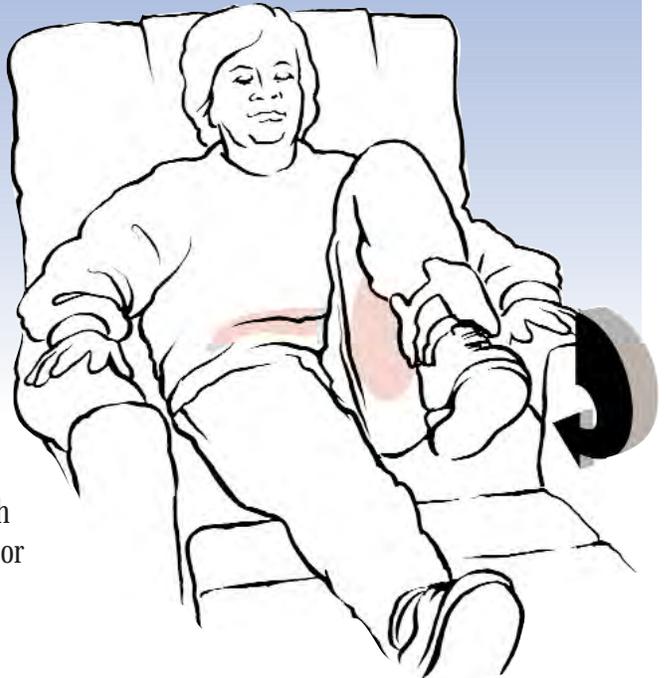
Not shown in video.

5 Seated Marching

[Thigh (front and back), abdomen]

Not shown in video.

- Lean back in a chair with legs raised on a foot rest.
- Place your hands on the seat or arms of the chair for balance.
- Bend your legs at the knee, one at a time, and slowly bring them toward your chest as though you were marching or bicycling in the air.



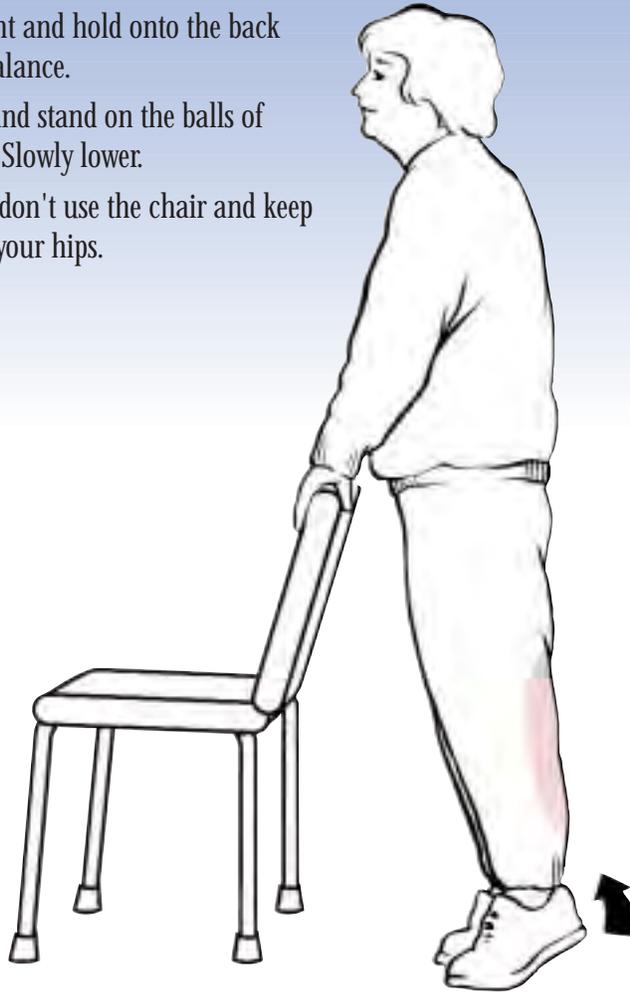
6 Back Leg Swing

[Upper leg (back)]

- Stand up straight and hold onto the back of a chair for balance. Do not lean forward.
- Keeping your back straight, lift one leg back and point the toe. (Ankle weights can be used.)
- As you lift, remember to keep your back straight – don't arch it! Hold. Slowly lower your leg. Repeat with the other leg.



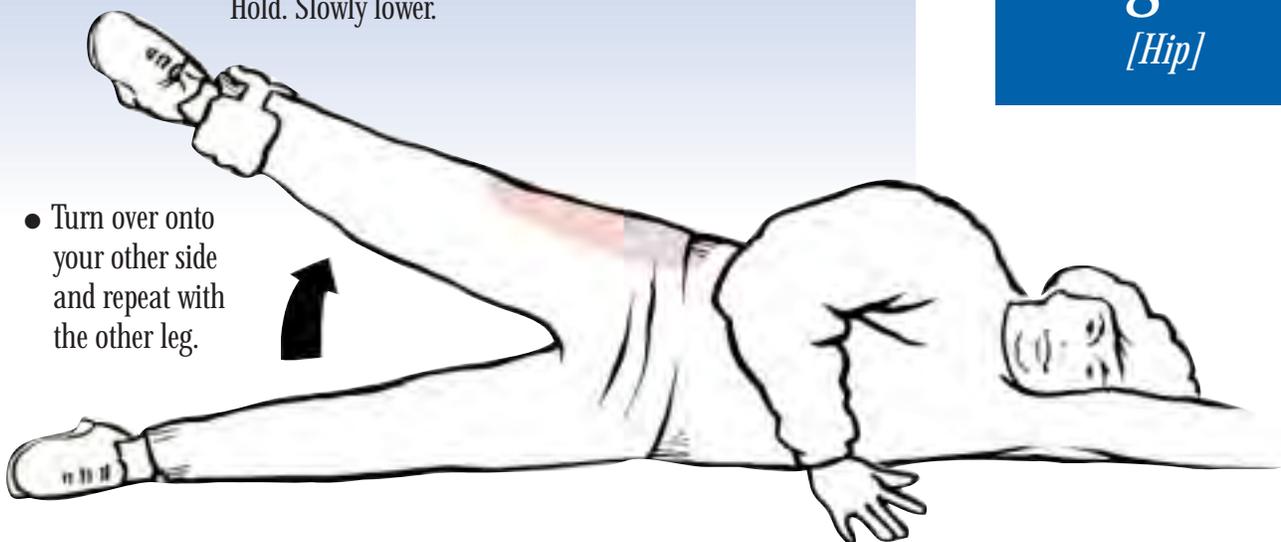
- Stand up straight and hold onto the back of a chair for balance.
- Lift your heels and stand on the balls of your feet. Hold. Slowly lower.
- If you are able, don't use the chair and keep your hands on your hips.



7 Heel Raise

[Lower leg (back)]

- Lie down on your side.
- Use the arm underneath you to support your head comfortably.
- Place your other arm in front of you for balance. Extend both legs.
 - Slowly lift your top leg. Lead with the side of your foot. Hold. Slowly lower.



8 Side Leg Lift

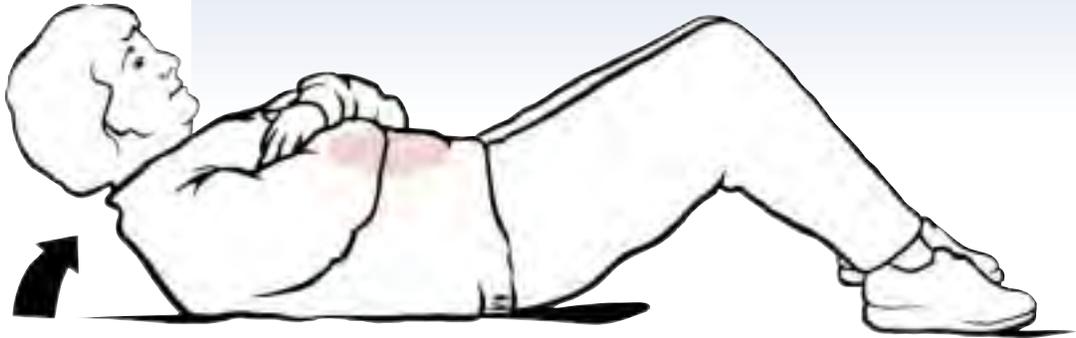
[Hip]

- Turn over onto your other side and repeat with the other leg.

9 Abdominal Curl

[Abdomen]

- Lie down on your back with your knees bent and your feet flat on the floor.
- Cross your hands on your chest and tuck your chin to your chest.
- Slowly roll your head and shoulders up until your shoulder blades are off the floor. Do not do a full sit-up. Hold.
- Slowly roll back down.



10 Wall Push-up

[Upper arms]

- Stand facing a wall.
- Put both palms on the wall about shoulder height.
- Lean forward, bending at the elbows, until your nose almost touches the wall.
- Push away from the wall with your arms until you are standing straight up. Repeat.

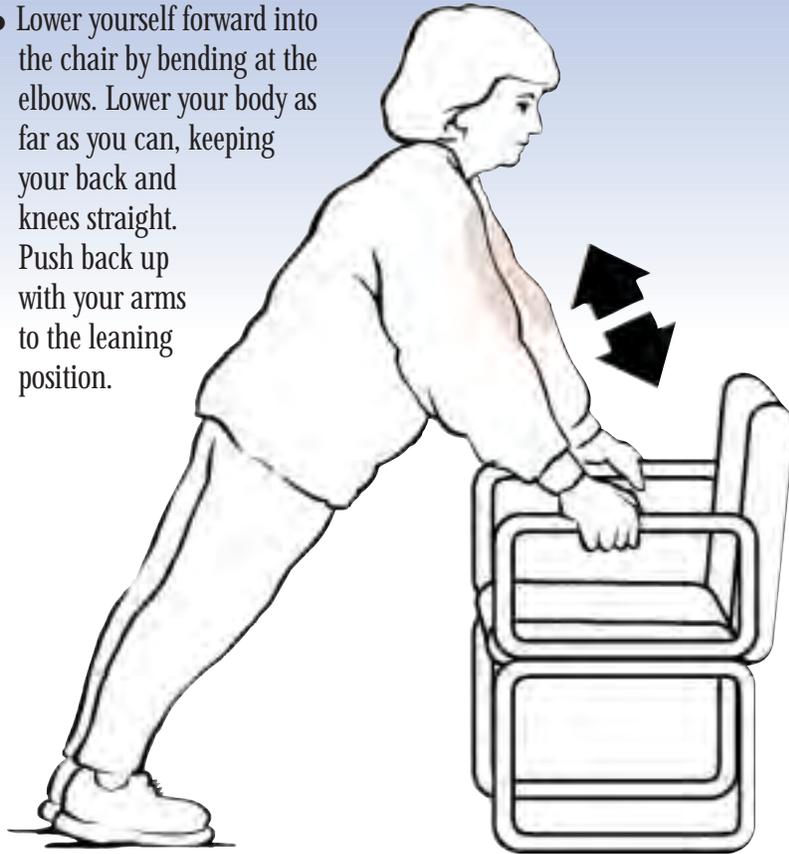


11 Chair Push-up

[Upper arms]

Not shown in video.

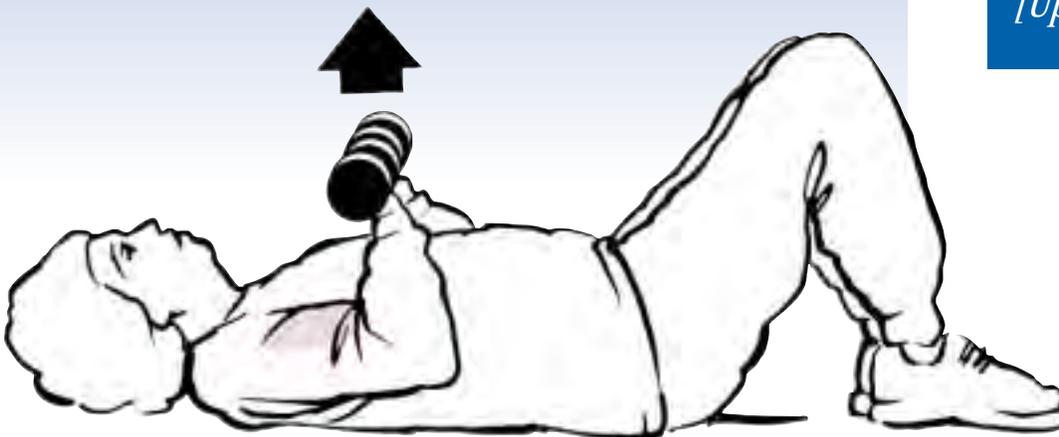
- Face a sturdy chair and lean forward to put both hands on the arms of the chair. (Make sure the chair will not move.)
- Lower yourself forward into the chair by bending at the elbows. Lower your body as far as you can, keeping your back and knees straight. Push back up with your arms to the leaning position.



- Lie on the floor on your back, with your knees bent and your feet flat on the floor.
- Bend your arms at the elbows and rest a weight in each palm.
- Straighten your arms and push the weights up to the ceiling. Hold for 3 to 5 seconds. Slowly lower.

12 Bench Press

[Upper arms, chest]



13 Stair Step

[Thigh]

Not shown in video.



- Stand up straight and face a small step.
- Balance with a railing or on a wall. If you are able, put both hands on your hips.
- Step up onto the step with your right foot and then your left.
- Next, step back down, first with your right foot, then you left. Alternate legs.

14 Chair Squat *[Thigh]*

- Stand in front of a sturdy chair and reach back to put both hands on the arms for balance. (Make sure the chair will not move.)
- With your feet comfortably apart, bend your knees as if you were going to sit down, but don't.
- Hold a position just above the seat of the chair. Push back up to a standing position. Repeat.



Resistance Machines

If you choose to work with weight machines, have an exercise trainer or teacher explain the proper use of each machine before you start. Begin at the very lowest setting. Do 10 to 15 repetitions on each machine (a set), then repeat the set twice (for a total of three sets). When you can do three sets comfortably, increase the weight to the next setting and gradually work up to three sets.

If a joint or muscle hurts at any time, you may be doing the exercise incorrectly, or your muscles may not have adapted to the increased weight. Reduce the weight and try again. If you still feel pain, stop and ask for help from a physical therapist or trained exercise specialist.

DEVELOPING ENDURANCE

The following guidelines are for people with end-stage renal disease who are otherwise healthy (in other words, who do not have heart problems).

Choosing an Exercise

The first step in getting started with cardiovascular exercise is choosing the activity(ies) that will be best for you. Choose something you will enjoy! It will be easier to stick with your program. Choose something convenient. You can exercise on your own or with others. You can exercise at home, at a health club, or at a community center (like the YMCA).

The exercises in List A are the most efficient cardiovascular exercises.

The activities in List B can also help you work on cardiovascular conditioning. They will be less helpful in improving endurance, since they usually involve lots of starting and stopping, but they can be fun! It may be best to get in shape with list A activities so you can safely and enjoyably do list B activities.

List A:

- Walking (*outside or on a treadmill*)
- Bicycling (*stationary or outside*)
- Stair stepping
- Aerobics
- Swimming
- Jogging
- Water exercise

List B:

- Basketball
- Dancing
- Racquetball
- Soccer
- Softball
- Squash
- Skating
- Table tennis
- Tennis
- Volleyball

Planning Your Cardiovascular Exercise Program

Each cardiovascular exercise session should consist of a warm-up period, a conditioning period, and a cool-down period. Use the Work Effort Scale on page 13 to rate how hard you are working and to help you decide when you are at the conditioning level. Do not use heart rate guidelines from other fitness programs. These heart rate measures may not be accurate for people on dialysis.

Warm-up

Slowly start the cardiovascular exercise activity you will be doing for conditioning. For example, if you will be walking, stroll or walk slowly; if you will be using a stationary bike, pedal slowly with no resistance. This slow warm-up increases blood flow to the muscles, increases their temperature, and gets them ready to work harder. Include some easy stretches to loosen up and help prevent injuries like pulled muscles.

Conditioning

This is the exercise time that actually improves your endurance and cardiovascular fitness. You should be working at your "somewhat hard" to "hard" effort level during conditioning time. For instance, if you are walking, increase your pace, swing your arms, and walk briskly. When using a stationary bike, increase the resistance on your pedals and keep speed constant.

How long you spend on conditioning time will depend on you. Work for as long as you can at the "somewhat hard" to "hard" level. Keep track of how long you can keep going, then try to build up gradually--adding a minute or two at each session--until you can exercise for 30 minutes without stopping.

Whenever you begin to feel that the work is "very hard" or "very, very hard," slow down. You will get too tired to exercise for as long as you should.

Cool-down

Each session should end with a cool-down of about 5 to 10 minutes. To cool down, continue your conditioning activity at a slower pace, then finish with stretching. During cool-down you should work at your "light" or "very light" effort level. For example, if you have been walking, slow down; if you have been riding a stationary bike, pedal slower and reduce the resistance.

Cool-down lets your heart and circulation safely and gradually return to resting levels. Never stop vigorous exercise suddenly. If you do, the blood that was concentrated in your working muscles could pool there and you might get dizzy or lightheaded.

Cardiovascular Exercise Session

	How Long	How Hard
Warm-up	5 to 10 minutes	Very Light or Light
Conditioning	5 to 30 minutes <i>Slow down if exercise feels "Very Hard" or "Very, Very Hard." At this level you will get tired too quickly.</i>	Somewhat Hard or Hard
Cool-down	5 to 10 minutes	Very Light or Light

Sample Cardiovascular Exercise Programs

Walking and riding stationary exercise bicycles are two of the most common cardiovascular exercise activities. If you choose one of these, try the sample programs included here. Remember, everyone is different. Go at your own pace and always progress gradually.

Walking

Start with the weekly pattern that is comfortable for YOU, then progress from week to week. If you feel good and want to move ahead more quickly, skip a pattern and go for it!

Biking

Adjust the seat so your knees will be slightly bent when your feet are closest to the floor. When you pedal, try to maintain a constant speed. Choose a speed that is comfortable for you. Try 50 to 60 revolutions per minute (RPMs), which is about 12 to 15 miles per hour or 25 to 30 kilometers per hour. If you want to change your work effort, change the tension on the pedals.

Sample Cardiovascular Program

If you are not ready to move from one weekly pattern to the next, repeat the same pattern until you feel ready.

Week #	Times/Day <i>(Do 5 days/wk)</i>	Warm-up <i>(Very Light)</i>	Conditioning <i>(Somewhat Hard)</i>	Cool-down <i>(Very Light)</i>
1	once a day	2 min	5 min	2 min
2	twice a day	2 min	7 min	2 min
3	twice a day	2 min	9 min	2 min
4	twice a day	3 min	11 min	3 min
5	twice a day	3 min	13 min	3 min
6	twice a day	3 min	15 min	3 min
7	twice a day	5 min	18 min	5 min
8	once a day	5 min	20 min	5 min
9	once a day	5 min	24 min	5 min
10	once a day	5 min	28 min	5 min
11	once a day	5 min	30 min	5 min

Melvin



"Dialysis does not mean stop living," says Melvin Bradford. "It means find a new way to live. It means develop skills that are going to help you to live longer." Exercise is one of those skills.

Melvin, a 46-year-old kidney patient, was diagnosed with polycystic kidney disease 17 years ago and has been on hemodialysis ever since. Still, he is a minister at his church and he also works part time. He says exercise plays a major role in helping him maintain this active lifestyle.

"I find the time to exercise every day," he says. "I do it at work; I do it at home; I do it at church. I make sure that everything I do incorporates some type of exercise movement."

For Melvin, exercise can be as simple as walking in the park with his wife, playing with his grandchildren, or cutting the grass. Still, he has discovered many benefits. Among them, he notes having more energy, less cramping, and a more stable blood pressure.

Ultimately, Melvin has one simple reason for exercising. "I don't like feeling lousy," he explains. "I like feeling good, and so I try to keep active."

MAKING EXERCISE PART OF YOUR LIFE

There are many ways to fit exercise into your daily routine. You can take the stairs instead of the escalators or you can park at the far side of the parking lot and walk. Here are some other ideas to get you started.

Find an exercise program

There are exercise classes, programs, and organized activities of all kinds to help people stay fit. Your dialysis unit may have a list of programs in your area. If not, make your own list by making a few phone calls.

You may be able to find programs through:

- Public schools
- Community recreation programs
- City or county parks departments
- YMCA or YWCA
- Jewish community centers
- Senior centers
- Community pools
- Arthritis Foundation
- T'ai Chi centers
- Neighborhood recreation centers or community centers

Check the Yellow Pages under:

- Exercise
- Health Clubs
- Fitness
- Swimming
- Martial Arts
- Recreation
- Yoga Instruction

Ask about discounts for senior citizens or the disabled. YMCAs, community recreation programs, and other nonprofit programs often have fees based on income. In some areas, you can get a free membership to the YMCA by volunteering.

Choosing a fitness center

If you decide to join a fitness center or health club, here are some things to look for. (List adapted from the ACSM Fitness Book; see listing on page 43.)

- New member orientation
- Fitness assessment for new members
- Staff members certified in CPR and fitness instruction
- Exercise areas monitored by staff
- Posted safety rules

- Posted emergency procedures
- Variety of equipment in good working order
- Easy access to drinking water in exercise areas
- Class schedule that fits your needs
- Free membership or work-out trials
- Friendly staff
- Compatibility with other members
- Cleanliness, lighting, ventilation

Joining an aerobics class

If you decide to enroll in an aerobics class, here are some ways you can get the most out of it – without getting discouraged.

- **Start slowly and progress gradually.** Don't try to do the whole class at first. Try the warm-up, a short conditioning period, and then cool down on your own.
- **Do intervals.** Take a break if you get tired, but don't just stop. Walk around the room or march in place until you feel comfortable. Then join in class activities again.
- **Don't use your arms.** Using arms and legs at the same time increases intensity. Use only your legs to start, then add small arm movements. If you get tired, keep moving your legs, but let your arms rest.
- **Don't jump.** Stay with low-impact movements to reduce the strain on joints and to lower exercise intensity.
- **Try it half-time.** Use slow motions to get started or to take a break when you're tired. Switch back and forth between half-speed and full speed exercising until you can do the whole class at full-speed.
- **Talk with the instructor.** Let him or her know your needs. If you plan to do part of the class or take breaks to reduce your exercise effort, explain why. Most instructors will be happy to accommodate you and will probably offer helpful suggestions.

Exercise On Your Own

Many people exercise effectively on their own--with and without fancy exercise equipment.

Buying equipment

If you do choose to buy exercise equipment for your home, compare several different models. Here are some things to look for. (Adapted from the ACSM Fitness Book.)

- **Comfort.** Can you adjust the equipment to fit you? Do you feel comfortable and secure? Do you feel well-balanced and well-supported?
- **Features.** Does it have all the gauges you want? (for time, distance, speed, calories used) Can you operate them easily? Are they easy to read?
- **Size.** Will it fit in the space you have? Can you move it easily?
- **Ease of use.** Can you get on and off easily? Can you adjust the resistance quickly and easily?
- **Quality.** Does it work smoothly and quietly? Be sure it works smoothly at all levels and speeds.
- **Service.** Will the store put it together? Are parts easy to get? Does it come with a warranty?
- **Price.** What is included in the selling price? Assembly, shipping/delivery, adjustments? You may want to consider used equipment. Check newspaper classified ads.

Home exercise programs

If you want to use an exercise video as part of your at-home program, choose carefully. Preview before you buy; the local library or video store will probably have a good selection. Here are some things to look for. (Adapted from the ACSM Fitness Book.)

- Is the author a fitness expert?
- Does the program include a warm-up and cool-down?
- Are there warnings about when to stop or slow down?
- Does the program include a variety of exercises?
- Is the program free from claims about quick results?
- Is the program free from advertising for special products or food supplements?
- Can you do the work-out regularly?
- Is the price affordable?

Sticking with Your Exercise Program

Getting started with exercise is sometimes easier than staying with it – but you must stay with it to get the benefits. Here are some ideas that may make it easier to keep moving!

- **Think positive.** Think about all the good things exercise can do for you. Remind yourself often. Look around you for examples of other people who look and feel better thanks to exercise. Talk to them about it. Exercise can make you feel better, too!
- **Put it in writing.** Write down exactly when, where, and how you plan to exercise. Schedule exercise time and mark it on your calendar--just like your other appointments.
- **Keep track of your progress.** Make notes about how you feel and what you did at each exercise session. If you keep a log, it will make you proud of your accomplishments.
- **Join a class.** The people and change of scene can make exercise more fun! And the regular class schedule will help you keep exercise on your calendar.
- **Start slowly.** Nothing ruins an exercise plan like an injury. Start slowly. You'll enjoy it more and won't get discouraged by trying to do too much too fast. Remember, it's the long run that counts.
- **Make it fun.** Do something you like. Exercise with a friend or family member. Listen to music to make the time pass quickly.
- **Make it convenient.** You know your good times, your habits, your weaknesses. Build them all into a plan that makes it convenient for you to get your exercise sessions done.
- **Mix it up.** Variety can spice up your exercise program and keep you motivated. Change your routine every once in awhile to keep it interesting.
- **Just keep at it.** Once you make exercise part of your life, you won't want to live without it. You won't want to miss a day...and the rest will be easy going!

HOW TO MAKE AN EXERCISE PLAN

Interest Assessment and Exercise Program Planning Guide*

1. What types of physical activities are enjoyable to you?

(Consider fun, convenience, affordability, supplies, equipment, facilities, year-round participation) **Check two choices in your fitness level.**

Beginning

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Walking | <input type="checkbox"/> Gardening | <input type="checkbox"/> Bicycling |
| <input type="checkbox"/> Water exercise | <input type="checkbox"/> Stair climbing | <input type="checkbox"/> Stretching |

Moderate

- | | | | | |
|----------------------------------|-----------------------------------|-----------------------------------|---------------------------------------|--|
| <input type="checkbox"/> Yoga | <input type="checkbox"/> T'ai Chi | <input type="checkbox"/> Swimming | <input type="checkbox"/> Archery | <input type="checkbox"/> Badminton |
| <input type="checkbox"/> Bowling | <input type="checkbox"/> Dancing | <input type="checkbox"/> Golf | <input type="checkbox"/> Table tennis | <input type="checkbox"/> Aerobics
<i>(low impact, step)</i> |

Advanced

- | | | | |
|---------------------------------------|--------------------------------------|---|-----------------------------------|
| <input type="checkbox"/> Basketball | <input type="checkbox"/> Canoeing | <input type="checkbox"/> Cross-country skiing | <input type="checkbox"/> Jogging |
| <input type="checkbox"/> Race walking | <input type="checkbox"/> Racquetball | <input type="checkbox"/> Skating | <input type="checkbox"/> Softball |
| <input type="checkbox"/> Tennis | <input type="checkbox"/> Sailing | <input type="checkbox"/> Soccer | <input type="checkbox"/> Squash |
| <input type="checkbox"/> Skiing | <input type="checkbox"/> Volleyball | <input type="checkbox"/> Weight training | <input type="checkbox"/> Rowing |

2. Where do you think you will do these activities? _____

3. When is the best time for you to do these activities three to five times per week?

Days _____ Times _____

4. How long do you think you can do this activity now?

Starting time _____ Goal _____

5. What are your short- and long-term fitness goals?

Short-term goals: In the next _____ weeks, I will try to _____

For example

- Do my activity three times each week for 20 minutes each time
- Increase my walking by two blocks
- Increase my weight lifting by two pounds
- Try one new activity I always wanted to do

Long-term goals: In the next _____ weeks/months, I want to be able to _____

For example

- | | |
|-----------------------------------|---------------------------------------|
| ● Walk two miles without stopping | ● Bicycle 45 minutes without stopping |
| ● Do two sets of lifting weights | ● Play in a badminton league |
| ● Swim 10 laps | ● Dance for one hour |
| ● Play in softball tournament | |

*Adapted from *Project PACE Physician Manual: Physician-based Assessment and Counseling for Exercise*, copyright Centers for Disease Control, Atlanta, Georgia, 1992, and used with permission.

6. When will you rethink your exercise plan?

In _____ weeks (date _____)

7. Here are some of the reasons people give for not being physically active. Check the ones that apply to you.

- Exercise is hard work.
- I do not have anyone to exercise with me.
- There is no convenient place.
- I do not enjoy exercise.
- I do not have a safe place to exercise.
- I do not have the time.
- I am usually too tired.
- The weather is too bad.
- I am too overweight.
- I am afraid of being hurt.
- Exercise is boring.
- I am too old.

What are the two reasons that could prevent you from exercising?

8. How do you think you could avoid these barriers?

Exercise is hard work.	Pick an activity you enjoy and that is easy for you.
I do not have anyone to exercise with me	Have you asked? Try neighbors, co-workers, family members, and other patients. Or try something you to do alone.
There is no convenient place.	Pick an activity you can do near home or work. How about an exercise video?
I do not enjoy exercise.	Don't "exercise." Start a hobby or way to get active.
I do not have a safe place.	Try walking at a mall or with a group.
I don not have the time.	Thirty minutes, three times a week. Can you miss three TV shows? Or, exercise as you watch TV? Work out during dialysis? Get up a little earlier on exercise days?
I am usually too tired.	Tell yourself, "Exercise will give me energy." Give it time to work.
The weather is too bad.	There are many activities you can do inside.
I am too overweight.	You can benefit from physical activity regardless of your weight. Pick an activity that you are comfortable with, like walking.
I am afraid of being hurt.	Walking is very safe and is an excellent way to improve your health.
Exercise is boring.	Try listening to music or watching TV as you use an exercise bike. Enjoy the scenery. Use a club where you enjoy the people.
I am too old	It is never too late to start

9. Who will help you to start and stay with your exercise program?

10. How can these people best help you?

For example

- Exercise with me
- Drive me to my exercise program or to the mall so I can walk
- Check my progress each week
- Ask me about my exercise session each day

CONTRACT:

I, _____ will exercise _____ days/week on _____ (*list days*) at _____ (*list time*). I will do _____ (*list activity*) at _____ (*location*), starting with _____ minutes and adding _____ (*# of minutes*) to a goal of _____ minutes over the next _____ (*# of weeks/months*). I will log my activity on my log sheet each time I participate. I have asked _____, and _____ (*support persons*) to help me with my program by _____ (*list tasks*).

SIGNED _____ **DATE** _____

STAFF PERSON'S SIGNATURE _____

WHERE TO GO FOR MORE INFORMATION

Life Options Rehabilitation Resource Center

Medical Education Institute, Inc.
414 D'Onofrio Drive, Suite 200
Madison, WI 53719-2803
(800)468-7777

Fitness After Kidney Failure

National Kidney Foundation, Inc.
30 E 33rd St
New York, NY 10016
Brochure #05-02CP
(800)622-9010

An Exercise Program for the Person with Chronic Renal Disease

NKF of Eastern Missouri & Metro East, Inc.
3117 South Big Bend Blvd.
St. Louis, MO 63143
(314)647-9585

Easy Going Aerobics

NKF of Northern California
553 Pilgrim Dr, Suite C
Foster City, CA 94404
(415)349-5111

Presidential Sports Award

PO Box 68207
Indianapolis, IN 46268-0207
(317)872-2900, ext 48 or 50

Stadtlander's Stars for Life Fitness Video

For transplant patients
Stadtlander's Drug Co., Inc.
600 Penn Center Blvd
Pittsburgh, PA 15235
(412)824-2487, ext 53630

Simplecize exercise video

Northwest Kidney Centers
700 Broadway
Seattle, WA 98122
(206)292-2771

Pep Up Your Life

American Association of Retired Persons (AARP)
601 East St, NW
Washington, DC 20049
(800)424-3410

ACSM (American College of Sports Medicine) Fitness Book

Available for a small fee through
Human Kinetics Publishers
PO Box 5076
Champaign, IL 61825-5076
(800)747-4457

ACSM Health/Fitness Facilities Consumer Selection Guide

Send a self-addressed, stamped business-size envelope to American College of Sports Medicine (ACSM)
Public Information Department
PO Box 1440
Indianapolis, IN 46206-1440
(317)637-9200

Exercise Lite Brochure

Send a self-addressed, stamped business-size envelope to American College of Sports Medicine (ACSM)
Public Information Department
PO Box 1440
Indianapolis, IN 46206-1440
(317)637-9200

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