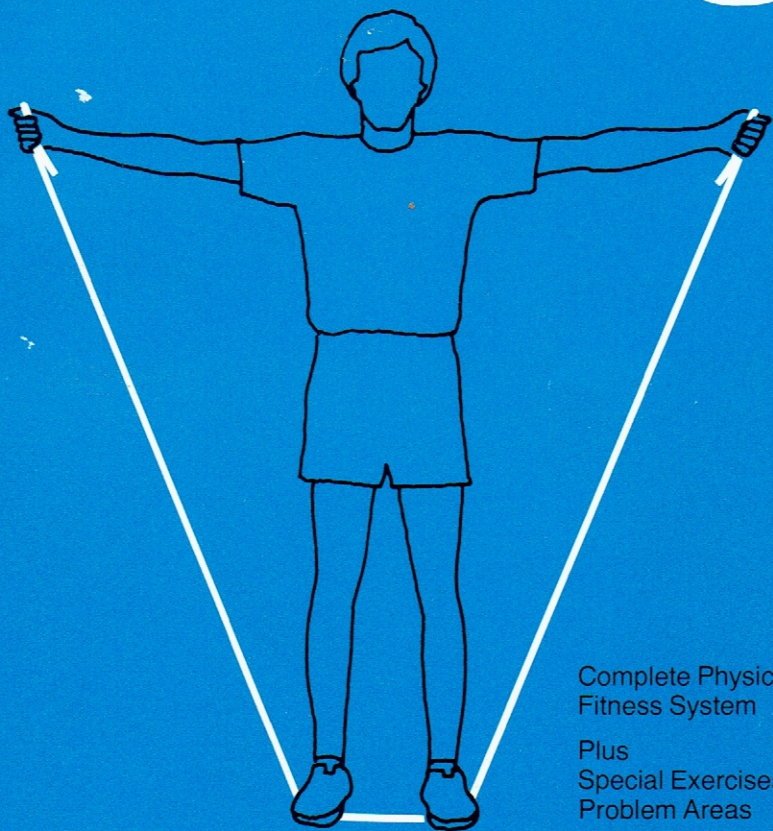


DAVID WILLIS

Maxi-FitnessSM Program

Tubing



Complete Physical
Fitness System

Plus
Special Exercises for
Problem Areas



CHART[®]

Comprehensive Health and
Active Rehabilitation Training

Complete Physical Fitness System

Plus Special Exercises
for Problem Areas

Tubing

Maxi-FitnessSM Program

Rowlin L. Lichter, M.D.

Medical Director

CHART
Comprehensive Health and
Active Rehabilitation Training

First edition by A. John Monge, M.H.Ed., and
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Tubing

Second Edition



CHART[®]

Comprehensive Health and
Active Rehabilitation Training

Preface to the Second Edition

The second edition of *Tubing for Maxi-Fitness* has been extensively revised and contains improved instructions for exercises we've used in the past. We've tried to make the illustrations easier to follow and we've added some new exercises.

Since the first edition, the value of exercise has not only remained the same in the clinicians' eyes, but has grown by great leaps and bounds. The benefits of exercise are unquestioned!

No preface would be complete without the many thanks that are due to the people who assisted in the development of this publication. The entire CHART Hawaii staff has given input—either in developing, testing, or criticizing the exercises, or has aided in editing, typing, proof-reading and/or encouraging the development of the book.

Some of the people who have been outstandingly helpful in producing this book, which bears my name as author and medical director, are Lynnette Masuda, RPT, Terri Ann Nishiguchi, and Scott Johnson. To all of them for CHART and for myself, I offer my grateful thanks and acknowledgement of their help; and, since this is a Hawaiian production, my Aloha.

Rowlin L. Lichter, M.D.
Honolulu, Hawaii

Preface to the First Edition

It all began a few years back when one of our CHART patients said, "I sure wish I could take these exercise machines home with me. I don't know how I am going to keep up my beautiful feeling of health without them." If we'd heard that once, we'd heard it a dozen times! And then we thought of Tubing.

This Tubing program was designed and tested by the experts at CHART where our major job is to get injured people well. CHART stands for Comprehensive Health and Active Rehabilitation Training. The CHART clinics are the most advanced orthopedic physical rehabilitation centers in the Pacific. So, we have a little head start on exercise methods for strengthening weakened areas. This book has a whole section on rehabilitation. Be sure to read it.

We first used these exercises to help injured people back to health. It was only natural that the exercises evolved into a regular fitness program. The patients were so pleased and Tubing became so popular that we had to write this book. Please enjoy it in good health.

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Chapter I

Introduction to Tubing

If you want to join a spa or health club but can't afford the time or money, Tubing is for you! Subtract the cost of this book and equipment from the price of the spa membership, and you'll have enough money left over to buy a television set or a whole stack of records and tapes to enjoy your exercise sessions! All in all, Tubing is a total gym in a bag, and it weighs less than a pound.

Tubing is an exercise form that has been around for quite a few years, but never as reliable and as simple and easy to do as you'll find out in the following pages. You don't have to stop for the rain, the heat or the cold. Any time of the day or night is just right for Tubing. The helpful exercises that follow don't require a partner and need no more equipment than the length of tubing you have with you. The only skill you need is to be able to follow instructions. Even the weakest of us can do a little Tubing.

Tubing is totally adaptable. Too weak to exercise? Lower the tension. Really macho? Pull the Tubing up tight! Exercise means work, and work is what we'll have you do with Tubing. Working with Tubing doesn't have to be boring. Want to watch T.V.? Want to listen to records? Want to talk with a friend? Want to Tube in the park? Do it!

Nobody can exercise for you. No amount of shaking, rubbing, vibrating, pulling, or kneading will burn a single one of your own calories. How does Tubing work? Tubing works because you work. Pulling on the Tubing makes you work. The harder you pull, the longer you pull, the more often you pull, or any combination of those, the more work you do. And the more work you do, the stronger you get.

It really doesn't matter whether you use barbells, springs, weights and pulleys, chinning bars, jump ropes, trampolines, roller devices, or any other method—work is work: and work with Tubing will make you stronger. Tubing will not only help you get stronger, but we'll also show you how to become more flexible the Tubing way. And, as you increase your time exercising with Tubing, your endurance increases.

Is it safe? It's safe! We worked very hard to make sure that the exercises you are about to perform are as safe as they possibly can be. They are truly the "state of the art."

Warning

I guess we should warn you that Tubing isn't for everybody, but then neither is any other form of exercise. As with any exercise program, check with your doctor to be sure that exercise won't hurt you.

There are some injuries that can be aggravated by exercise, if not permanently, at least temporarily.

Since there are many other conditions that may affect your health, *you should not start this program until you have received clearance from your doctor.*

Join us now in a growing army of "Tubers"—Tubing for health and exercise, Tubing to help heal injuries, Tubing to increase flexibility, endurance and strength, and, in general, Tubing for Maxi-Fitness. So unroll your eight-foot gymnasium-in-a-bag, find a comfortable spot, sit down, and read. Don't get too comfortable, though, because we want you to become a "Tuber."

Chapter II

The Heart of the Matter

Exercise will build your muscles. Of all the muscles in your body, the most important one is your heart. Yes, it is just another (but very special) muscle. Exercise your muscles and they get stronger. The heart is no different. Exercise your heart and it usually gets stronger.

Exercise your arm muscles and they may get only tired—no problem. Exercise your heart until it gets too tired—*some problem!* So, let's not do that!

Here's how to keep your heart from getting too tired. Each time the heart beats, it pumps your blood. That's the work it does. The faster the heart beats, the more work it does. If we keep the heart from beating too fast, we can keep its work load down and avoid getting it too tired.

The rest of this chapter may sound a little complicated, but read it through and I think it will turn out to be a lot simpler than you think.

How fast is your heart beating now? Let's find out. Each time the heart beats, it pushes the blood through your blood vessels and causes a wave or beat that you can actually feel. There are two easy places to feel it—one is in the wrist near the base of your thumb on the palm side. Place the three middle fingertips there, just beneath the hollow of your thumb, on the palm side and press lightly. You'll feel the wave of the pulse pass under your fingertips—probably between 60 and 80 times a minute. Look at your watch. You can count those waves or pulse beats for a whole minute or count just a fraction of a minute and multiply appropriately. (Count for 10 seconds, or 1/6 of a minute and multiply the results by 6 for a full minute.)

Another place to feel the pulse is below your jaw on the side of your neck. Put your index and middle fingers there and press just lightly enough to feel the pulse wave.

When you look at your watch to count your pulse rate, remember to start with a "zero" count, not "one." When the second hand points to the next number, then count one.

Your Exercise Heart Rate

Now that you know how to count your pulse, you will be able to tell when your heart is going fast enough, but not too fast for proper exercise. We call this the Exercise Heart Rate. There are several ways to calculate this, but the easiest one is to subtract your age from 220 and multiply by 80%. This isn't perfectly accurate, but is as accurate as we think you'll need.

For example, if you are 40 years old, subtract 40 from 220. This equals 180. Multiply 180 by 80% and you've calculated your own personal Exercise Heart Rate at 144.

Find your Exercise Heart Rate and try to keep your heart beating at that speed while you exercise. *Be careful not to exceed your Exercise Heart Rate!*

Note:

A more accurate way to find your exercise heart rate is to follow a chart of Maximum Heart Rate by age. Using the Maximum Heart Rate determined from the chart and your Resting Heart Rate (your pulse when you are lying down and resting) you can obtain a more accurate Exercise Heart Rate according to the formula outlined in Appendix page 93.

Beware-Risk Factors

For some people, this may not be quite enough to prevent a heart accident. The American Heart Association suggests that heart attack or heart injury is more common under the following circumstances called Coronary Risks:

- Age—over 35 years
- High blood pressure
- Obesity—more than 20% over ideal weight
- Smoking cigarettes
- Sugar Diabetes (Diabetes Mellitus)
- Extreme emotional or physical stress
- Family history of heart trouble
- Significant lack of exercise
- Abnormal blood lipid (fat) test

If you have two or more of the above coronary risks, check with your doctor before starting any active exercise program.

Chapter III

Maxi-Fitness Program

We can't all be champions, but we can make the most of what we have—that's Maxi-Fitness! Maxi-Fitness is Tubing's way of helping you to maximum fitness with maximum efficiency at minimum risk. This section is for general use—for people who need help but have no significant weaknesses or injuries.

Strength will reduce and prevent injury. It will delay and even drive away that tired, weary feeling. The safety, portability and adaptability of Tubing let you do just as much exercise as you need and as you want to feel good.

All people are not created equal!

Thank goodness we are not all alike! Some of us are strong, and some of us are not. Tubing adapts itself to the weakest and the strongest quite simply. The tension of the Tubing makes the difference. In order to make each Tubing exercise more difficult, hold the Tubing closer to its closest anchor point. For example, when standing on the Tubing and exercising the arm, you are instructed to grasp the Tubing at the knee. If you wish to put more tension on the Tubing, grasp it below the knee. If you wish to make the exercise easier, grasp the Tubing above the knee.

How does it work?

The aim is to complete the number of movements required, but to be quite tired by the last movement or two. The only way a muscle knows that it must get stronger is to tire it, and this is how Tubing works. The number of repetitions is kept to a minimum in consideration of your time. However, it is necessary to keep the number of repetitions high enough so that you don't have to work too hard in too short a time to tire the muscle and expose yourself to greater danger of injury. With lower resistance, more repetitions will be needed to tire the muscle; but there will be less chance of injury.

Endurance

For endurance training, lower the tension still further, and increase the repetitions into the hundreds. By increasing the speed of your activity, your pulse rate can be kept up. Combining speed and lower tension adds endurance training to Tubing exercises.

Prevent Injury

For goodness sake, don't hurt yourself! Rome wasn't built in a day and neither will you be. Pushing too hard can only lead to injury. Therefore, CHART recommends strongly that you exercise only every other day. Daily exercise to

exhaustion can easily lead to injury. If you exercise hard daily, the stresses tend to mount up. Without a day or so to heal, after a while these stresses may add up to an injury. Rest a day between each exercise session. This lets you heal these microscopic injuries.

If you must exercise daily, make sure that only every other day is "to exhaustion," and on the alternate days simply do light limbering routines that keep up the flexibility and stimulate your body in general. Tubing exercises with lighter tension or half the number of repetitions would fill this bill perfectly.

Don't put a time limit on conditioning. Conditioning is an ongoing process. It doesn't happen overnight. It takes time and should be a pleasant experience. The old high school dictum "no pain—no gain" has no place in modern day health and fitness. If you have discomfort doing a specific exercise, omit it. If you are tired or it hurts—*Stop, don't do it!* You might be just a movement away from an injury.

If several exercises cause you discomfort, you should consult your physician; you may have a hidden physical problem that needs attention.

Ice-Not heat

Ever since we were kids, we've had conflicting information on how to treat our "owies." Occasionally we may over-do it while exercising and develop some muscle stiffness or soreness. Depending upon whether you ask Grandma, Grandpa, Aunt Tillie or the kid next door, you'll be told to use either ice or heat.

Don't use heat for muscular injuries.

Don't use heat for irritated tissues.

For almost all irritations or injuries of the human body, and that includes over-use, ice therapy is more effective and advantageous than heat. If you have some muscle discomfort, if a tendon acts up, if the ligament feels irritated—even if a joint swells—the first aid is to apply ice.

The easiest way to apply ice is to use a Styrofoam cup filled with water and frozen. The ice in one cup is an adequate "dose." The Styrofoam insulates the applicator's hand, and the cup can be peeled back to expose more ice as it melts. Ice is a little messy, but it is certainly comforting.

Brrrrr

Remember, when applying ice, it feels cold at first—then it feels like it's burning. The burning will disappear and be replaced by an ache; and when the ache disappears, the area becomes numb. The numbness represents the period of effective treatment, and this should last 15 or 20 minutes. It can be repeated three or four times a day.

You can use ice both before and after exercise, as needed. Some people will even use ice during exercise, tying a cold pack to the irritated area.

Some people have rare cold allergies. They usually know about these things and know better than to use ice. Other people with very thin, usually light-colored, skin may find that the ice is a bit irritating and will have to be cautious in its application.



What shall I wear?

Some "Tubers" prefer to wear a long-sleeved sweatshirt, others are just as happy in a tank top. Although you need no clothing at all, most people find that footwear is convenient to keep the Tubing from slipping or gripping too tightly about your feet.

Let's go

Now we are ready to begin the exercises that made Tubing so popular—the Maxi-Fitness Program. This uses the safest and most efficient exercises for general physical conditioning. These exercises are grouped the way we like to use them. Perhaps equally good is alternation of upper and lower limb exercises. Once you become proficient with Tubing, this is as good an idea as any.

Use of the velcro strap attachment is explained in the individual exercises. Ties and loops are illustrated on the following pages. Both the Tubing and the attachment may be cleaned with mild soap and cool water.

If you are hot and sweaty, the Tubing may slip. Avoid giving yourself a "rubber hose job" by gripping the Tubing firmly and wiping it dry from time to time.

Caution

Check the tubing periodically for signs of cracking or deterioration.

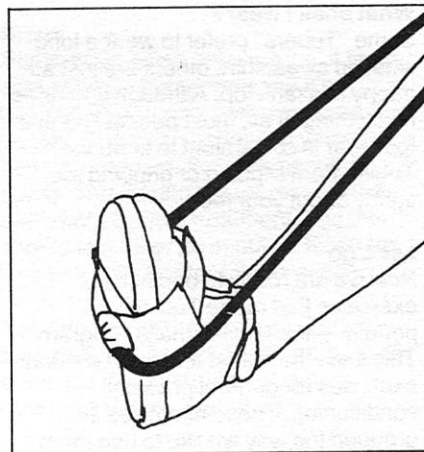
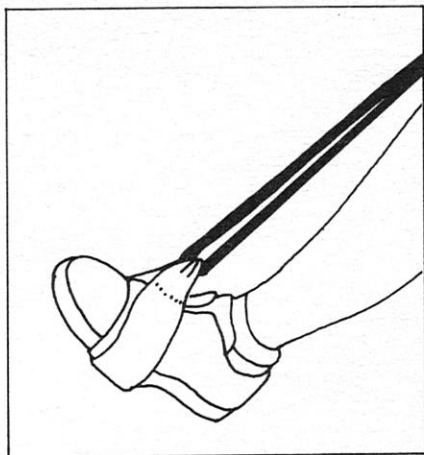
Tether and Tie

The following is an outline of instructions on holding, wrapping, tying, and tethering the Tubing.

For very light exercise, use single length of tubing. Secure one end through door or around a stable object and tie tubing to loop of velcro strap.

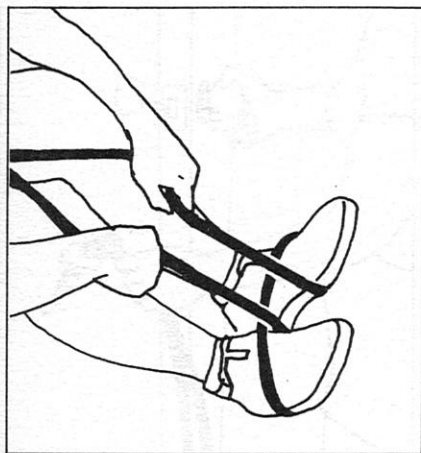
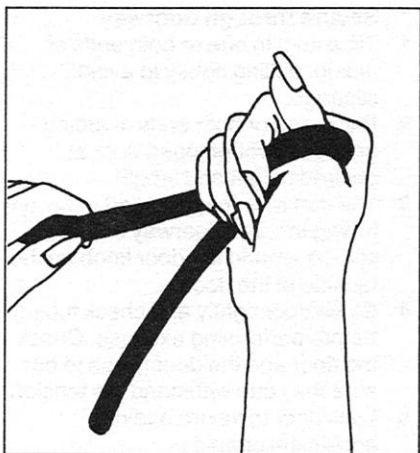
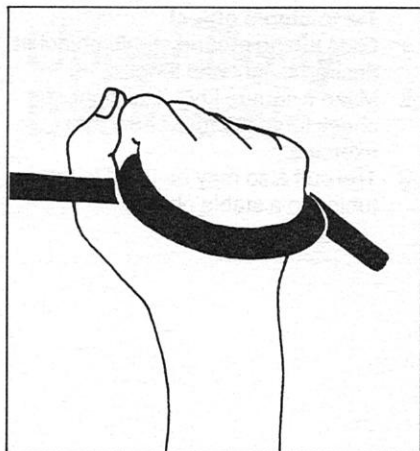
Descriptions will be for the right side of the body where applicable and should simply be reversed for the left side.

Okay now, let's Tube!



One foot

- 1 Pull tubing through loop of velcro strap with cuff in center of tubing.
- 2 Wrap cuff around forefoot with loop on the top or bottom of the foot, securing tightly.
- 3 Grasp tubing securely with both hands.



Two feet

- 1 With feet slightly apart, center tubing across top of both feet.
- 2 Wrap tubing around each foot from the outside to the inside, positioning tubing on top of horizontal tubing.
- 3 Grasp tubing securely with both hands.

Hand hold 1

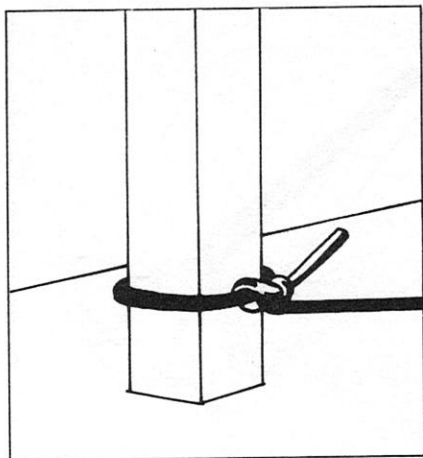
- 1 Grasp single length of tubing in palm of hand.
- 2 Wrap tubing loosely around back side of hand and across palm again, adjusting length for proper tension.
- 3 Grasp tubing securely.

Hand hold 2

- 1 Make a loop of tubing.
- 2 Grasp looped end firmly in palm of hand with thumb through loop.

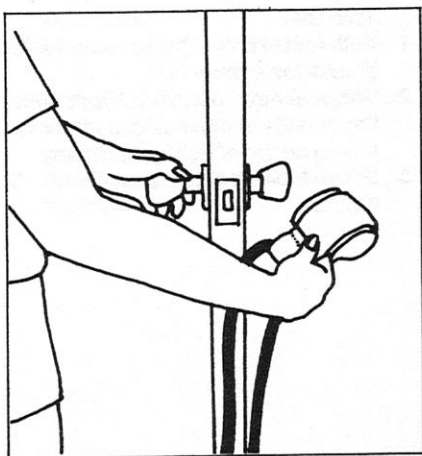
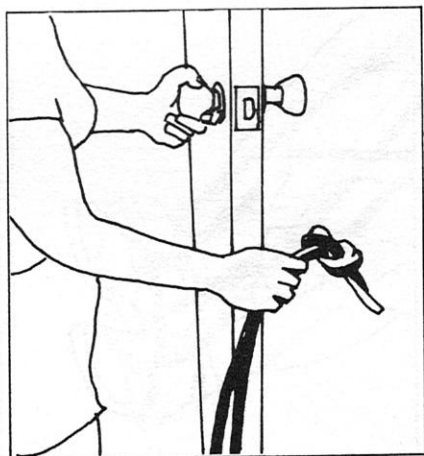
Tie to stable object

- 1 Loop tubing around stable object at desired height and length.
- 2 Make a square knot. Pull tight and check tubing before performing exercise.
- 3 The cuff also may be used to tether tubing to a stable object.



Secure through doorway

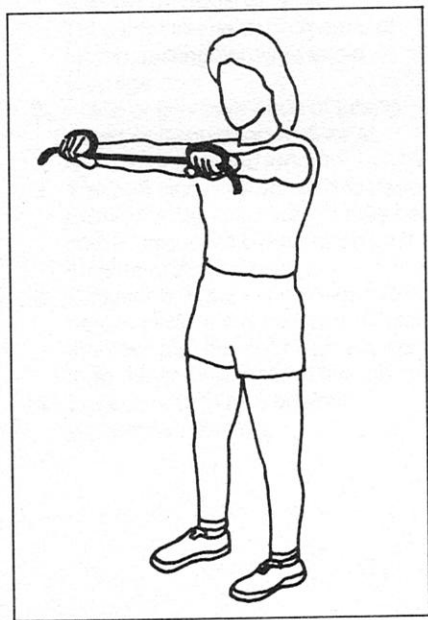
- 1 Tie a knot in one or both ends of tubing, pulling tightly to avoid slippage.
- 2 Place one or both ends of tubing under or through open door at desired height and length.
- 3 The cuff also may be used to secure tubing through doorway or may be placed around the door knob on the far side of the door.
- 4 Close door tightly and check tubing before performing exercise. Check the door and the door frame to be sure they can withstand the tension.
- 5 Lock door to insure against accidental opening.



Upper Body Exercises

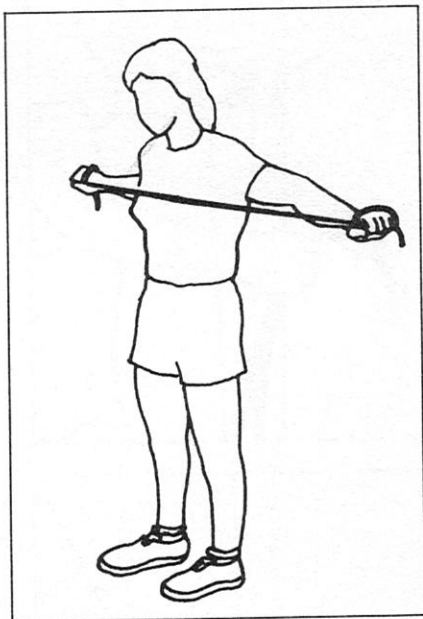
1 Back Pull

This exercise strengthens the deltoid, shoulder girdle and triceps muscles. It firms up the upper back, shoulders, and back of the arm.



Starting Position

- 1 Stand. Keep back straight and knees slightly bent.
- 2 Grasp tubing in each hand, approximately one arm's length apart.
- 3 Position at chest level, keeping elbows straight.



Movement

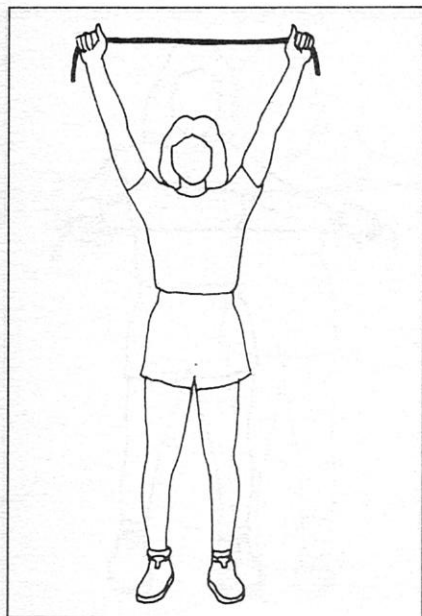
- 1 With arms bent and parallel to the floor, stretch tubing as wide as possible by driving your elbows back.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10

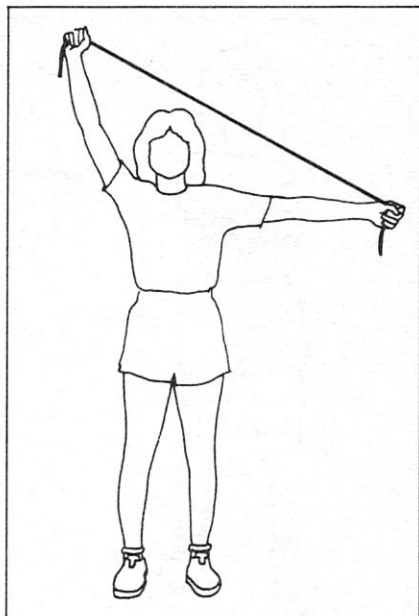
2 Lateral Shoulder Pulldown

This exercise strengthens the chest and back muscles.



Starting Position

- 1 Stand. Keep back straight and knees slightly bent.
- 2 Grasp tubing in each hand, approximately one arm's length apart.
- 3 Hold tubing taut at arm's length above your head, keeping elbows straight.



Movement

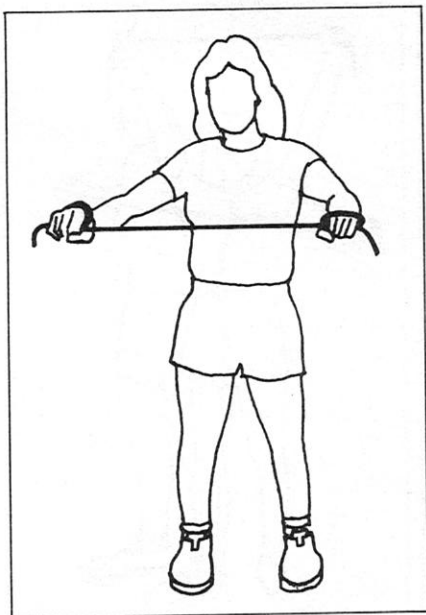
- 1 Hold left arm steady.
- 2 Slowly pull the right arm straight to the side until arm is parallel to the floor.
- 3 Hold for 2 seconds.
- 4 Slowly return to starting position.

Repetitions

Minimum 10 with each arm

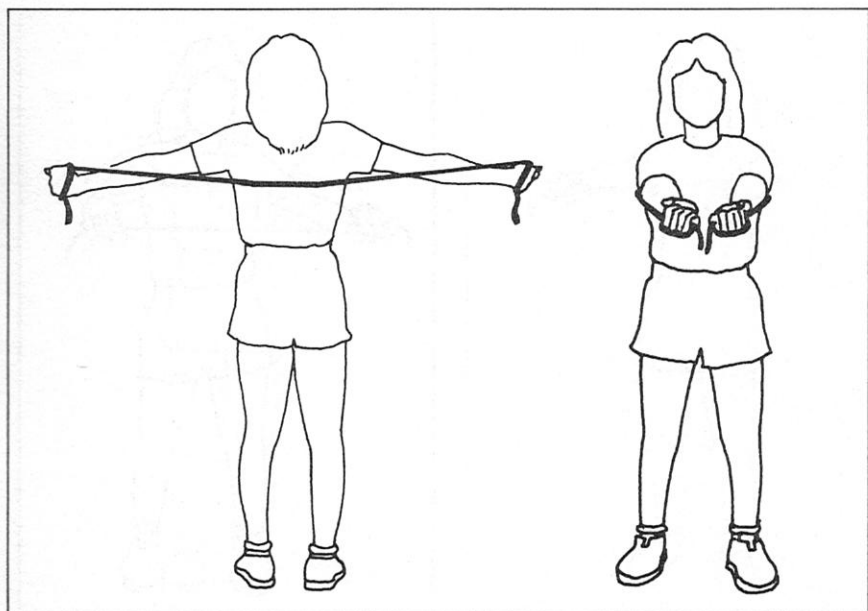
3 Chest Flys

This exercise strengthens the chest muscle and tends to increase the thickness of the front of the chest wall.



Starting Position

- 1 Stand. Keep back straight and knees slightly bent.
- 2 Grasp tubing in each hand, approximately one arm's length apart.
- 3 Keeping tubing taut, flip over your head.
- 4 Position tubing behind your back, just under shoulder blades.

**Movement**

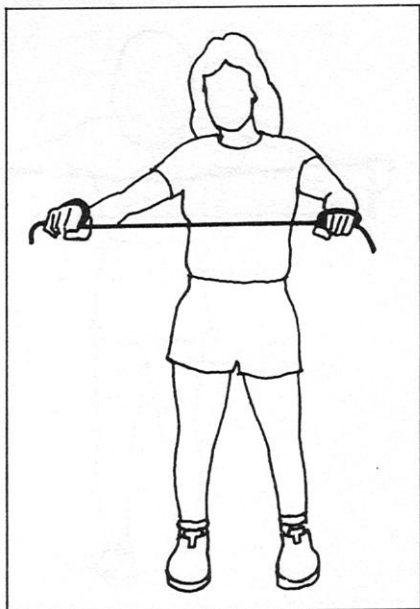
- 1 Push your arms straight out to the side until they are parallel to the floor.
- 2 Keeping your elbows straight, pull your arms forward until your elbows meet in front, palms up.
- 3 Hold for 2 seconds.
- 4 Slowly return to starting position.

Repetitions

Minimum 10

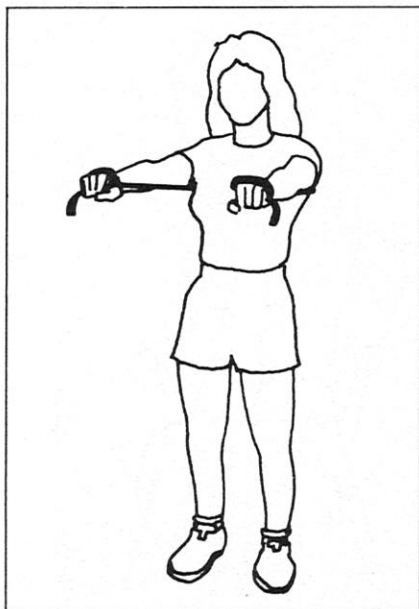
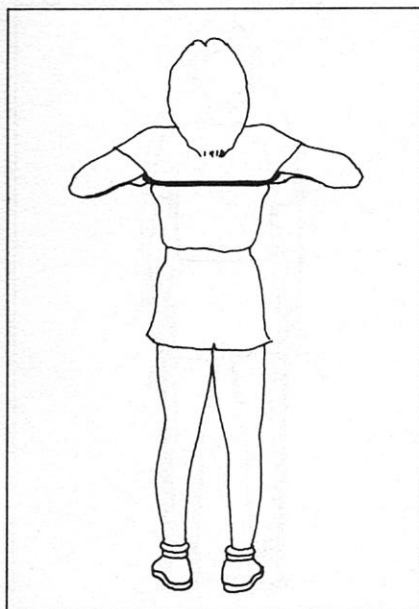
4 Chest Press

This exercise strengthens your chest, shoulders and triceps muscles.



Starting Position

- 1 Stand. Keep back straight and knees slightly bent.
- 2 Grasp tubing with each hand, approximately one arm's length apart.
- 3 Keeping tubing taut, flip over your head.



- 4** Position tubing behind back, just under shoulder blades, and extending forward under the armpits.

Movement

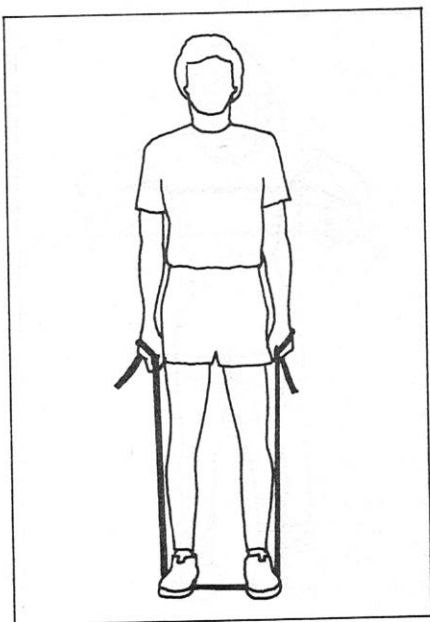
- 1** Keeping elbows high and wide, press your arms forward.
- 2** Hold for 2 seconds.
- 3** Slowly return to starting position.

Repetitions

Minimum 10

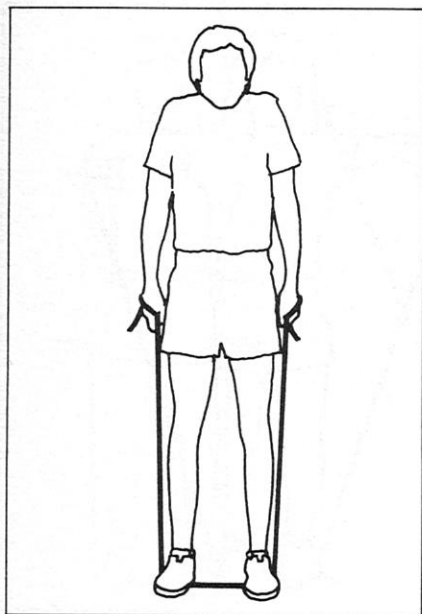
5 Shoulder Shrug

This exercises the upper trapezius muscles of the shoulder. It helps to square up the shoulder line. It is also excellent for neck posture and tension headaches.



Starting Position

- 1** Stand. Place both feet comfortably apart on the center of the tubing.
- 2** Grasp tubing at knee level, bending knees.
- 3** Stand up straight, keeping arms straight at your side. Keep knees slightly bent.

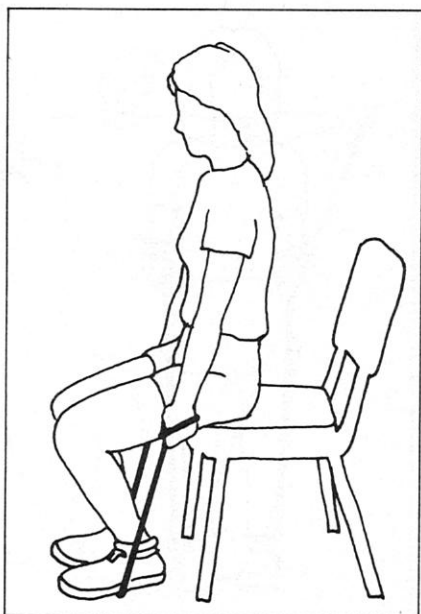


Movement

- 1 Very slowly, raise shoulders into a shrug, keeping elbows straight.
- 2 Slowly return to starting position.

Repetitions

Minimum 10

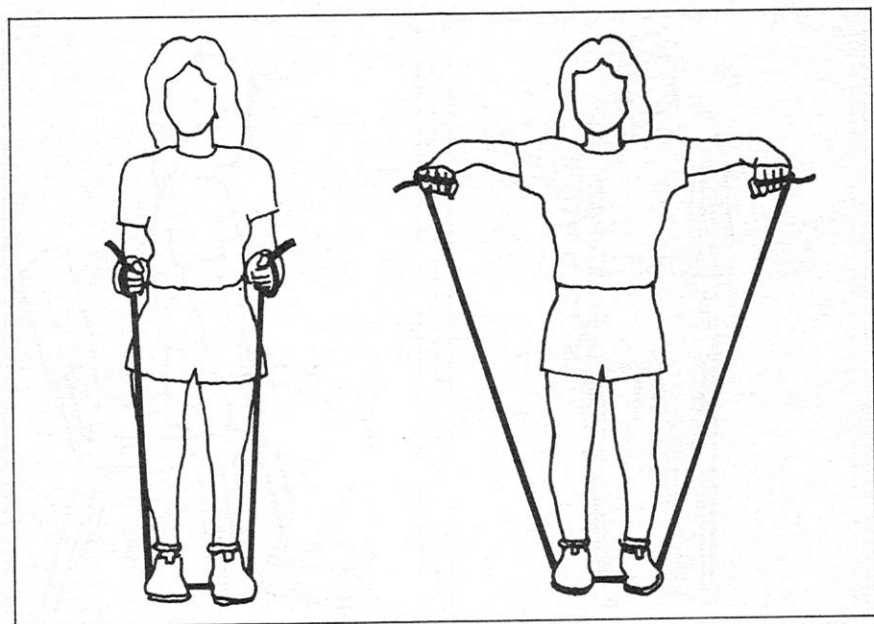


Alternative-Starting Position

- 1 Sit on front part of chair, placing center of tubing under both feet.
- 2 Grasp tubing at arm's length and sit up straight.

6 Lateral Raise

This exercise strengthens the deltoid muscle of the shoulder.



Starting Position

- 1 Stand. Place both feet comfortably apart on the center of the tubing.
- 2 Grasp tubing at arm's length with each hand.
- 3 Keeping arms at your side, bend your elbows until forearms are parallel to the floor.

Movement

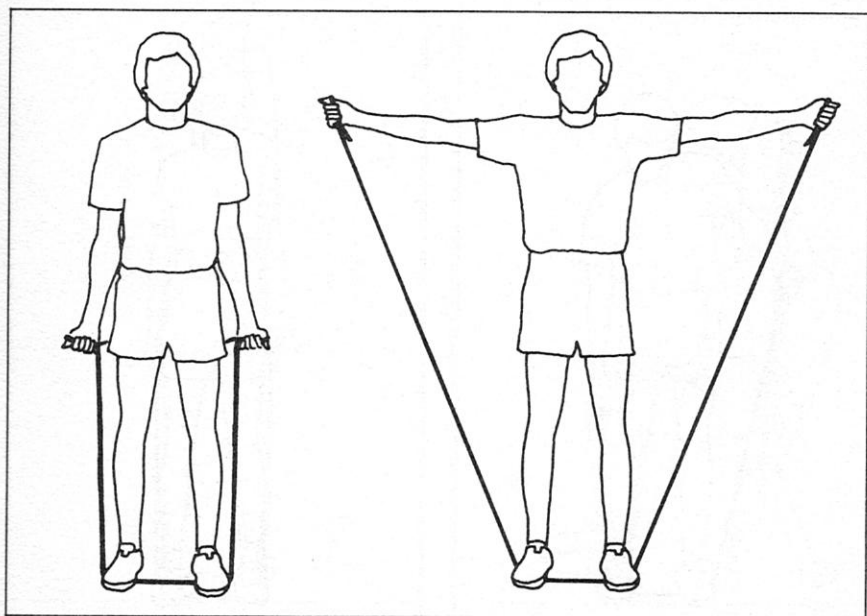
- 1 Keeping elbows bent, raise your elbows outward until they are parallel to the floor.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10



Zip UPS

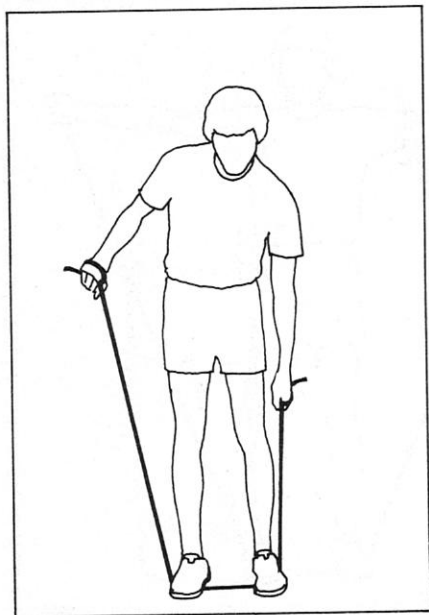


Variation

Keeping elbows straight, perform the same movement as stated above.

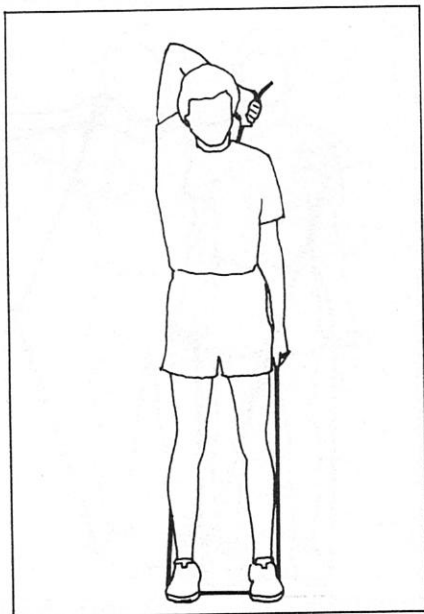
7 Triceps Extension

This exercise strengthens the triceps muscle of the upper arm. It firms up the back of the arms.



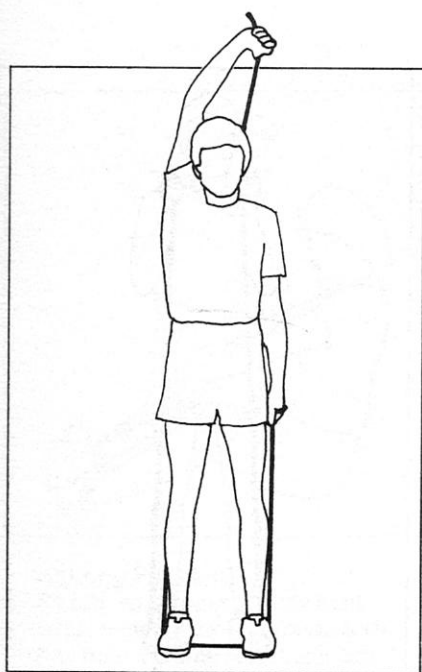
Starting Position

- 1 Stand. Place both feet on the tubing, leaving left end long enough to be grasped at knee level.
- 2 Grasp longer right end of tubing firmly and pull it up behind your back with right elbow pointing to the ceiling.

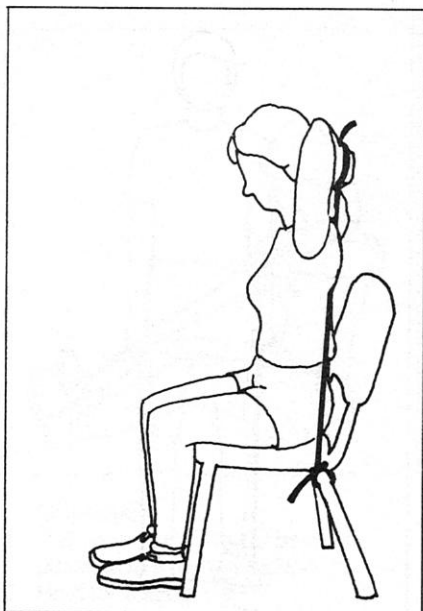


Movement

- 1 Straighten right elbow by raising your arm toward ceiling.
- 2 Hold for 2 seconds.
- 3 Slowly lower forearm toward shoulder.

**Repetitions**

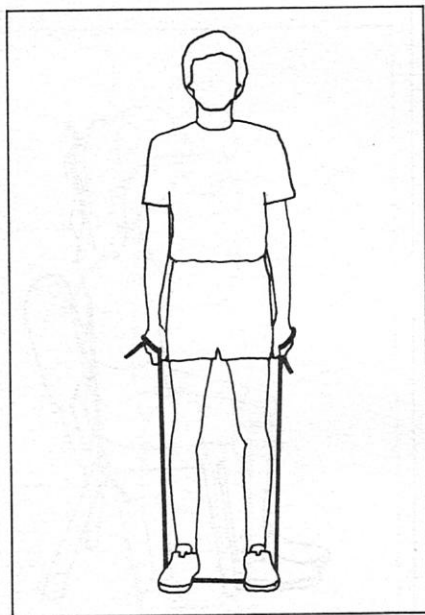
Minimum 10 with each arm

**Alternative-Starting Position**

This exercise may be performed sitting in a chair with tubing secured to back of chair or chair leg.

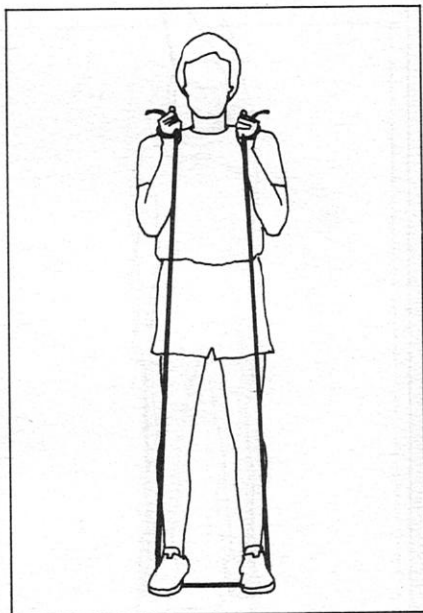
8 Arm Curl

This exercise strengthens the bicep muscles of the upper arms.



Starting Position

- 1 Stand. Place both feet comfortably apart on the center of the tubing.
- 2 Grasp tubing in each hand at arm's length.
- 3 Keep knees slightly bent.



Movement

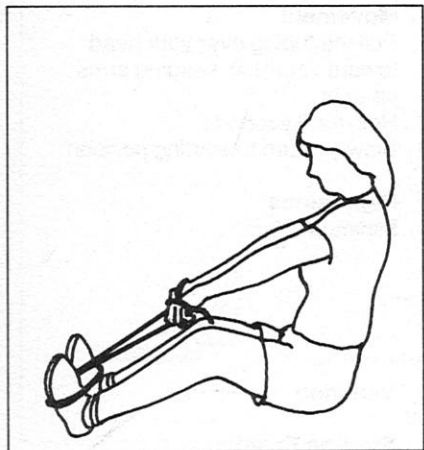
- 1 Bend your elbows. Pull your hands toward your shoulders, keeping elbows tucked into your sides.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10

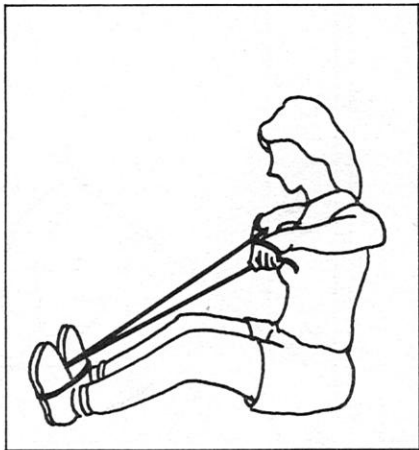
9 Rowing

This exercise strengthens the trapezius, rhomboids, and other upper back postural muscles. It is great for tension headaches and most neck problems.



Starting Position

- 1 Sit with your knees slightly bent.
- 2 Loop center of tubing around both feet from the outside to the inside.
- 3 Grasp tubing at arm's length.
- 4 Keep back straight.



Movement

- 1 Pull your elbows as far back as possible in a rowing motion.
- 2 Hold for 2 seconds.
- 3 Slowly return arms to starting position.

Note:

If your back hurts, this exercise may be done sitting in chair.

Repetitions

Minimum 10

10 Shoulder Pullover

This exercise strengthens the shoulder and chest muscles.

Starting Position

- 1 Secure middle of tubing through the door or around a stable object near floor level.
- 2 Lie face up, with head toward tubing, both arms stretched overhead and knees bent.
- 3 Grasp both ends of tubing.

Movement

- 1 Pull the tubing over your head toward your feet, keeping arms straight.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10

Variation

Starting Position

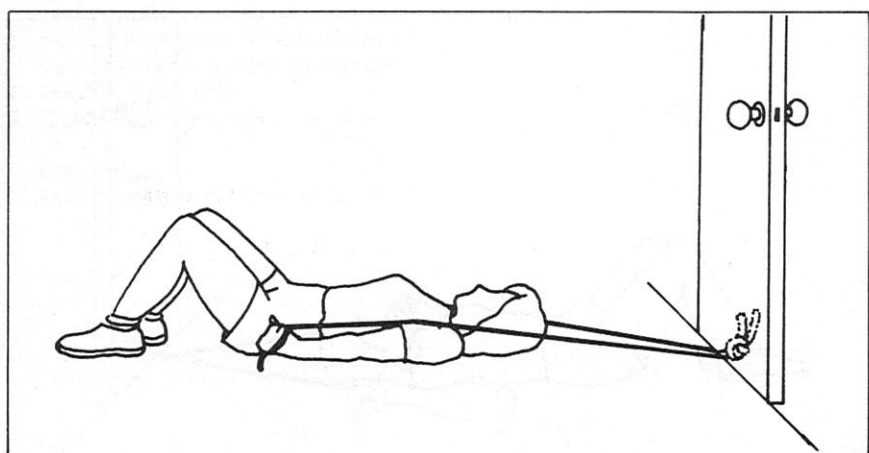
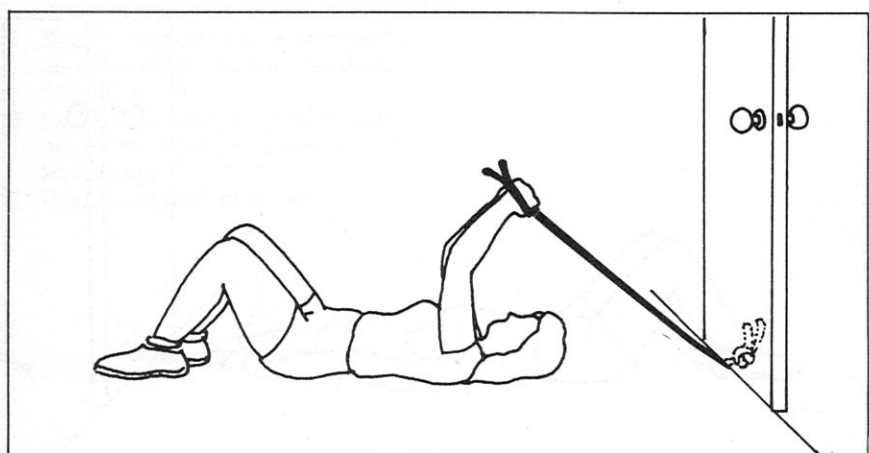
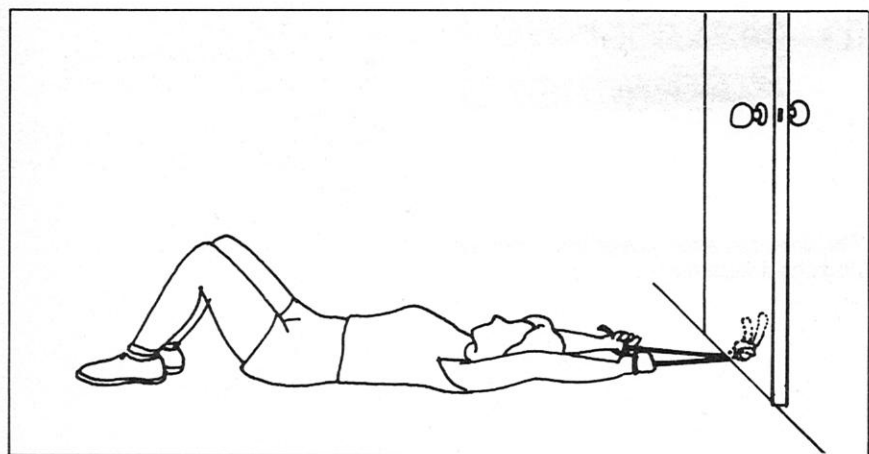
- 1 Secure one end of tubing through the door or around a stable object near floor level.
- 2 Lie face up, with head toward the tubing and knees bent.
- 3 Stretch right arm overhead toward tubing.
- 4 Grasp one end of tubing.

Movement

- 1 Pull the tubing over your head toward your feet, keeping your arm straight.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

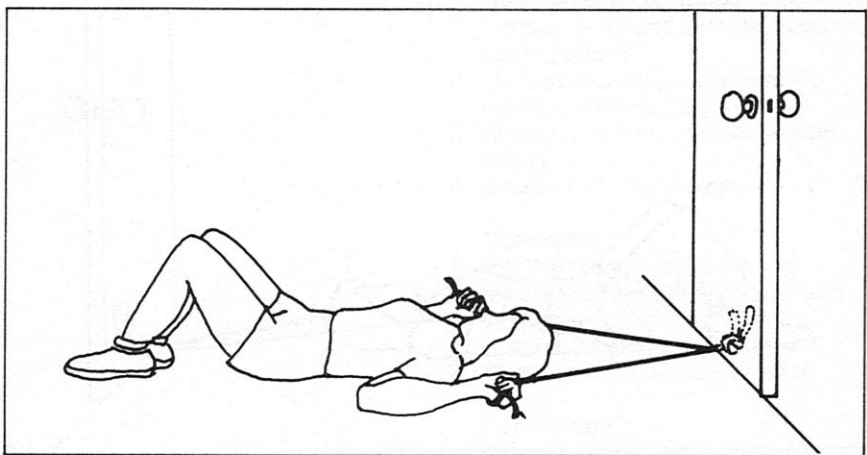
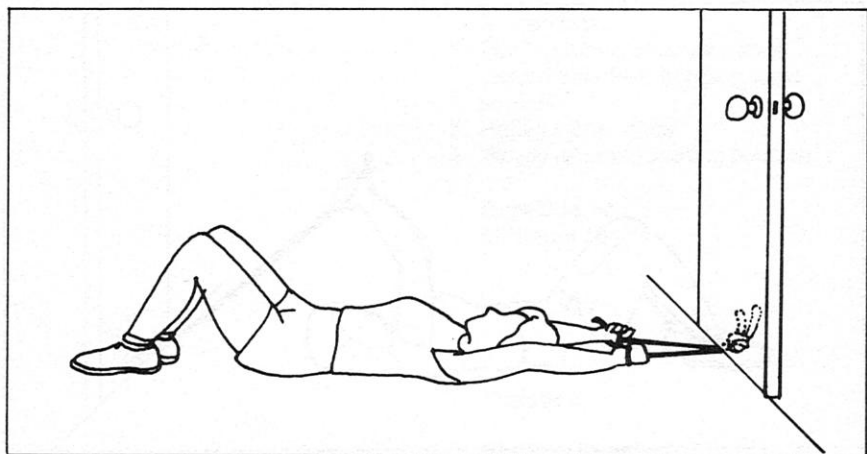
Repetitions

Minimum 10 with each arm



11 Shoulder Pulldown

This exercise strengthens the shoulder and chest muscles.



Lower Body Exercises

Starting Position

- 1 Secure middle of tubing through the door or around a stable object near floor level.
- 2 Lie face up with head toward tubing, both arms stretched overhead and knees bent.
- 3 Grasp both ends of tubing.

Movement

- 1 Pull the tubing along the floor toward your feet, bending your elbows fully.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10

12 Hip Extension

This exercise firms the buttocks and strengthens the hamstrings, buttocks and lower back muscles.

Variation I



Starting Position

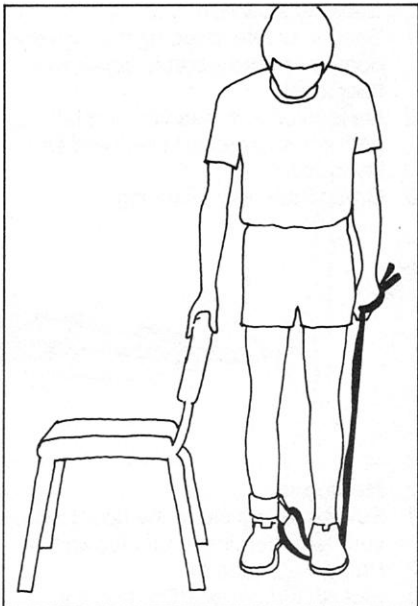
- 1 Place velcro cuff around your right ankle.
- 2 Knot both ends of tubing and secure through the door or around a stable object.
- 3 Stand and face anchored end, using door or chair for balance.
- 4 Bend forward at waist and straighten cuffed leg.

Movement

- 1 Pull leg back, even with plane of back.
- 2 Hold 2 seconds.
- 3 Slowly return to starting position.

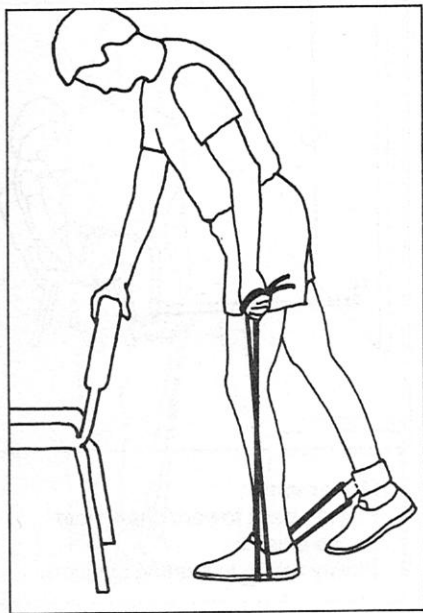
Repetitions

Minimum 10 with each leg



Starting Position

- 1 Stand.
- 2 Place velcro cuff around your right ankle.
- 3 Step on tubing, with your left foot 6 to 8 inches away from cuffed ankle.
- 4 Hold loose ends of tubing in your left hand.
- 5 Hold onto chair or door with right hand for balance.



Movement

- 1 Keep leg straight and pull comfortably backward (upper body may lean forward).
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10 with each leg

Variation II



Starting Position

- 1 Stand.
- 2 Place loop of tubing around thigh of leg just above knee level with ends toward the front.
- 3 Knot both ends of tubing and position through door just above knee level.

Movement

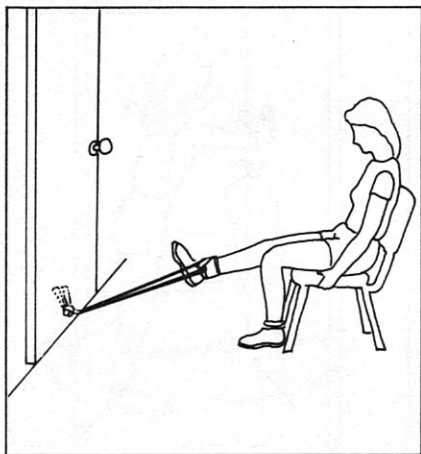
- 1 Position hands on door for balance.
- 2 Bend leg and pull thigh back and up, even with plane of back.
- 3 Hold for 2 seconds.
- 4 Slowly return to starting position.

Repetitions

Minimum 10 with each leg

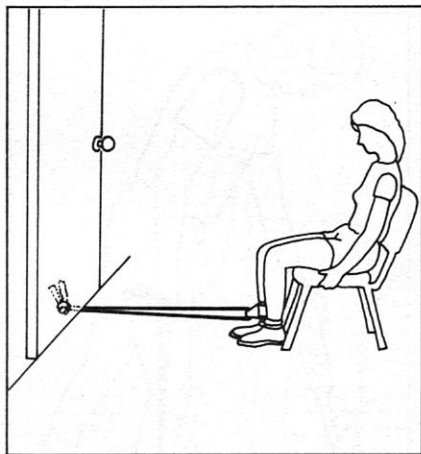
13 Leg Curl

This exercise strengthens the hamstring muscles on the back of the thigh and tones the muscles in the "cellulite" area.



Starting Position

- 1 Place velcro cuff around right ankle.
- 2 Knot both ends of tubing and secure through the door or around a stable object.
- 3 Sit on a chair facing the anchored end, leg extended forward and tubing taut.



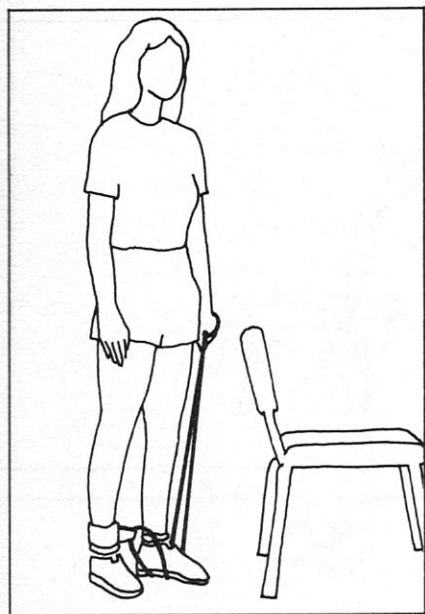
Movement

- 1 Pull leg back toward chair, hold for 2 seconds.
- 2 Slowly return to starting position.

Repetitions

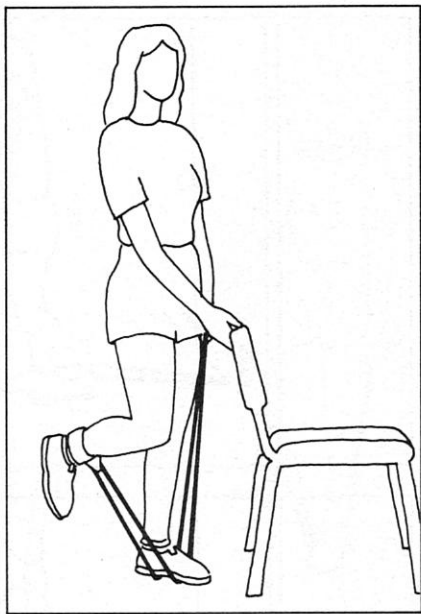
Minimum 10 with each leg

Variation



Starting Position

- 1 Stand. Place velcro cuff around right ankle.
- 2 Step on tubing with your left foot 6 to 8 inches away from cuffed ankle.
- 3 Hold loose ends of tubing in left hand.
- 4 Keep knees slightly knocked and not locked.
- 5 Hold onto chair or door with right hand for balance.



Movement

- 1 Bend right knee and pull heel toward buttocks.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10 with each leg

14 Marching In Place

This exercise strengthens your hip flexors. It is a waist-trimmer and firms the thighs.

Starting Position

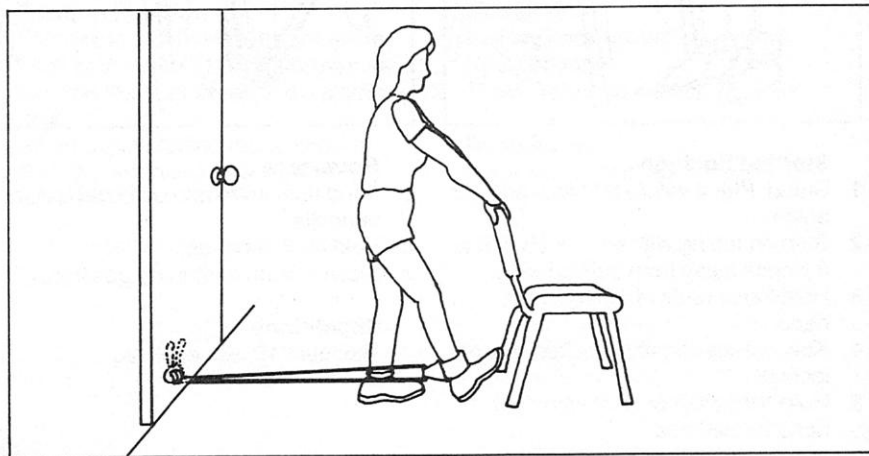
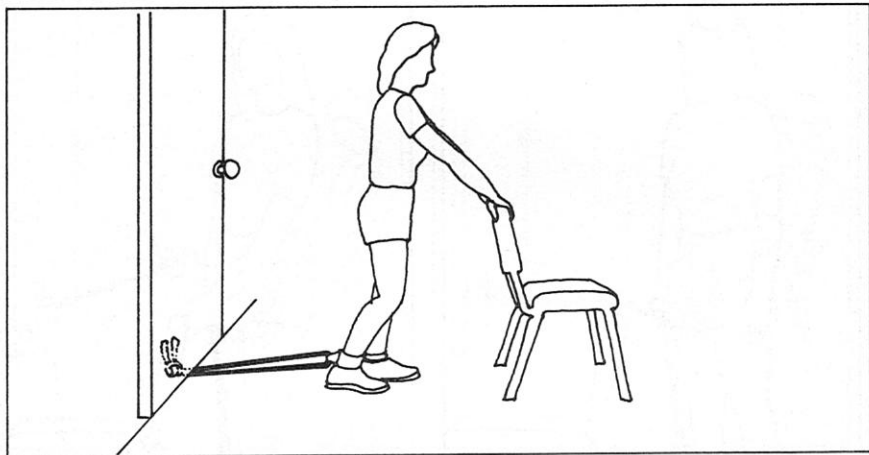
- 1 Place velcro cuff around right ankle.
- 2 Knot both ends of tubing and secure through the door or around a stable object.
- 3 Stand and face away from anchored location, holding onto a chair for balance.

Movement

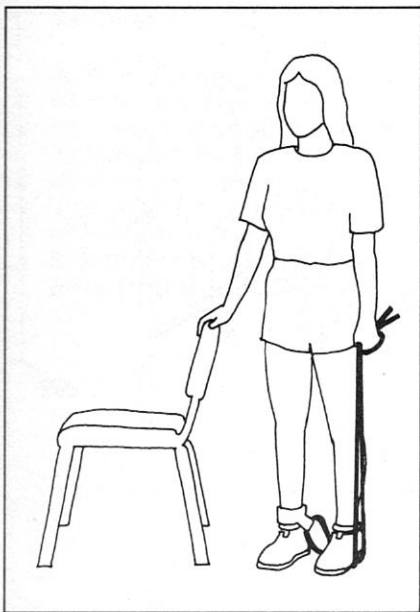
- 1 Keeping your knee locked, pull your right leg forward.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10 with each leg.

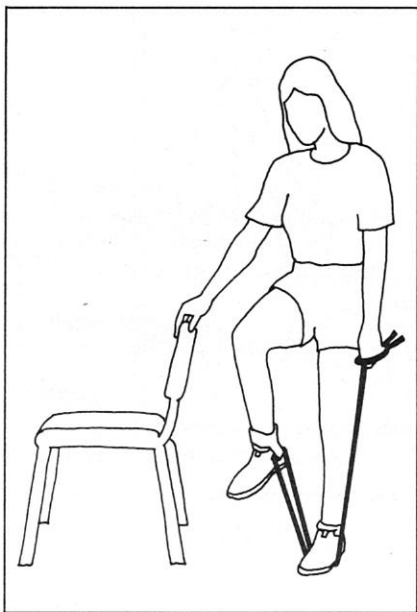


Variation



Starting Position

- 1 Stand. Place velcro cuff around your right ankle.
- 2 Step on the tubing with your left foot 6 to 8 inches away from cuffed ankle.
- 3 Hold loose ends of tubing in left hand.
- 4 Hold onto a chair or door with right hand for balance.



Movement

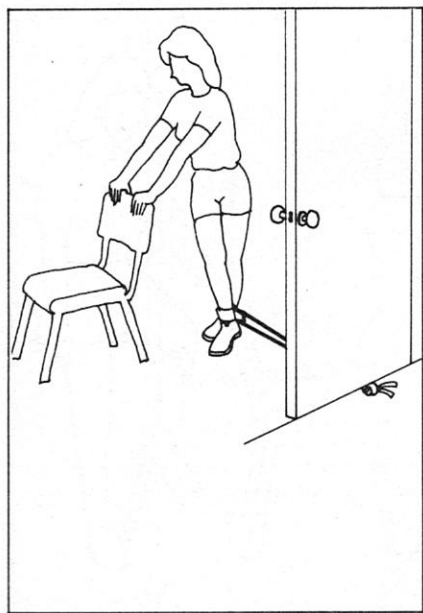
- 1 Lift right knee up toward chest.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10 with each leg

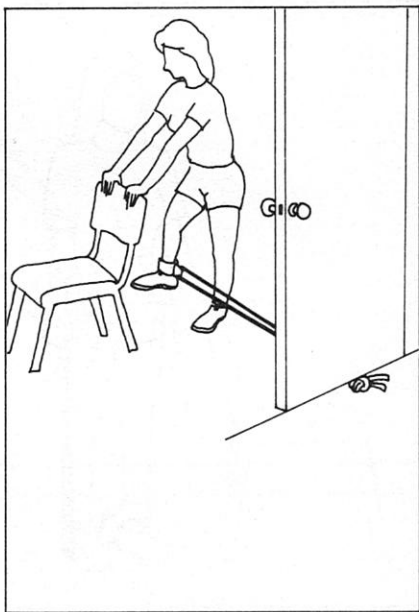
15 Saddle Bag Hip Abduction

This exercise strengthens the buttocks muscle, outer thigh, hip and lower back muscles. It firms up the muscles in the "saddlebag" area.



Starting Position

- 1 Place velcro cuff around your right ankle.
- 2 Knot both ends of tubing and secure through door or around a stable object.
- 3 Stand and hold onto a chair for balance, with the cuffed leg crossed in front of the left leg.

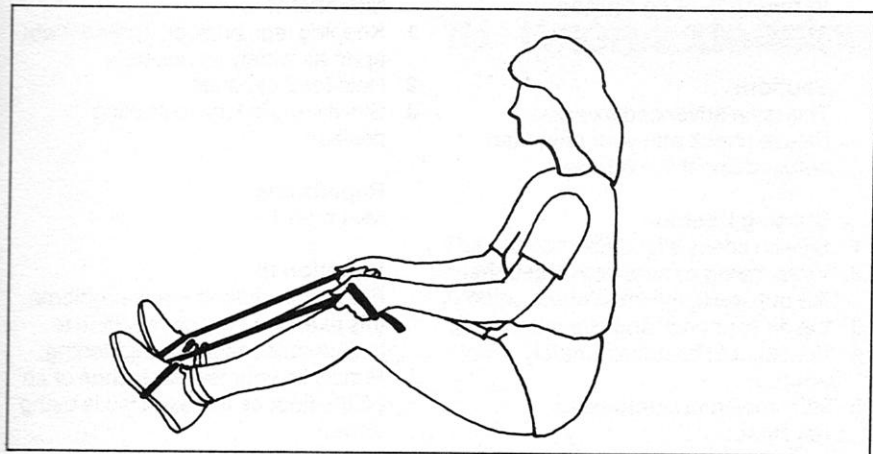


Movement

- 1 Pull leg out to side, away from anchored end, as far as is comfortable.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10 with each leg



Variation I

Starting Position

- 1 Sit with knees slightly bent.
- 2 Wrap tubing around both feet from the outside to the inside.
- 3 Lie on your left side.
- 4 Grasp both ends of tubing at comfortable resistance.
- 5 Straighten legs and keep feet about 1 foot apart.

Movement

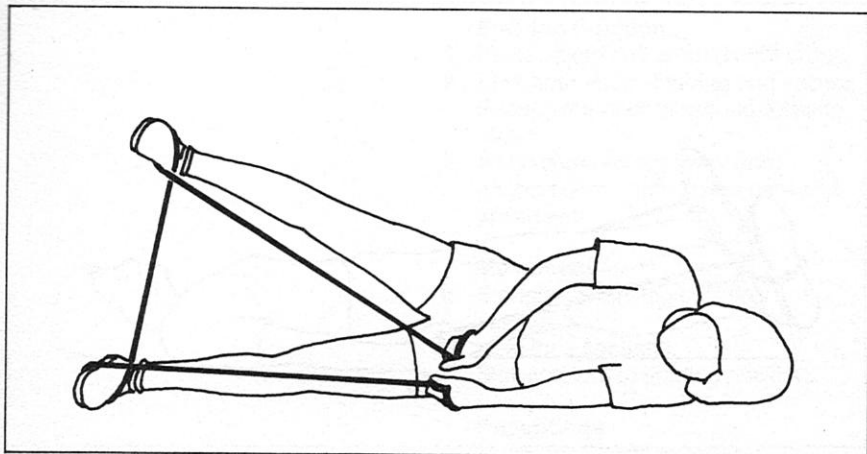
- 1 Raise top leg as high as possible.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10 with each leg

Note:

For comfort, knees may remain bent throughout whole movement.



Variation II—Leg Spread

Caution:

This is an advanced exercise. Please check with your physician before doing this exercise.

Starting Position

- 1 Sit with knees slightly bent.
- 2 Wrap tubing around both feet from the outside to the inside.
- 3 Lie on your back and straighten legs.
- 4 Feet should be approximately 1 foot apart.
- 5 Hold tubing at comfortable resistance.

Movement

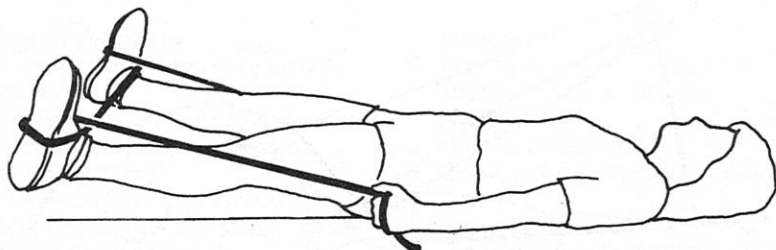
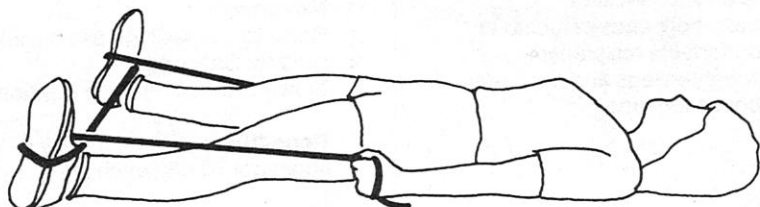
- 1 Keeping legs on floor, spread them apart as widely as possible.
- 2 Hold for 2 seconds.
- 3 Slowly return legs to starting position.

Repetitions

Minimum 10

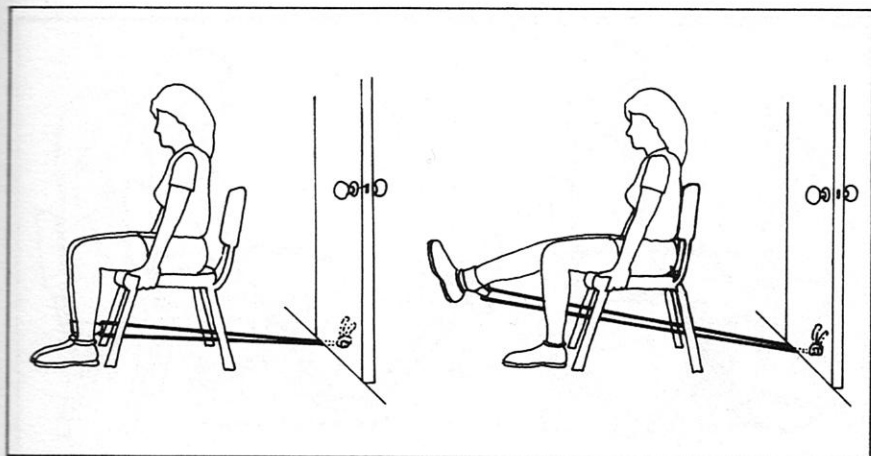
Variation III

For people *without* back problems, this exercise may be modified to include abdominal strengthening. Simply lift your feet six inches or so off the floor as the exercise is being done.



16 Knee Extension

This exercise strengthens the quadriceps muscle for running, jumping, squatting and skiing.



Starting Position

- 1 Place velcro cuff around right ankle.
- 2 Knot both ends of tubing and secure through the door or around a stable object.
- 3 Sit on chair, facing away from anchored end, with knees bent and tubing taut.

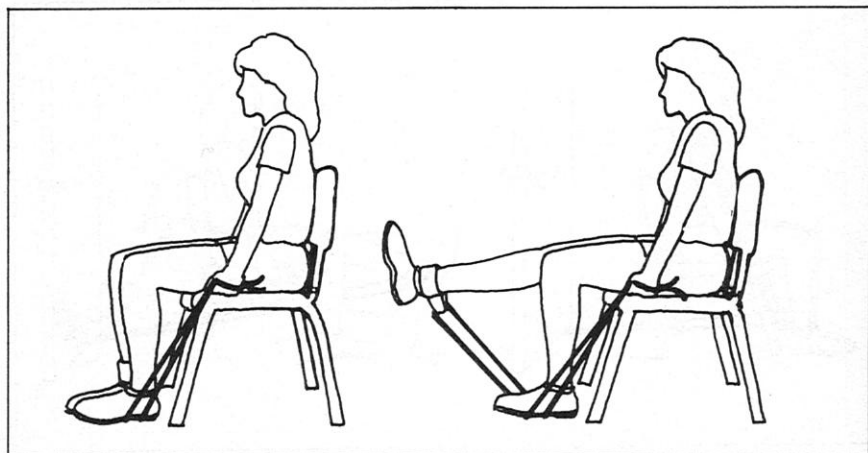
Movement

- 1 Straighten right leg until fully extended.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10 with each leg

Variation I



Starting Position

- 1 Sit on a chair with knees bent, feet flat on floor.
- 2 Place velcro cuff around right ankle.
- 3 Step on tubing with left foot, 6 to 8 inches from the right ankle.
- 4 Hold loose ends of tubing with left hand.

Movement

- 1 Straighten the tethered leg until fully extended.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

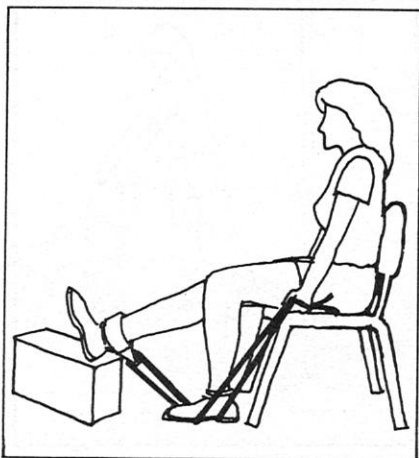
Minimum 10 with each leg

Variation II



Alternate Starting Position

Knot tubing around chair leg leaving 12 inches between leg and chair.



For Knee Cap Problems (short arc extension)

- 1 Sit on chair with problem knee supported and only slightly bent (approximately 15 to 20 degrees).
- 2 Straighten tethered leg until fully extended.

Repetitions

Minimum 20 with each leg

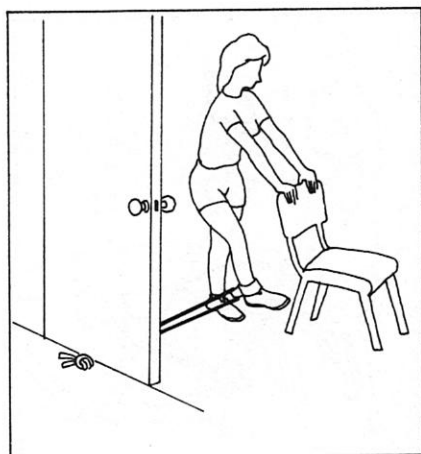
17 Hip Adduction

This exercise strengthens the muscles of the inner thigh.



Starting Position

- 1 Place velcro cuff around right ankle.
- 2 Knot both ends of tubing and secure through the door or around a stable object.
- 3 Stand, holding onto the back of a chair for balance.
- 4 Keep tubing taut and leg pulled comfortably out to the side.



Movement

- 1 Pull right leg in and across the front of left ankle.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10 with each leg

Variation I

Starting Position

- 1 Place velcro cuff around right ankle.
- 2 Step on tubing with left foot, about 6 to 8 inches away from the right foot.
- 3 Stand, keeping supporting knee slightly bent throughout whole movement.



Movement

- 1 Move right foot forward, across and over left foot.
- 2 Do not "plant" cuffed foot on the ground.
- 3 Hold for 2 seconds.
- 4 Slowly return to starting position.

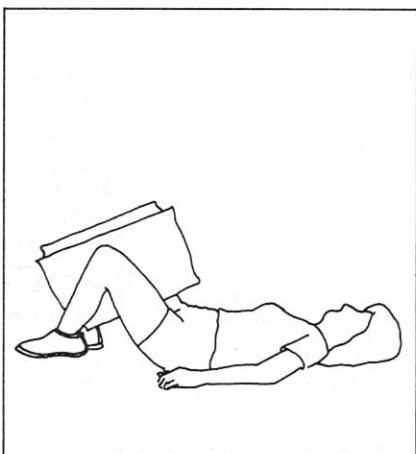
Repetitions

Minimum 10 with each leg

Variation II—Pillow Squeeze

Starting Position

- 1 Lie on your back with your knees bent and feet flat.
- 2 Place 1 or 2 pillows between your knees.



Movement

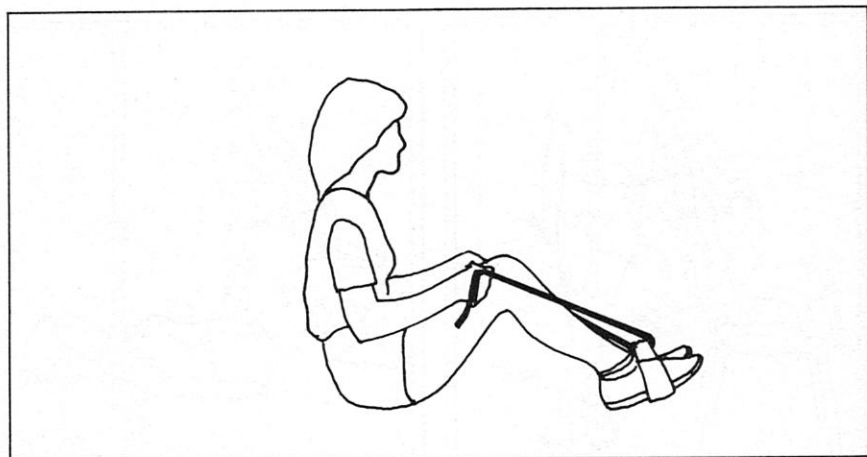
- 1 Squeeze knees together.
- 2 Hold for 6 seconds.
- 3 Relax.

Repetitions

Minimum 10

18 Single Leg Press

This exercise strengthens the buttock and quadriceps muscles. This exercise is especially good for "southern sag" and is a good "tushy-toner."



Starting Position

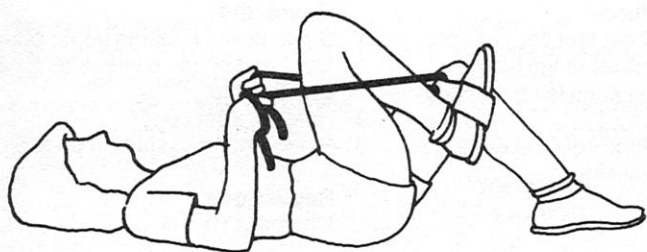
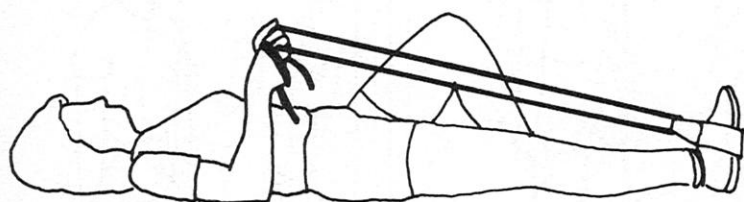
- 1 Sit. Keep legs close together and slightly bent.
- 2 Place velcro cuff around right forefoot.
- 3 Grasp both ends of tubing at knee level, wrapping excess around hands.
- 4 Lie down, with knees bent.
- 5 Pull on tubing, stretching it until comfortable resistance is felt.
- 6 Keep elbows bent at a 90° angle and planted firmly on floor.
- 7 Extend right leg.

Movement

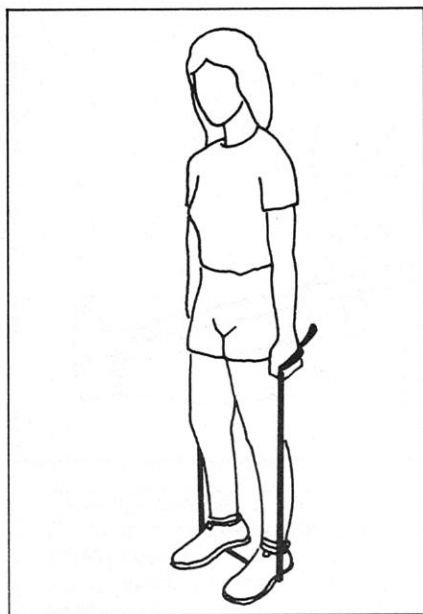
- 1 Bring leg with velcro cuff toward chest, pointing toes at ceiling.
- 2 Slowly straighten leg, keeping arms in same position throughout movement.
- 3 Hold for 2 seconds.
- 4 Slowly return to starting position.

Repetitions

Minimum 10 with each leg

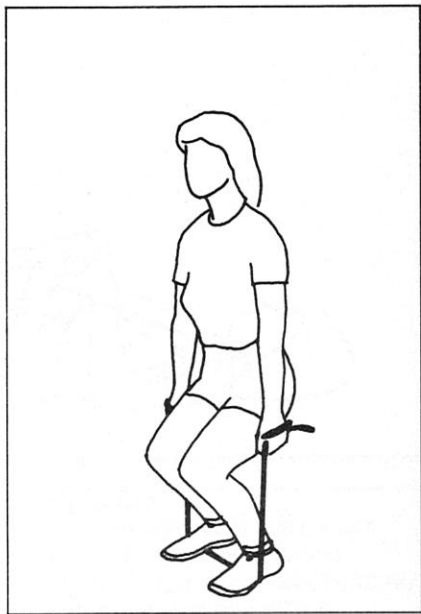


Advanced Variation—Squats



Starting Position

- 1 Stand. Place both feet comfortably apart on the center of the tubing.
- 2 Grasp tubing at knee level with both hands.
- 3 Stand up straight, keeping arms straight down at sides.



Movement

- 1 Squat down, keeping upper body erect and bending knees as far as comfortable.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10

19 Hip Inward Rotation

This exercise strengthens the muscles which turn the hip inward.



Starting Position

- 1 Sit in a chair.
- 2 Wrap tubing around both feet from the outside to the inside, keeping tubing taut and feet together.
- 3 Grasp ends of tubing firmly.



Movement

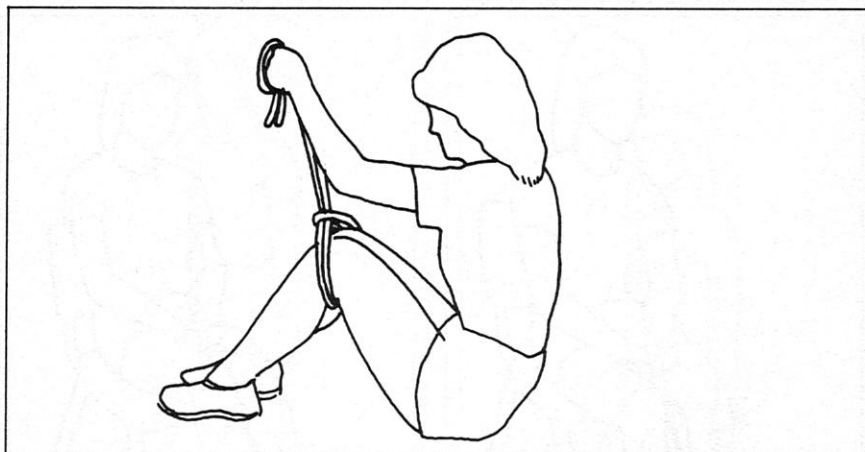
- 1 Keeping knees together, pull your feet apart.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10

20 Hip Outward Rotation

This exercise strengthens the hip, thigh and buttock muscles.



Starting Position

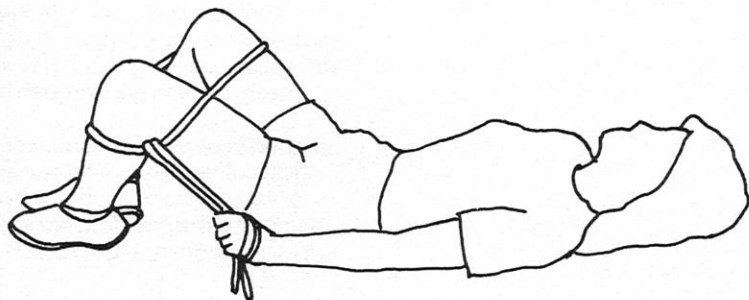
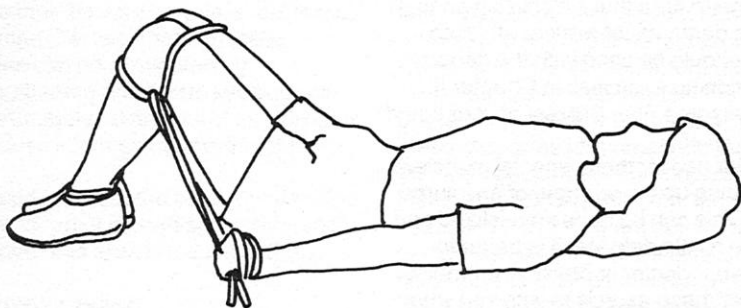
- 1 Sit with knees well bent and together.
- 2 Double tubing and place under knees.
- 3 Bring both ends up over knees and place the loose ends through loop.
- 4 Position knees between the strands of the tubing.
- 5 Pull loose ends to tighten tubing.
- 6 Lie back, keeping feet and knees together.

Movement

- 1 Grasp ends of tubing firmly.
- 2 Spread knees, keeping your feet together.
- 3 Hold for 2 seconds.
- 4 Slowly return to starting position.

Repetitions

Minimum 10



Chapter IV

So you've got a problem

These are special exercises and may be used for specific conditioning of one particular area of the body. They will help strengthen a particularly weakened area that isn't strong enough for the demands of work or athletics. They should be used with the general conditioning exercises in Chapter III. Always remember the rest of your body!

Another use for these special exercises is building up the strength of an injured area. This can be quite specialized and can be a little delicate. It is better to have your doctor or physical therapist go over these exercises with you when using them for this purpose. Remember, an area which is healing can be re-injured by poorly timed, improper or excessive exercise. All the more reason to see your doctor or physical therapist first!

Hip and Low Back

Your back is the target of many injuries. Sometimes it gets hurt because it's not strong enough to stand up to the demands placed on it. Don't feel singled out if you are hurt. Millions of Americans injure their backs every year. Scientists estimate that two-thirds of these injuries can be eliminated by strengthening and a little intelligence. Unfortunately, almost all of us will have a back problem sometime in our life.

The upper part of the back, the thoracic spine, is rarely injured seriously. We'll skip over this area because of that.

Anatomy Lesson

The lower back (lumbar spine) links the upper back with the pelvis, hips and tail bone. This is done by five cylinder-shaped bones called vertebrae, which have five rubber-like separators (discs) between each of them and the bottom or sacrum bone. The most motion occurs through the lower one or two discs and these are the ones that are most often injured or worn down.

These rubber-like cushions between the bones have a soft center which sometimes pops out of place and causes the problem called "slipped disc." This results in pressure on the

nerve and pain in the leg. Slipped disc is a severe problem that a doctor must treat. You shouldn't try to treat it yourself.

If you've had trouble with your back before, you still might have a problem. Check with your doctor before doing these exercises. We suggest that your physical therapist or doctor look at these exercises and prescribe the ones that are best for you. For most other less serious back problems, the exercises that follow are some that you can do yourself, if you are careful. If you have any increased back discomfort while you are doing these exercises, STOP!

Low Back and Abdominals

Do's and Don't's

Part of getting your back well is taking care of it, so here are some Do's and Don't's for daily back care.

- 1 Do bend your knees and hips when you lift. Don't just bend at the waist when you must bend over.
- 2 Don't lift heavy objects higher than your waist.
- 3 Do turn and face the object you wish to lift.
- 4 Do hold the weight close to your body.
- 5 Do avoid handling awkward, unbalanced loads alone.
- 6 Do move deliberately and fluidly. Don't jerk.
- 7 Don't overreach.
- 8 Do keep good posture at all times—while lying down, standing or sitting. Stand erect, keeping the head high and the abdomen pulled in.
- 9 Do shift your weight frequently, standing with one knee bent by placing your feet alternately on a low stool.
- 10 Do avoid high heels that may strain the back.

The following general exercises will help strengthen your back:

Hip Extension, Exercise 12, page 38.
Saddle Bag Hip Abduction, Exercise 15, page 44.

Single Leg Press, Exercise 18, page 52.

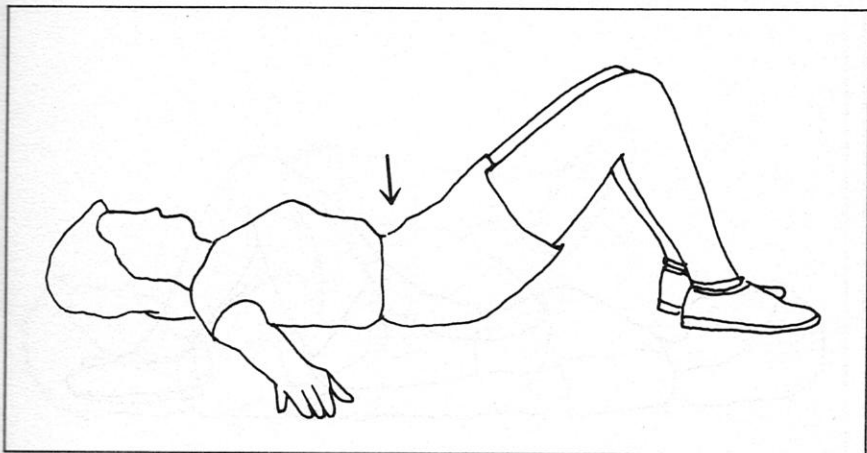
Hip Inward Rotation, Exercise 19, page 55.

Hip Outward Rotation, Exercise 20, page 56.

The next exercises are for special help.

21 Pelvic Tilt

This exercise tightens your abdominal muscles and stretches the lumbo-sacral muscles and ligaments. This exercise helps to tighten saggy stomach muscles and improve posture.



Starting Position

- 1 Lie on your back.
- 2 Bend both knees, feet flat on floor.

Movement

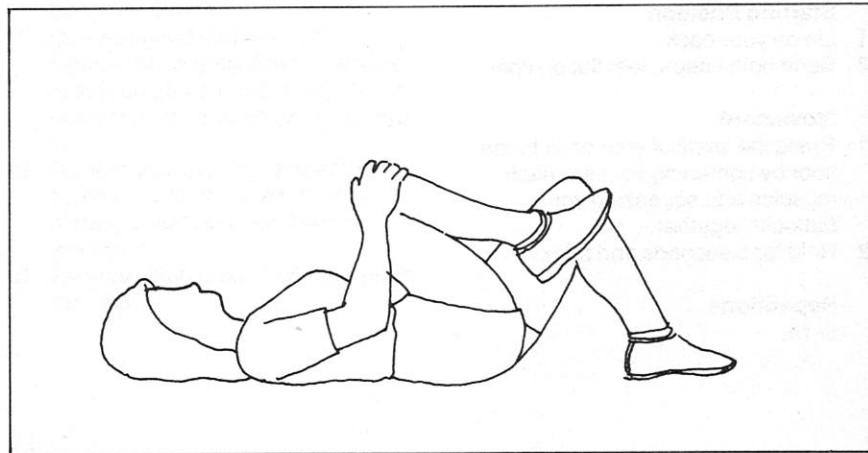
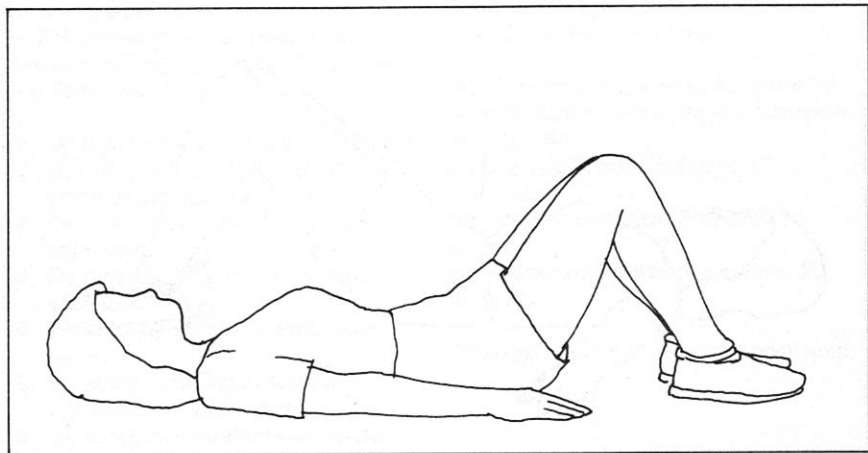
- 1 Press the small of your back to the floor by tightening your stomach muscles and squeezing your buttocks together.
- 2 Hold for 5 seconds and relax.

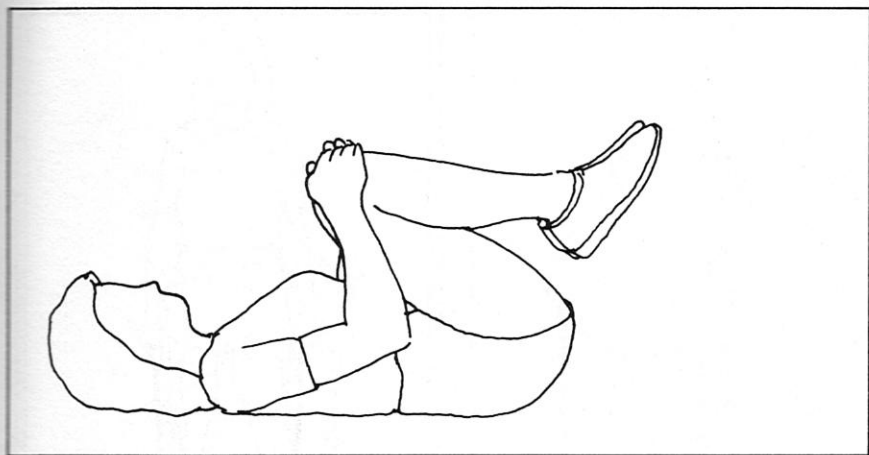
Repetitions

5-15

22 Knee to Chest

This is a low back and hip stretching exercise for flexibility and waist trimming.



**Starting Position**

- 1 Lie on back.
- 2 Bend both knees, keeping feet flat on the floor.

Movement

- 1 Bring right knee toward your chest and hold it with your hands.
- 2 Pull slowly and gently toward your chest, hold and release.
- 3 Begin with 5 second hold and increase gradually to 10 seconds.

Repetitions

5-15 each leg

Variation

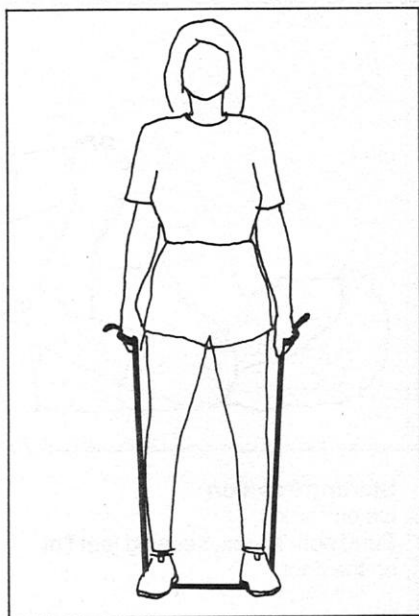
- 1 Bring both knees toward your chest.
- 2 Hold for 5-10 seconds.

Repetitions

5-10

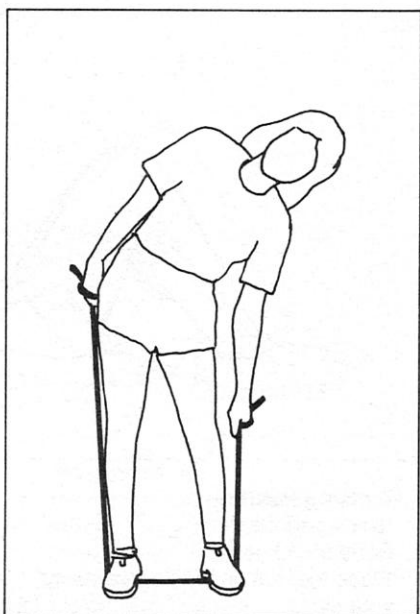
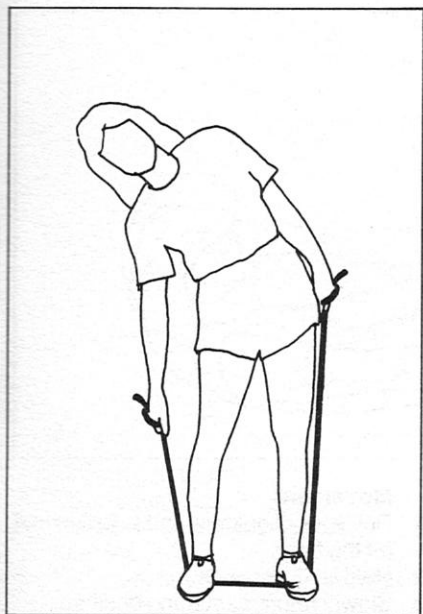
23 Side Bend

This exercise strengthens the abdominal, back and outer hip muscles. This exercise firms up the tummy sag and reduces "love handles."



Starting Position

- 1 Stand with both feet comfortably apart on the center of the tubing.
- 2 Grasp tubing at knee level.
- 3 Keep arms down at side, elbows straight.
- 4 Keep knees slightly bent.

**Movement**

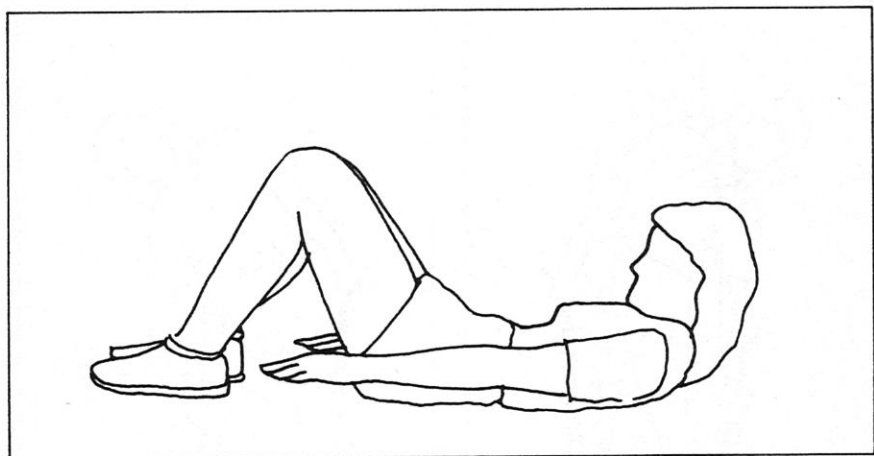
- 1 Slowly bend straight to the side, first to the right, then to the left. Do not bend forward or backward.

Repetitions

Minimum 10 each side

24 Partial Sit-Up

This exercise strengthens the central abdominal muscles and is a primary waist trimmer.



Starting Position

- 1 Lie on your back.
- 2 Bend both knees.
- 3 Place feet flat on the floor, arms at your sides.

Movement

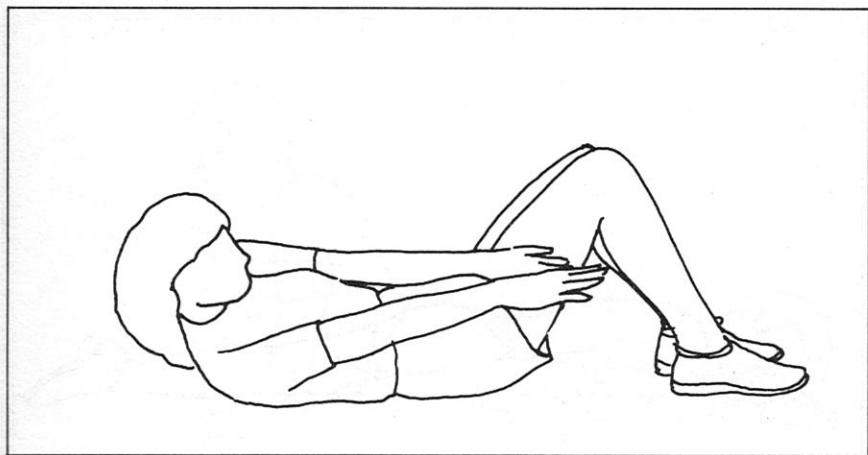
- 1 Roll your shoulders and head up just off the floor.
- 2 Hold for 5 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10

25 Alternate Bent Knee Sit-Up

This exercise strengthens the oblique abdominal muscles and is another basic waist-trimmer.



Starting Position

- 1 Lie on your back.
- 2 Bend your knees and keep them together.
- 3 Place feet flat on the floor, arms at your sides.

Movement

- 1 Reach for your right ankle with both hands, lifting only your head and shoulders off the floor. Exhale as you reach.
- 2 Lie back and inhale.
- 3 Reach for the left ankle with both hands. Exhale as you reach.
- 4 Lie back and inhale.

Repetitions

5-15 to each side

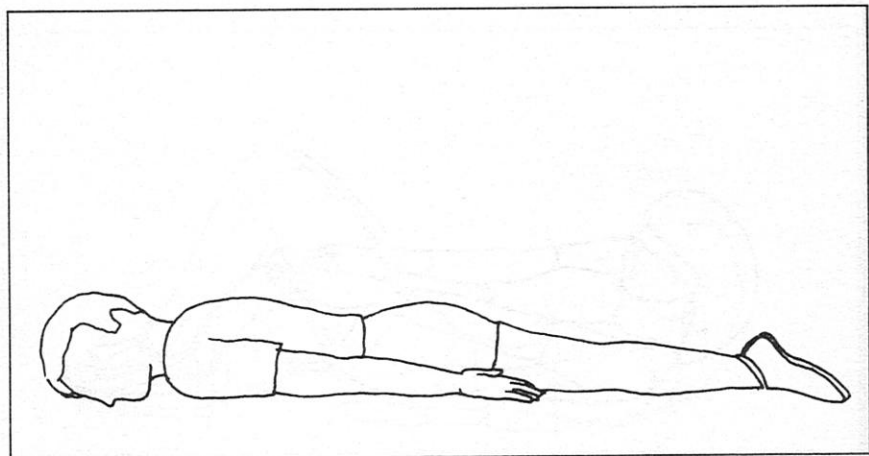
26 Back Extension

For some back problems, it is beneficial to do backward bending exercises popularized by New Zealand therapist Robin McKenzie.

Caution:

Some back problems may be aggravated by extension exercises. Check with your doctor before trying this exercise.

If you can comfortably lie face down with your arms at your side and your head turned to one side, try relaxing in this position for several minutes. If this is comfortable, try the basic exercise. As you become more comfortable and proficient, try the next.



Basic

- 1 Lie on a soft surface, face down.
- 2 Relax your back muscles.
- 3 Lift up onto your elbows.
- 4 Let your tummy sag until it lies on the surface.
- 5 Hold for 10-20 seconds.

Intermediate

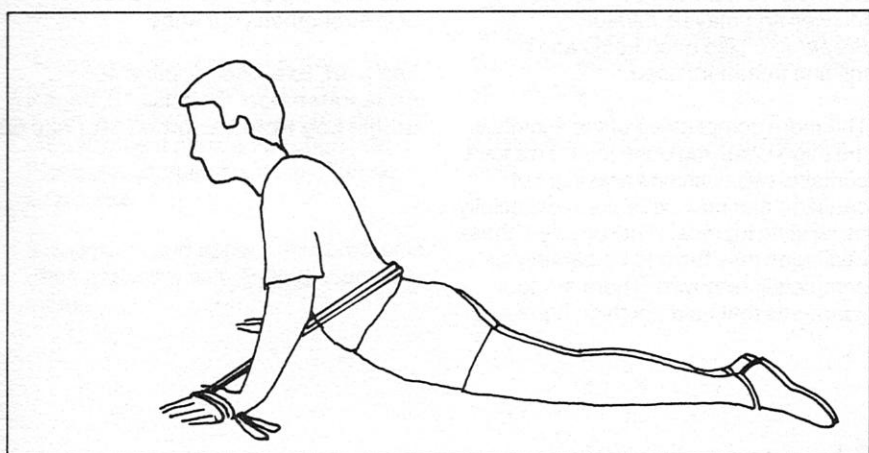
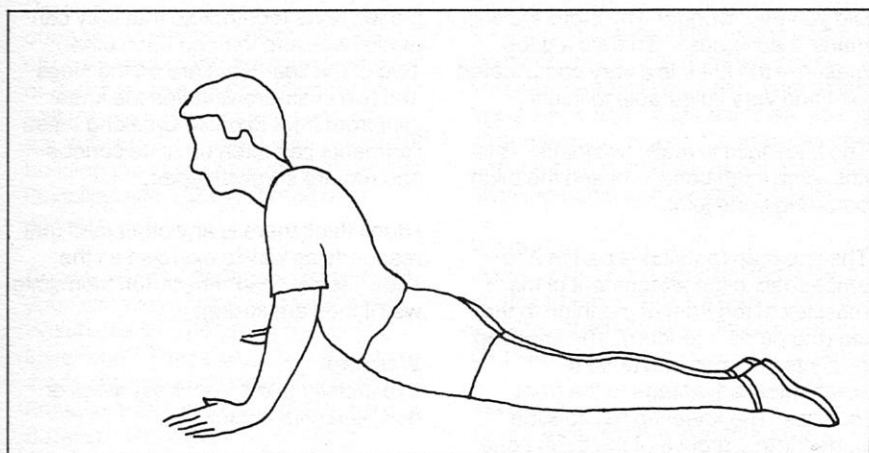
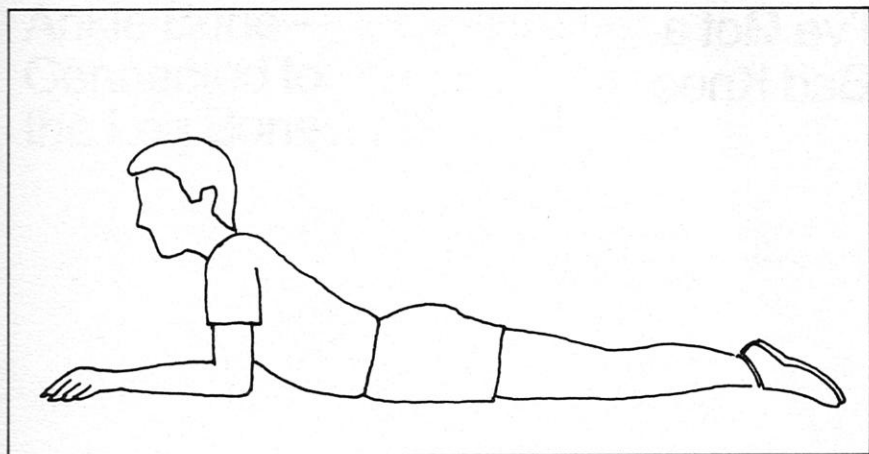
- 6 When comfortable, press the upper body into more extension by straightening the arms—as in a push-up.
- 7 Let the tummy sag toward the surface.
- 8 Hold for 10-20 seconds.

Advanced

- 9 Grasp single or double length of tubing.
- 10 Position tubing across back at waist level. Adjust tension according to your strength.
- 11 Holding tubing firmly, repeat press-up as described above.
- 12 Hold 10 or more seconds.

Repetitions

These exercises are done once or several times during the day.



I've Got a Bad Knee

Did you ever wonder why there are so many "bad knees?" There's a good reason—the knee is a very complicated joint and very vulnerable to injury.

The knee joint is really two joints—the kneecap-thigh bone joint and the thigh bone-leg bone joint.

The kneecap (patella) is part of and embedded in the attachment of the muscles of the front of the thigh to the leg (the patellar tendon). The kneecap protects the knee and adds a mechanical advantage to the front muscles. The kneecap has to slide perfectly in a groove of the thigh bone. At times the kneecap doesn't do this too well and may be painful. *Proper* exercise often helps and is the first treatment used.

The more complicated of the 2 joints is the thigh bone-leg bone joint. This joint contains two cushions (menisci) of cartilage that may be broken, especially by twisting injuries. When injured, these cartilages may have to be partially or completely removed. There are four ligaments that hold the thigh bone and

the leg bone together so that they can move back and forth on each other. Two of the ligaments are on the sides and two criss-cross inside the knee joint from front to back. Breaking these ligaments can often be quite serious and require surgical repair.

I don't think there is any other joint that responds as well to exercise as the knee. Really "bad" knees function quite well if they are strong.

Warning

If exercise makes your knee swell or hurt, see your doctor.

The following general exercises will help strengthen your knee:

Leg Curl, Exercise 13, page 40.

Knee Extension, Exercise 16, page 47.

Single Leg Press, Exercise 18, page 52.

Ankle Bone— Connected to the Leg Bone...

Problems with the "ankle" are most often leg problems. These are most often muscular and are from over-use or improper use (deconditioning, training errors, poor shoes and/or equipment). Correcting your errors and building the strength of the limb and its flexibility with Tubing should be a winner!

So you say that description doesn't fit you. You've got trouble in your ankle. Which ankle? The upper one or the lower one? The upper ankle joint lets the foot go up and down. The lower ankle joint lets the sole point inward or outward. The two joints working together let you move your foot in a circle.

Excessive looseness or stiffness in the back part of your foot, especially the lower ankle joint, are problems that are probably best handled through proper foot gear, complemented by Tubing exercises.

Shin splints and upper ankle problems often get better with Tubing exercises alone.

The ankle is the most frequent target for injury in sports. Who hasn't had a sprained ankle? Remember, after you've limped a few weeks, your whole leg is weak and needs exercise, needs strengthening, needs Tubing! Exercise and ice cold compresses will get that swelling down and restore flexibility.

Warning:

Some sprains are serious and need a doctor's help. Other sprains aren't really sprains, but fractures. Only an X-ray can tell the difference.

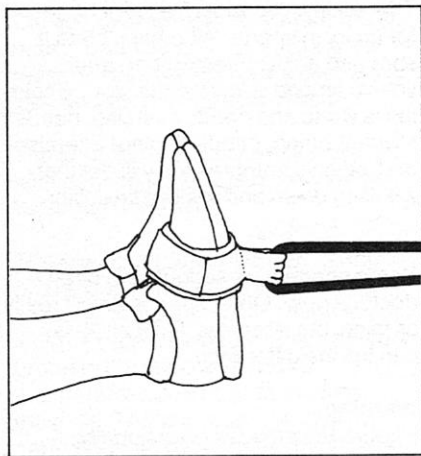
Warning:

Endurance athletes occasionally develop a stress fracture, and this may often masquerade as a muscular problem. If exercise seems to make your pain worse, or doesn't help, see your doctor.

These next exercises are for special help:

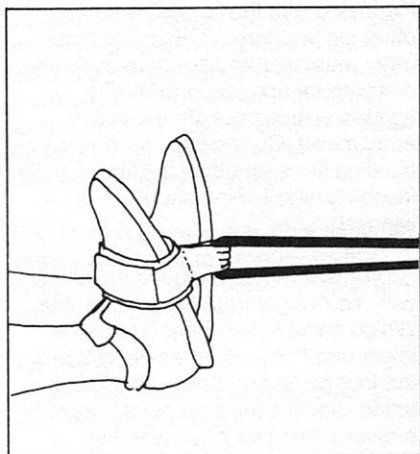
27 Ankle Flexion

This exercise strengthens the muscles on the front of the leg.



Starting Position

- 1 Sit or lie on the floor.
- 2 Secure both ends of tubing through door or around a stable object 6 inches from the floor, leaving velcro cuff on a short loop.
- 3 Place velcro cuff around right forefoot.



Movement

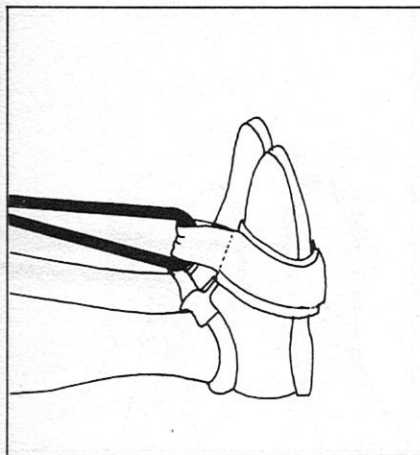
- 1 With knee straight, bend right foot and ankle toward chest.
- 2 Slowly return to starting position.

Repetitions

Minimum 10 with each leg

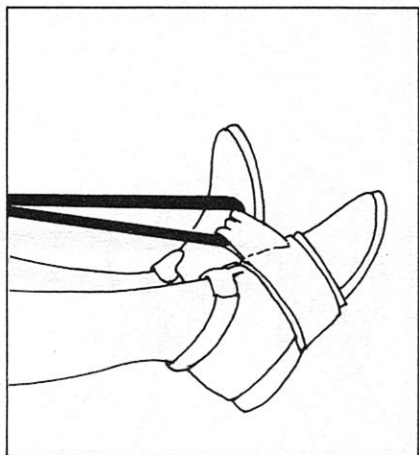
28 Ankle Extension

This exercise strengthens the calf muscles of the leg.



Starting Position

- 1 Sit on the floor with knees bent.
- 2 Place velcro cuff around right forefoot.
- 3 Grasp tubing securely and pull until comfortable tension is felt.



Movement

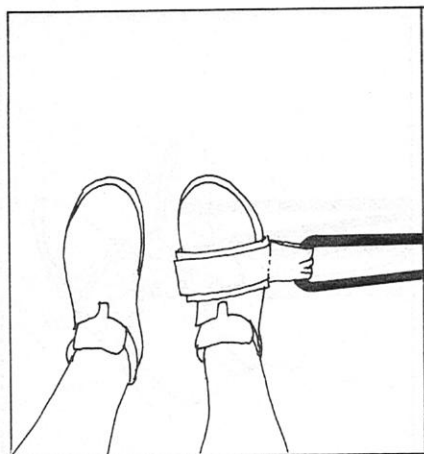
- 1 Press forefoot away from body, bending at ankle and pointing toes.
- 2 Slowly return to starting position.

Repetitions

Minimum 10 with each leg

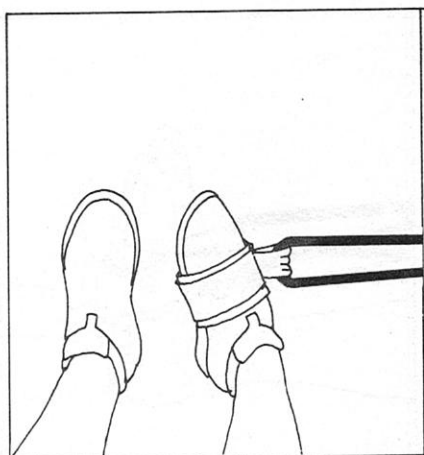
29 Ankle Inversion

This exercise strengthens the muscles on the inner aspect of the ankle.



Starting Position

- 1 Sit or lie on floor parallel to door.
- 2 Secure both ends of tubing through door or around a stable object 6 inches from floor leaving velcro cuff on a short loop.
- 3 Place velcro cuff around right forefoot, next to anchored point.



Movement

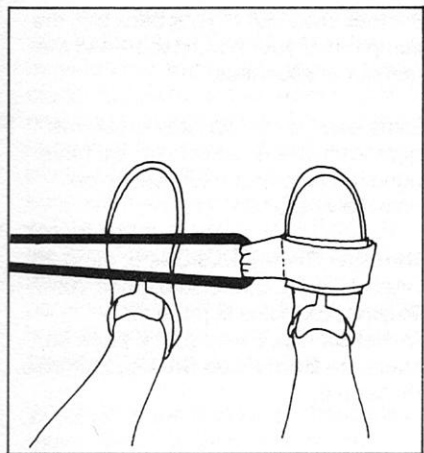
- 1 Turn bottom of foot inward, bending at ankle only.

Repetitions

Minimum 10 with each leg

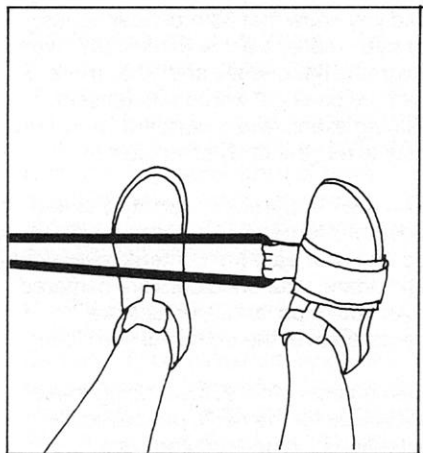
30 Ankle Eversion

This exercise strengthens the muscles on the outside of the ankle and is excellent for strengthening chronic sprained ankles.



Starting Position

- 1 Lie or sit on floor parallel to door.
- 2 Secure both ends of tubing through door or around a stable object 6 inches from floor, leaving velcro cuff on a short loop.
- 3 Place velcro cuff around right forefoot, away from anchored point.



Movement

- 1 Turn bottom of foot outward, keeping leg straight.

Repetitions

Minimum 10 with each leg

Neck Pain and Headache

Did you know that 80% of headaches, or even more, are due to tension? Even migraine headaches and other more serious ones get worse with tension. Tubing exercise is a wonderful and safe way to rid your body of tension.

The neck is extremely sensitive to bad posture. Remember to stand properly so that your ears are centered over your shoulders, your shoulders are centered over your hips, and your hips are centered over the arches of your feet.

Remember, while you are doing these exercises for the neck, pay particular attention to your head and neck posture. Keep your chin tucked in, but don't bend your neck forward or backward. Hard to do, but really worthwhile, so try!

Get that sway out of your back and the slump out of your shoulders—and the pain out of your neck.

Some exercises help neck problems more than others. At CHART, we have found the following exercises to be extremely helpful:

Shoulder Shrug, Exercise 5, page 26.

Lateral Raise, Exercise 6, page 28.

Rowing, Exercise 9, page 33.

Partial Sit-Up, Exercise 24, page 66.

Alternate Bent Knee Sit-Up, Exercise 25, page 67.

Will the real Shoulder joint please...

The shoulder joint is really two big joints and a little one. There is a big one between the arm bone and the shoulder blade (the glenohumeral joint). This is one joint that dislocates. The second large joint is between the shoulder blade and the chest (the scapulothoracic joint). A third, the smallest one, is just next to the point of the shoulder where the collar bone attaches to the shoulder blade (the acromioclavicular or "A/C" joint). This is what gets injured in a "shoulder separation."

When your arm moves, all these joints move. Because there is so much freedom of movement in the shoulder joints, the movements are just as complicated as they are flexible. For example, when a big league pitcher throws, his shoulder blade/chest joint will move almost completely around the chest, while, oddly enough, there is very little arm/shoulder blade joint motion.

Another difference in the shoulder joint is that, except for the smallest ("A/C") joint it has no strong ligaments. A joint that can be turned through almost a complete circle really can't have very strong or tight ligaments. Actually, the arm is held to the rest of the body by its muscles.

Common shoulder problems

The most common problems in the shoulder area are called "bursitis," "tendonitis," "muscle tears," "cuff tears," "fibrositis," "fibromyositis," etc. Even doctors are sometimes confused by these diagnoses. Most of these problems cause similar complaints; and at some stage in their history, most are best treated by exercise.

Bursitis is very frequently (mis)diagnosed by physician and layman. This is an extremely painful problem that is limited to a coin-sized area right near the point of the shoulder. After a few days of rest, aspirin and, *especially, ice*, very gentle exercises can begin. Heat usually makes it worse. After two or three weeks, re-conditioning exercises can be started.

Tendonitis and muscle or "cuff" tears are extremely difficult to distinguish, even for a doctor. After the really painful phase has passed, together with ice, rest and aspirin, exercises are extremely helpful in maximizing and strengthening the shoulder. Although the shoulder strength is often permanently limited, exercise will let you do the best with what you've got left.

Some other fancy diagnoses are really different versions of G.O.K. Disease—

God Only Knows Disease! With these problems, it usually doesn't harm you to try exercise. Often exercise is the key to getting the shoulder back in shape.

Nearby problems in the neck or the heart can cause shoulder pain. Obviously, these *must* be differentiated. New or unusual pain in the shoulder area may be a signal of a heart attack and should be checked by a physician. Anyone with pain in the left shoulder from a heart attack shouldn't try to "exercise it out!"

Some shoulder problems don't do well with exercise. Remember, for treatment tubing exercises must be checked with your doctor or physical therapist first. Even with your doctor's help, you may have to try it to find out.

Do not exercise too vigorously. Be sure that the exercise is appropriate for your particular problem. This is hard to do without your doctor's help.

The best way to exercise a shoulder is to start easily and increase tension and repetitions gradually. Don't let your shoulder stiffen up. Use Tubing at light tension to strengthen the joint all around and to increase its range of motion.

The following general conditioning exercises will help strengthen your shoulders:

Back Pull, Exercise 1, page 20.

Lateral Shoulder Pulldown, Exercise 2, page 21.

Chest Flys, Exercise 3, page 22.

Shoulder Shrug, Exercise 5, page 26.

Lateral Raise, Exercise 6, page 28.

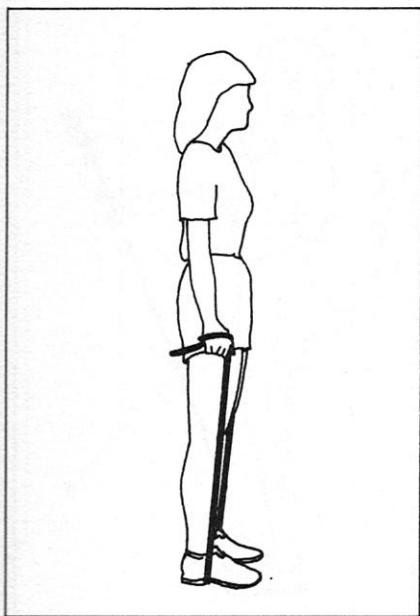
Triceps Extension, Exercise 7, page 30.

Rowing, Exercise 9, page 33.

The next four exercises are for special help.

31 Reverse Arm Lift

This exercise strengthens the posterior deltoid muscle of the shoulder.



Starting Position

- 1 Stand. Place both feet comfortably apart on center of tubing.
- 2 Grasp both ends of tubing at arm's length, thumb pointing forward.



Movement

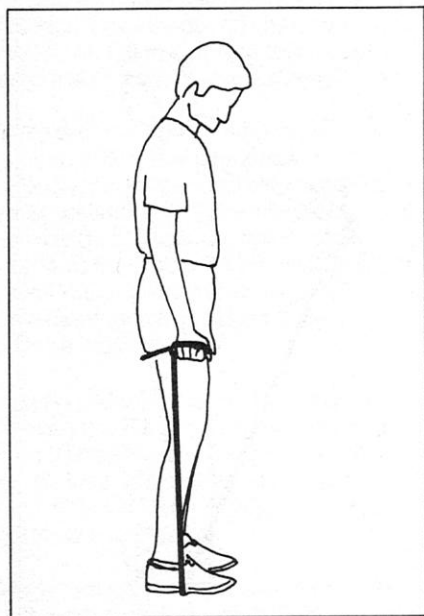
- 1 Raise right arm backward as far as possible, keeping elbow straight.
- 2 Hold for 2 seconds.
- 3 Slowly lower arm to starting position.

Repetitions

Minimum 10 with each arm

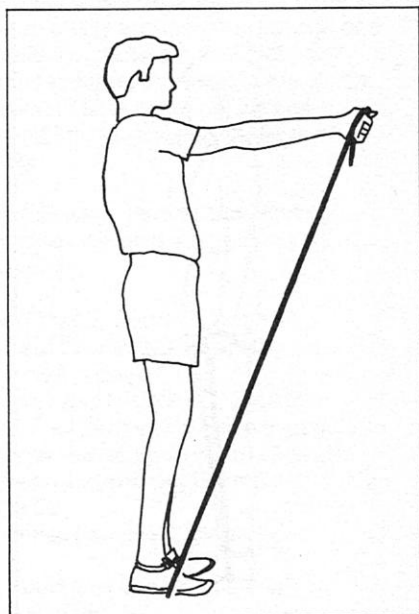
32 Forward Arm Lift

This exercise strengthens the anterior or deltoid muscle of the shoulder.



Starting Position

- 1 Stand. Place both feet comfortably apart on center of tubing.
- 2 Grasp both ends of tubing at arm's length, thumb pointing forward.



Movement

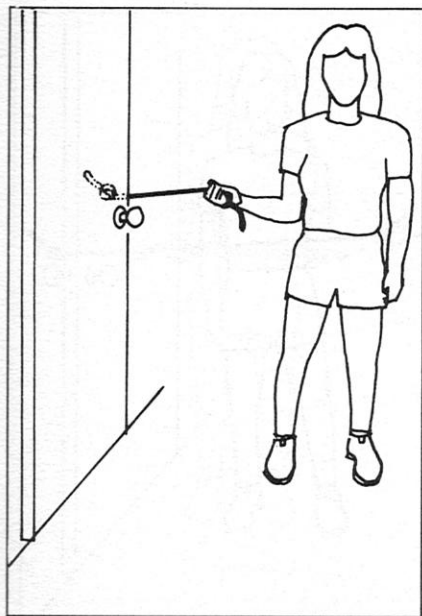
- 1 Raise your right arm forward and up to shoulder level, keeping elbow straight and pointing thumb at ceiling.
- 2 Hold for 2 seconds.
- 3 Slowly lower arm to starting position.

Repetitions

Minimum 10 with each arm

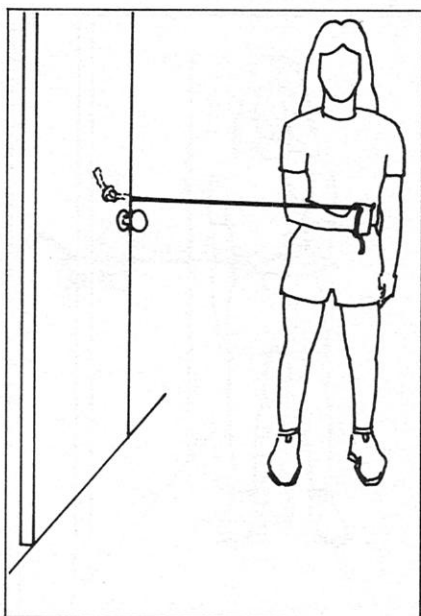
33 Shoulder Internal Rotation

This exercise strengthens the inward rotators of the shoulder and tightens "loose" shoulders.



Starting Position

- 1 Secure tubing through door or around a stable object.
- 2 Stand with right shoulder next to anchored point. With elbow bent and shoulder outwardly rotated, tubing should be taut.
- 3 Grasp tubing securely.



Movement

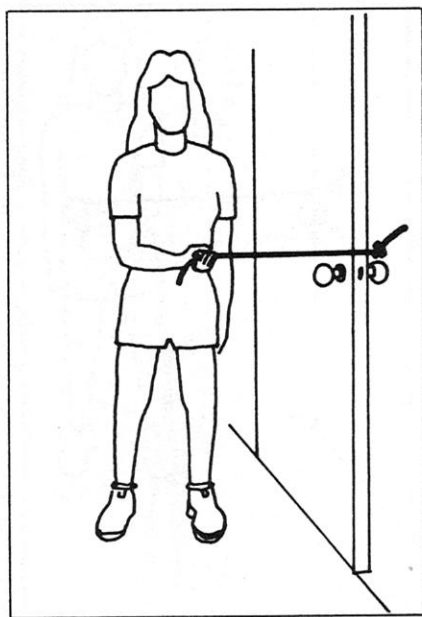
- 1 Keep elbow tucked into side of body. Pull tubing forward and toward body, turning arm inward.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10 with each arm

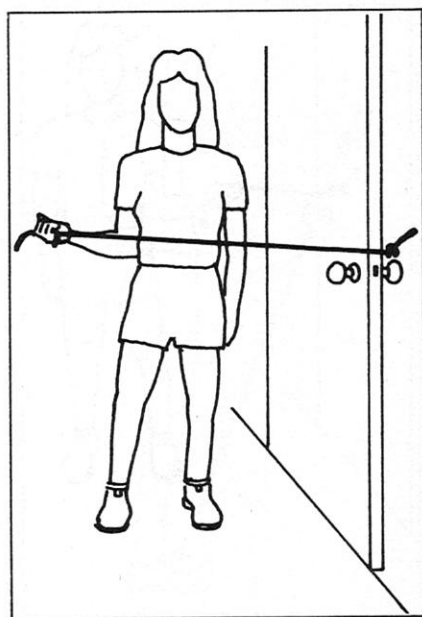
34 Shoulder External Rotation

This exercise strengthens the outward rotators of the shoulder.



Starting Position

- 1 Secure tubing through doorway or around a stable object.
- 2 Grasp tubing securely. With elbow bent and forearm held across body, tubing should be taut.
- 3 Stand with right shoulder away from anchored point.



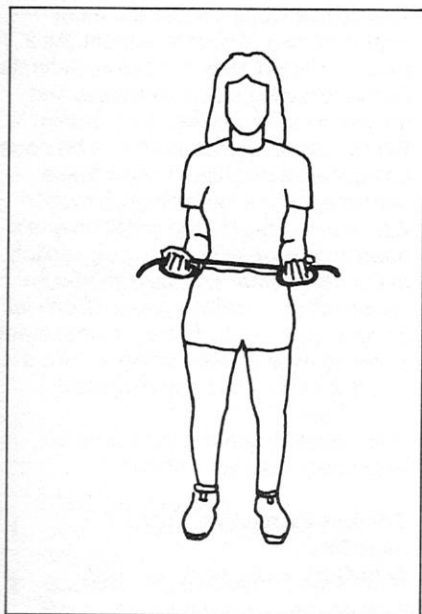
Movement

- 1 Keeping elbow tucked into side of body, pull tubing forward, turning arm outward.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

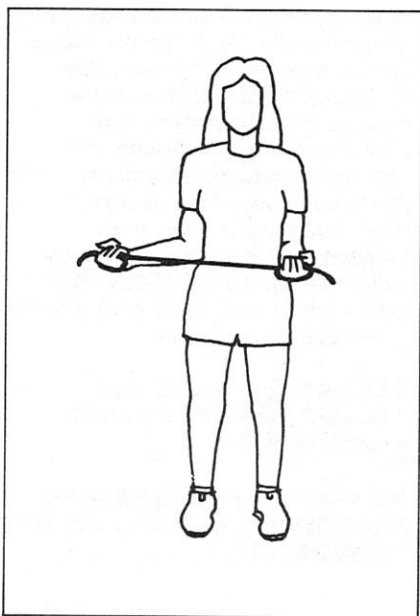
Minimum 10 with each arm

Variation



Starting Position

- 1 Stand or sit.
- 2 Hold tubing in front of you with both hands about 12 inches apart.
- 3 Bend elbows and keep arms parallel to floor, palms up.



Movement

- 1 Keeping both elbows tucked into sides, turn right arm outward and away from the other, palms up.
- 2 Hold for 2 seconds.
- 3 Slowly return to starting position.

Repetitions

Minimum 10 with each arm

Pardon my Elbow

Why they refer to it as "Tennis Elbow," I'll never understand. "Tennis" elbow occurs in almost every walk of life. Variations include: golfer's elbow, luggage elbow, painter's elbow, pitcher's elbow, ad infinitum. The common denominator for all this is pain on the outer side of the elbow (very rarely on the inner side), and a reluctance to heal. There is usually extreme tenderness in a very small area, right over or next to a bony bump on the side of the elbow.

Your doctor may be able to give you an injection that will help; then again, it might not help.

Ice, aspirin and avoiding the kind of activity that makes it hurt are also smart things to do.

Tubing exercises may be the most important part of your treatment. As a routine, CHART likes to have its patients do the following elbow exercises and the two wrist exercises. For "Tennis Elbow" these exercises should be done as rapidly as possible. Follow these exercises with a loosening-up motion that resembles shaking water off one's hand combined with a throwing motion at the same time. This also should be repeated about twenty times. (Don't let anyone see you doing this without them knowing what you are doing—unless you are portraying Lady Macbeth!)

The following general exercises will help strengthen your elbow:

Triceps Extension, Exercise 7, page 30.

Arm Curl, Exercise 8, page 32.

The next two exercises are for special help.

35 Forearm Pronation

This exercise strengthens the muscles that turn the palm down.



Starting Position

- 1 Sit on a chair with your legs uncrossed.
- 2 Grasp tubing securely in right hand. Rest forearm on your knee, palm up.
- 3 Place end of tubing under right foot, from the outside to the inside, keeping tubing taut.
- 4 Place left hand on right forearm to hold in place.
- 5 Step firmly on tubing.



Movement

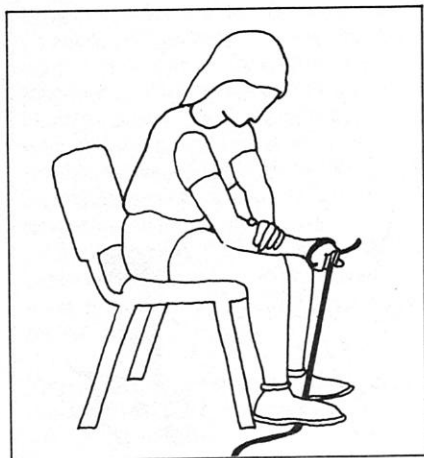
- 1 Rotate right hand and forearm from a palm-up to palm-down position.

Repetitions

Minimum 10 with each arm.

36 Forearm Supination

This exercise strengthens the muscles that turn the palm up.



Starting Position

- 1 Sit on a chair with your legs uncrossed.
- 2 Grasp tubing securely in right hand. Rest forearm on your knee, palm down.
- 3 Place end of tubing under right foot, from the inside to the outside keeping tubing taut.
- 4 Place left hand on right forearm to hold in place.
- 5 Step firmly on tubing.



Movement

- 1 Rotate right hand and forearm from a palm-down to a palm-up position.

Repetitions

Minimum 10 with each arm

The Wrist— Our Body's most Complicated Joint

You really can't find a more complicated joint in the human body than the wrist. Fifteen bones all going different directions doesn't make it any easier to understand. Add to this the tendons, nerves, blood vessels, and ligaments that cross the joint. These structures allow the hand to wave up and down, and bend sideways. There is no wonder that it's frequently a place of trouble. The real wonder is: How come this doesn't happen more often?

What looks like a wrist motion—turning the palm upward and turning it downward—really happens at the elbow. If you have weakness or problems with those motions, look to your elbow.

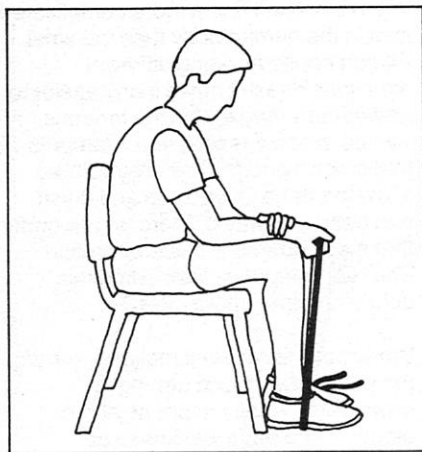
Warning:

Many wrist "sprains" turn out to be fractures of the wrist. Delaying treatment or diagnosis of a fracture may reduce your chances of it healing properly. When in doubt, get to a doctor and have an X-ray.

We have designed the following Tubing exercises to be as safe as possible. Their purpose is to strengthen the muscles of the arm and wrist and to increase flexibility.

37 Wrist Curl

This exercise strengthens the flexor muscles of the wrist.



Starting Position

- 1 Sit on a chair with your legs uncrossed.
- 2 Grasp center of tubing in right hand.
- 3 Place ends of tubing under right foot, from the outside to the inside, keeping tubing taut.
- 4 Rest forearm on thigh, palm up.
- 5 Place your left hand over right wrist to hold in place.
- 6 Step firmly on tubing.



Movement

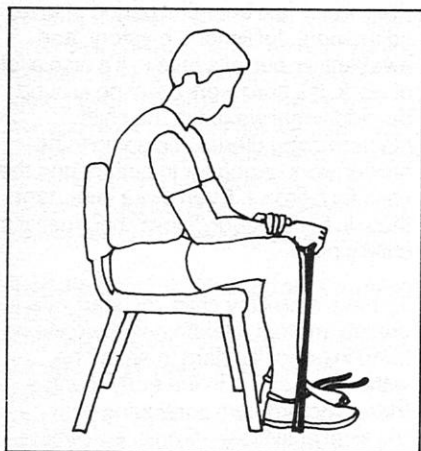
- 1 Bend your right wrist fully upward.
- 2 Slowly return to starting position.

Repetitions

Minimum 10 with each arm

38 Reverse Wrist Curl

This exercise strengthens the extensor muscles of the wrist.



Starting Position

- 1 Sit on a chair with your legs uncrossed.
- 2 Grasp center of tubing in right hand.
- 3 Place ends of tubing under right foot, from the outside to the inside, keeping tubing taut.
- 4 Rest forearm on thigh, palm down.
- 5 Place your left hand over right wrist to hold in place.
- 6 Step firmly on tubing.



Movement

- 1 Bend your right wrist fully upward (backward).
- 2 Slowly return to starting position.

Repetitions

Minimum 10 with each arm

Arthritis— Keep those joints moving

Arthritis is not a single disease. Most people in their fifth decade or older have some degree of wear-and-tear arthritis—osteoarthritis. This type is rarely seriously crippling. It is very slow starting and reasonably managed by persistent exercise.

Another kind of arthritis is gouty arthritis. This is most disabling in men over forty. It can be completely controlled by medication. Between attacks, however, all but the worst cases of gout are fairly normal and do well with light and continuous exercise such as Tubing. However, heavy exercise and injury can actually precipitate an attack of gout.

Rheumatoid arthritis in its many variations is a more serious "crippler." With the milder forms and with the forms that do not leave scars of joint disease, light and persistent exercise, such as Tubing, is ideal and, in fact, essential.

There are no "special" Tubing exercises for arthritis, but the full Tubing regimen will get you well on the way to the most healthy kinds of exercise.

Pregnancy— Tubing for Two

Pregnancy is a beautiful period of love, adjustment, fulfillment, mystery, and awakening; but let's face it, it's also a lot of work. It's hard work carrying around the additional weight of the child, placenta, and uterus. It's going to be harder work caring for the infant and the child as it grows. Even more important, they don't call labor "labor" because it's child's play!

To have a healthy child you start with a healthy mother. Health and exercise go hand in hand; it's hard to have one without the other. In the early months there's no problem continuing your physical activities—tennis, swimming, jogging, bicycling, or whatever turns you on. After a while, however, things start to get a little complicated. Maternity tennis togs aren't the only stumbling block; don't risk premature labor running after a forehand smash. Leaning over the handlebars at seven months may be a bit of a problem. Exercise is healthy, but with that nine-month bundle blossoming in your tummy, it does make things a little difficult at times.

Those final couple of months may be miserable for exercising, but they're critical. Deconditioning (that means

Postnatal Help

getting weaker) begins just a few weeks after you quit exercising as hard as you should. So just before the stress is going to be the greatest, the tendency is for you to let yourself get weaker. With Tubing, safe and effective exercise can continue to the last moment. An all around program is essential but these exercises are especially beneficial:

Saddle Bag Hip Abduction, Exercise 15, page 44.

Hip Adduction, Exercise 17, page 50.

Single Leg Press, Exercise 18, page 52.

Pelvic Tilt, Exercise 21, page 61.

Side Bend, Exercise 23, page 64.

Partial Sit-Up, Exercise 24, page 66.

Alternate Bent Knee Sit-Up, Exercise 25, page 67.

You'll find Tubing very helpful in the post-natal period, too, when you don't seem to have time to do *anything*.

Tubing is right there when you do have a spare moment, ready to help you back to your strong, healthy self or to be able to better stand the rigors of raising an infant. Tubing will help you tighten up those loose areas that have been distorted by now unneeded fat stores. Along with abdominal exercises, the following exercises will help tone up the urologic and genital muscles:

Hip Adduction, Exercise 17, page 50.

Hip Inward Rotation, Exercise 19, page 55.

Hip Outward Rotation, Exercise 20, page 56.

Pelvic Tilt, Exercise 21, page 61.

Side Bend, Exercise 23, page 64.

Partial Sit-Up, Exercise 24, page 66.

Alternate Bent Knee Sit-Up, Exercise 25, page 67.

Tubing will also help you get in shape for the next baby!

Conclusion

If you have come this far, you are just like the rest of us. Totally addicted to Tubing. Safe, effective, portable, pleasant, inexpensive, infinitely adjustable, and convenient.

Nobody is perfect, and that includes us. So we would like your help. Let us know if you have any questions about Tubing, any problems, of course, and any suggestions. Our third edition has already started, and we would like to incorporate your ideas in its development. Got any tips? Share them with other Tubers! *Please send your comments to:*

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Appendix

Age	20-30	31-40	41-50	51-60	60+
Maximum Heart Rate	186	181	173	161	159

Example:

A 23-year-old person took his pulse before he got up in the morning. His Resting Heart Rate (RHR) was 72. From the chart, he identified 186 as his Maximum Heart Rate (MHR). He subtracted his resting pulse of 72 from

the Maximum Heart Rate of 186 and got the figure of 114. Seventy percent of this rate equals 80 beats per minute. Adding that to his Resting Heart Rate of 72 gives him an Exercise Heart Rate (EHR) of 152.

Now try yours:

$$\begin{aligned}
 &(\text{MHR} - \text{RHR}) \times 70\% = \quad + \text{RHR} = \text{EHR} \\
 &\underline{\quad} - \underline{\quad} = \underline{\quad} \times 0.7 = \underline{\quad} + \underline{\quad} = \underline{\quad}
 \end{aligned}$$



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Tubing Exercise Card

To begin: Do minimum number of repetitions with Tubing quite loose. Thereafter, tighten Tubing appropriately until suggested number of repetitions tires each set of muscles. Record number of repetitions to keep track of progress.

Name

Physical Limitations		(MHR - RHR) × 70% + RHR = EHR
Maxi-Fitness Program	Date	
1 Back Pull		
2 Lateral Shoulder Pulldown		
3 Chest Flys		
4 Chest Press		
5 Shoulder Shrug		
6 Lateral Raise		
7 Triceps Extension		
8 Arm Curl		
9 Rowing		
10 Shoulder Pullover		
11 Shoulder Pulldown		
12 Hip Extension		
13 Leg Curl		
14 Marching in Place		
15 Saddle Bag Hip Abduction		
16 Knee Extension		
17 Hip Adduction		

18	Single Leg Press
19	Hip Inward Rotation
20	Hip Outward Rotation
Problem Areas	
21	Pelvic Tilt
22	Knee to Chest
23	Side Bend
24	Partial Sit-Up
25	Alternate Bent Knee Sit-Up
26	Back Extension
27	Ankle Flexion
28	Ankle Extension
29	Ankle Inversion
30	Ankle Eversion
31	Reverse Arm Lift
32	Forward Arm Lift
33	Shoulder Internal Rotation
34	Shoulder External Rotation
35	Forearm Pronation
36	Forearm Supination
37	Wrist Curl
38	Reverse Wrist Curl

Tubing for Maxi-Fitness

If you want to join a spa or health club but can't afford the time or money, Tubing is for you! Subtract the cost of this book and equipment from the price of the spa membership, and you'll have enough money left over to buy a television set or a whole stack of records and tapes to enjoy your exercise sessions! All in all, Tubing is a total gym in a bag, and it weighs less than a pound.

This Tubing program was designed and tested by the experts at CHART where our major job is to get injured people well.

Join us now in a growing army of "Tubers"—Tubing for health and exercise, Tubing to help heal injuries, Tubing to increase flexibility, endurance and strength, and, in general, Tubing for Maxi-Fitness. So unroll your eight-foot gymnasium-in-a-bag, find a comfortable spot, sit down, and read. Don't get too comfortable, though, because we want you to become a "Tuber."