



return to sports after injury

**IMPROVING STRENGTH,
POWER, AND AGILITY**

This booklet is designed for people recovering from a knee or leg injury who participate in recreational or competitive sports such as running, soccer, basketball, tennis, or similar sports. In preparation for a safe return to your sport, we recommend an exercise program that includes each of the following types of exercises, which you will find on the pages indicated:

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The goal of this training program is to improve your strength, endurance, agility, and power. Please read the instructions carefully and follow the advice of your physical therapist or doctor when starting or progressing with an exercise program. If your symptoms get worse while doing these exercises, please read the instructions again or talk to your health provider.

- Equipment needed:**
- ball
 - exercise ball
 - chair
 - cones
 - tape for star or square
 - exercise band _____ (color) OR resistance band
 - pillow/towel
 - wooden dowel
 - cane or weighted bar

DYNAMIC WARM-UP

A dynamic warm-up uses slow, controlled, repeated movements that gradually warm up and stretch your muscles. It is a safe and effective way to prepare your body for physical activity and sports. Start by doing a general warm-up on a stationary bike or elliptical trainer or walking fast for 5 minutes. Continue with 5 to 10 minutes of general body movements in all directions. The following are good examples:

- ❑ March forward lifting straight leg and opposite arm. Alternate legs and arms.



- ❑ Walk sideways taking giant steps. Repeat in both directions.



- ❑ Walk forward, lift your knee to the side, and then bring your leg forward with each step. Alternate legs as you walk.



- ❑ Walk forward taking giant steps while twisting your upper body toward your forward leg.



- ❑ Walk or slowly jog forward while kicking your heel toward your buttocks.



- ❑ March forward lifting your knee toward your chest and rising up on the opposite toes. Alternate sides.



BASIC PLYOMETRIC JUMP TRAINING

Plyometric jump training uses fast, powerful movements as in jumping or hopping. When done properly, it can improve your overall sports performance.

For each of the exercises prescribed by your physical therapist or doctor, perform 2 or 3 sets of 10, and allow 2 minutes of rest between sets. Due to the intensity of plyometric training, do these exercises no more than 3 times per week. If you do plyometrics and strengthening exercises on the same day, perform the plyometric exercises first unless instructed otherwise. Here are jumping mechanics to help you in your plyometric jump training:

- Start with proper posture and alignment and maintain throughout the jump.
- Keep your shoulders aligned over your knees, and your knees aligned over the balls of your feet.
- Never let your knees come together or pass the front of the toes when taking off or landing from a jump.
- Land softly on your feet. Try to land on your toes first and then let your heels come down. Do not round or curl your back.

Stability Jumps

Start in a squat position; jump and land in a squat position.

Stick and hold the landing for 2 seconds. FREQUENCY _____

Jump Straight Up

Jump Forward

Jump Backward



Repeated Jumps

You can begin repeated jumps when you are able to maintain proper posture and knee alignment with the stability jumps.

Jumps in place (ankle hops): Start with your knees slightly bent. Jump straight up and land softly. Repeat jumps quickly.

FREQUENCY _____



Jump forward and backward over an object (ball, cup, cone):

Start with your knees bent. Remember to use good jumping mechanics during take-offs and landings.

FREQUENCY _____



Jump side to side over the object (ball, cup, cone):

Start with your knees bent. Remember to use good jumping mechanics during take-offs and landings.

FREQUENCY _____

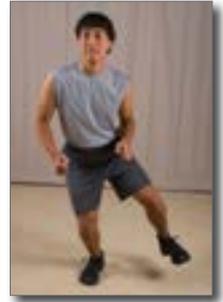


AGILITY AND BALANCE EXERCISES

The goal of performing agility exercises is to protect your knee and improve your speed and stability. Agility and balance are important when you engage in activity that requires quick changes of direction such as running, soccer, basketball, or tennis. The following are a few examples of agility drills.

- ❑ **Sideways shuffle:** Stay low in a squat position. Move your feet to the left (or right) in a quick shuffle motion. Do not shuffle on your toes only; use your whole foot. As you shuffle, keep the foot that is in the air flexed (toes up, not pointed).

FREQUENCY _____



- ❑ **Grapevine:** Start standing with feet parallel. Moving to the left, cross your right foot in front of the left. Move your left foot out to the side, and back to the starting position. Cross your right foot behind the left. Repeat the in front/behind pattern moving to the right.

FREQUENCY _____



- **Hopscotch jumps:** Start in a squat position with your feet hip width apart. Jump forward and land on your left foot. Immediately push off your left foot and land on both feet. Immediately jump forward and land on your right foot. Push off from your right foot and land on both feet. Repeat the pattern.

FREQUENCY _____



- **4-Square drill:** Create with tape, or imagine, a large square made up of 4 smaller squares. This exercise has many variations. You can jump clockwise, counter-clockwise, or diagonally from one square to the next. You can also have someone call out a pattern to you.

1	2
4	3

Start in a semi-squat position. Land softly and focus on speed rather than the height of your jumps.

FREQUENCY _____



STRENGTHENING EXERCISES FOR YOUR KNEE

When working on all of the strengthening exercises in a single session, work on the large muscle groups such as your thigh and buttock muscles before working on smaller muscle groups such as your hip rotator muscles.

Deep squat progression

The goal is to perform a controlled deep squat while keeping proper alignment throughout the movement. As you squat, maintain proper alignment by sticking your rear-end out while keeping your shoulders aligned over your knees, and your knees aligned over your ankles. Do not let your knees come together.

- Chair squat** (easier): Stand in front of a chair. Position the chair so that as you squat, your buttocks will just touch the edge of the chair. Squat and hold for ___ seconds. Come back up and repeat.

FREQUENCY _____



- Body weight squat** (harder): Squat until your thighs are parallel with the floor. Keep proper alignment throughout.

Hold for ___ seconds.

FREQUENCY _____



- Squat with bar overhead** (most difficult): You can use a wooden dowel, cane, or weighted bar for this exercise.

Hold a bar overhead and keep your elbows straight. Squat until your thighs are parallel with the floor. Do not allow your arms to come forward or your back to round. The wider your grip, the easier it will be to control your position at first.

Hold for ___ seconds.

FREQUENCY _____



Lunge progression

- Static deep lunge:** Take a large step forward. Lower your back knee to within 1 inch from the ground and allow your back heel to lift. Keep your front knee over your ankle. Push up to standing with your front leg.

Repeat _____ times and alternate leg position.

FREQUENCY _____



- Walking lunge:** Take a large step forward and perform a deep lunge. Continue alternating legs for the length of a room or hallway.

Repeat _____ times or _____ minutes.

FREQUENCY _____



Variations:

- Lunge while holding light hand weights.
- Reach up or raise your arms to the side as you lunge.

- Combination lunge:** Do a deep lunge in multiple directions. Alternate legs.

FREQUENCY _____ DIRECTIONS _____

DIAGONAL BACKWARDS (PIVOT AND LUNGE)

SIDEWAYS



NEUTRAL



DIAGONAL FORWARD

FORWARD

BALANCE AND CONTROL EXERCISES

- Star reaches:** Stand on one foot in the center of the star. Bend the knee of your standing leg and reach to the outer points of the star with your hand. As you reach down, lift your other leg to help you balance. Keep your body weight over your standing leg. Do not let your knee collapse inward as you bend your knee. Return upright after touching the line but stay balanced on your leg. Reach to those points of the star prescribed by your physical therapist.



- __ left leg __ right leg

FREQUENCY _____

- 4-Way quick pulls with resistance:** Balance on one leg with a resistance band or tubing tied to the opposite leg. Attach the other end to a sturdy object such as the leg of a sofa or bed. You can also use weighted cables. Keep the leg you are standing on slightly bent. Pull the band or cable **rapidly** for 30 seconds in each of the following directions.

FREQUENCY _____

FORWARD



SIDE-OUT



BACKWARD



SIDE-IN



STRENGTHENING EXERCISES FOR YOUR CORE

Your core muscles include all of the muscles that attach to your trunk. A strong core is essential for optimal sports performance.

Plank Exercises

- Plank:** Prop yourself up with your weight supported on your toes and forearms. Tighten your stomach and buttock muscles and keep them tight throughout the exercise. Keep your back straight.

Hold ____ seconds. FREQUENCY _____



- Side Plank:** Lie on your side with your knees, hips, and shoulders in line. Rest your top hand on your hip. Tighten your stomach and buttock muscles and keep them tight throughout the exercise. Lift your hips 3 to 4 inches from the floor. Keep your knees straight during this exercise.

Hold ____ seconds. FREQUENCY _____



Shoulder Blade Squeezes: T's, Goal Post, and Y's

Lie face down with your stomach on an exercise ball. If you do not have a ball, you may do this exercise lying over a workout bench. You may keep your knees straight (as shown) or bent resting on the floor. Maintain good alignment of your neck by looking down at the floor.

- T's:** Raise your arms to the side with your thumbs up.

FREQUENCY _____



- Goal Post:** Bend your elbows. Raise your arms up to the side.

FREQUENCY _____



- Y's:** Raise your arms forward and up with your thumbs pointing up.

FREQUENCY _____



Side leg lifts

The goal is to perform at least 10 repetitions of this sequence: a lift, rotation, and then a knee bend. Lie on your side with your bottom leg bent and top leg straight. Place your hand on your pelvis to monitor the movement of your pelvis during the exercise. Do not allow your pelvis to roll forward or back during the exercise. Gently tighten your abdominals while you do the exercises.

- Lifts:** Lift your top leg up and down.

FREQUENCY _____



- Rotations:** Lift your leg and hold it up. Rotate your hip by bringing your toe toward the ceiling, then down toward the floor.

FREQUENCY _____



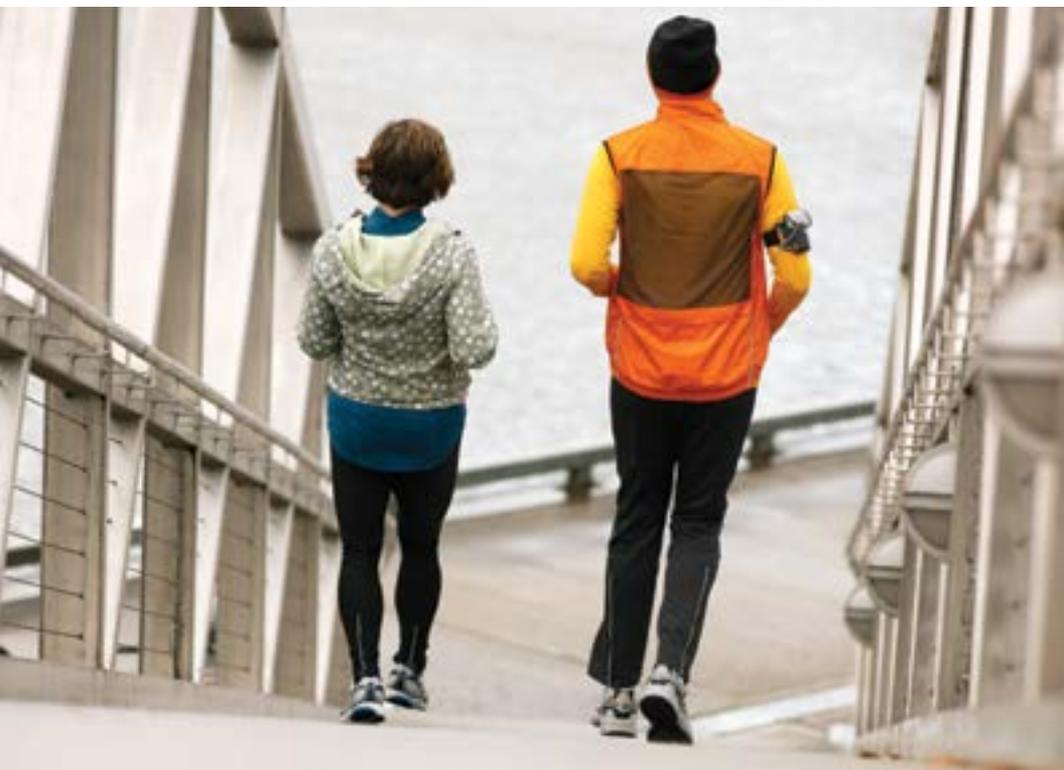
- Knee Bend:** Lift your leg and hold it up. Bend and straighten your knee without moving your hip.

FREQUENCY _____



ADDITIONAL RESOURCES

- Connect to our website at kp.org/mydoctor to access health and drug encyclopedias, interactive programs, health classes, and much more. Download the Healthy Living for Teens or other podcasts.
- Teenwire.com
- Teenshealth.org
- Contact your Kaiser Permanente Health Education Center or Department for health information, programs, and other resources.



Consult with your physical therapist or doctor if you experience an increase in your symptoms with recommended exercises, or if you develop new symptoms of numbness, tingling, or a spread of the pain. This information is not intended to diagnose health problems or to take the place of medical advice or care you receive from your physician or other health care professional. If you have persistent health problems, or if you have additional questions, please consult with your doctor.