

# ACL

## PROTECTION AND PERFORMANCE ENHANCEMENT FOR AGILITY HANDLERS, PART 2

By Barbara Fink, Anita Keetch, and Denise Apperson

The ACL Protection Program for Agility Handlers includes six components:

- WARM-UP
- STRETCHING
- STRENGTHENING
- BALANCE
- PLYOMETRICS
- COOL DOWN

For each 20-minute exercise session, the warm-up, stretching, and cool-down components are required. You can pick and choose among several different exercises within each component to fit your time budget and for some variety. You can break your 20-minute exercise session into several parts and combine it with activities that you already do, or build new routines for the times that you typically stand around waiting for things to happen in class or at a trial. For example, you could do your warm-up and stretching before you walk the course. How many of you spend 10 minutes standing around the edge of the ring waiting for the final course tweaks and the okay from the judge? You could be doing a 3-minute warm-up instead, which will decrease your stress and improve your focus when you start your walk-through. When you warm your dog up, you can do some plyometrics (see below) or strengthening exercises with him, which will get both of you ready to run. You and your dog can cool down together after your run.

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### WARM-UP

The purpose of the warm-up is to elevate your body and muscle temperatures to prepare them for vigorous activity. Your warm-up should consist of at least 3 minutes of aerobic activity. That means you should have an elevated heart rate, increased body temperature, and perhaps be lightly perspiring when you are finished. All of these exercises can be done with your dog.

#### FORWARD JOGGING

A slow, steady pace is sufficient.

#### BACKWARD JOGGING

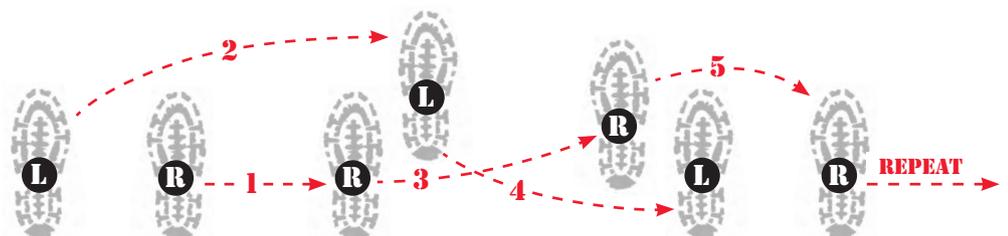
You can get some additional balance work with this activity.

#### SKIPPING

Just like when you were a kid. Get those knees up! This is a great warm-up activity because it involves your entire body.

#### GRAPEVINE

This exercise requires some fancy footwork. The grapevine step, often seen in dance or aerobics classes, is sideways running while crisscrossing your legs. Start in a neutral, athletic stance with your feet shoulder-width apart. Step right and to the side with the right foot. Cross the left foot in front of the right foot. Step right again to the side with the right foot. Next cross the left foot behind the right foot. You'll then be in position to start again. Repeat the sequence as space allows and then head toward the left in the same manner. Move slowly until you get used to the rhythm.



# STRETCHING

Is it better to stretch before or after exercise? Experts are still debating this issue. If you are a particularly inflexible person, you may want to stretch after your 3-minute warm-up. Spend no more than 15-20 seconds holding the stretch on each muscle group. Otherwise, we generally recommend that you stretch after your full workout.



**Standing hamstring stretch:** Handler's back is arched as she leans forward into the stretch. Her right foot is relaxed. The arrow marks the area where you should feel the stretch in your right leg.



**Sitting hamstring stretch:** Handler's back is straight and she is bending forward slightly from her hips.



**Quadriceps stretch:** Handler's back is straight. You should use something for balance during this stretch.

## HAMSTRINGS (BACK OF THE THIGH)

While standing, hold onto something for balance. Put your right foot forward and bend at the left knee and hip, keeping your right foot and ankle relaxed. Arch your back and lean forward. This stretch can also be done in a sitting position. Sit down with both legs straight out in front of you. Bend your left knee and bring your left foot toward your right thigh as far as you can. Keep your right leg straight. Keep your back straight and slowly lean forward.

## QUADRICEPS (FRONT OF THE THIGH)

While standing, hold onto something for balance. Hold your right ankle behind you with your right hand. Bring your heel toward your buttock. Keep your right knee pointing toward the ground. Keep your right leg close to your left. Don't bend at the waist and don't arch your back.

## GASTROCNEMIUS (CALF) AND SOLEUS (ACHILLES TENDON)

While standing, put your right foot back with your toes pointing forward, your knee straight, and your heel on the ground. Place your left leg in front of you and bend at the knee. Keep your back straight and lean forward until you feel a stretch in your right calf. Repeat with your right knee bent as well as the left and you will feel the stretch closer to your Achilles tendon. This stretch is also known as the runner's stretch.

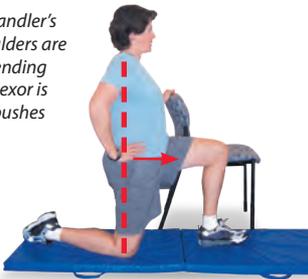
**Gastrocnemius stretch:** Note that handler's right heel is down and her right foot is pointing forward. She is leaning into the wall to stretch her calf.



**Soleus stretch:** For the Achilles stretch, the right knee and ankle are flexed but the overall body position remains the same as the calf stretch.



**Hip flexor stretch:** Handler's knee, back, and shoulders are aligned. She is not bending from the waist. The flexor is stretched when she pushes her hips forward.



## HIP FLEXORS (FRONT OF THE HIP)

Kneel on your right knee holding onto something for balance. Bend your left knee and place the left foot in front of you flat on the ground. Tuck your buttocks under while keeping your back straight and shoulders up. Don't arch your back. Push your hips forward until you feel a stretch in your right front hip area.

**Gluteal stretch:** Handler's back is straight as she leans forward, and her left toes are lifted for extra stretch in her right buttock.



## GLUTEAL (BUTTOCKS)

Sit down on the floor with your knees up and your hands behind you with elbows straight to keep your torso upright. Place your right ankle over your left knee. Lean forward, keeping your back straight, and scoot your left foot back until you feel the stretch in your right buttock. Lift the toes of your left foot off the floor for more stretch.

**Butterfly stretch:** You can use your elbows to gently push your knees downward as you stretch the hip adductors and internal rotators.



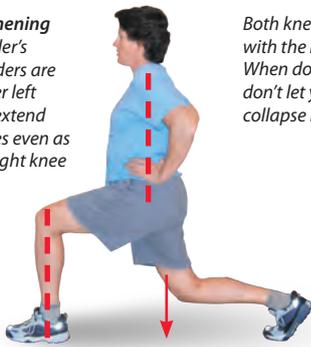
## HIP ADDUCTORS AND INTERNAL ROTATORS (GROIN)

Sit on the ground with the soles of your feet touching each other and your back straight. Hold your ankles with your hands and bring your feet as close to you as you can. With your elbows, lightly push your knees toward the floor until you feel a gentle stretch and hold.

## STRENGTHENING

Strengthening exercises help increase muscular power and endurance. They are quite important in helping prevent injuries to the ACL. These exercises can be done at home so you can work your muscles to fatigue, or they can be done in shorter sets at a trial. They should be executed with some deliberation; speed is not a goal here.

**Lunge strengthening exercise:** Handler's hips and shoulders are aligned, and her left knee does not extend past her left toes even as she drops her right knee into the lunge.



Both knees are in line with the handler's feet. When doing the lunge, don't let your knees collapse inward.



### LUNGES

Begin by standing upright with your feet together, back straight, and head tilted up. Now slowly take a giant step forward with one leg, bending both knees. The weight on your back foot should come up from your toes, and the knee on your back leg should come very close to, but not touch the floor. Your front leg should bend to 90° at the ankle, knee, and hip, keeping the knee in line with the ankle. The front knee should never extend past the front foot's toes! Bear the weight of your body through the heel of the front foot. Push up with the front leg until your feet are back together in the starting position. Keep your torso centered over your hips. Then lunge forward with the opposite leg. Try to do 2 sets of 10 lunges each side.



**Bridge strengthening exercise:** Note alignment of the handler's ankle, knee, and hip.

### ONE-LEGGED BRIDGE

Lie on your back with your arms relaxed over your head, knees bent, and feet flat on the floor. Lift your pelvis with both legs and then straighten your left leg while maintaining the bridge position. Do not let your left hip drop. Keep your pelvis high and in line with your knees and shoulders. Then lower your pelvis until your buttocks touch the ground and return to the bridge position. You should aim for 2 sets of 20 lifts on each side.

### STAIRS

Walking or jogging up and down stairs is a good activity. Try walking backward or sideways up and down the stairs for additional balance benefits. If you are feeling frisky, try the grapevine step on stairs. Remember to switch your lead leg every flight or so. You should aim for 1 minute or the equivalent of 10 flights.

## BALANCE

Balance exercises are critical to the types of movements that agility competitors use in the ring. If our eyes are properly on our dogs, we can't be looking at our feet. You can do balance exercises at any time, including at work, at home while watching TV, or while playing with your dog at class or at a trial. The effects are cumulative. We've suggested some simple exercises below, but you can probably come up with more. If something is a challenge to your balance, then it is a good balance exercise.

### TOE STAND

With your knees straight and feet slightly apart, stand up on your toes. Hold for as long as you can. Your goal is to hold this for 45 seconds or more.

### SINGLE-LEG STAND WITH EYES CLOSED

Stand up straight, lift one foot off the ground behind you by bending your knee, and close your eyes. Hold for as long as you can. If your foot drops to the ground for balance, switch to the other foot. Try to hold each side for 30 seconds or more.



**Single-leg balance exercise:** Notice that handler's knees aren't touching and her arms are at her sides.

### SINGLE-LEG PILLOW STAND

Stand up straight on a rolled dog blanket or pillow. Lift one foot off the ground by bending your knee behind you and close your eyes. Hold for as long as you can. You can start with your eyes open if needed. To increase the difficulty, do mini-squats while your eyes are closed. You can also purchase a Dyna Disc™ that is made for this purpose.

### DOG TUG BALANCING

Get your dog and a tug toy. Stand up straight, lift one foot off the ground by bending your knee behind you, and hold the tug while your dog pulls on it. If your foot touches the ground for balance, switch to the other foot.

## PLYOMETRICS

These exercises will help improve explosive power, balance, and coordination. They should be executed quickly. They can be done at home so you can work your muscles to fatigue or in shorter sets at a trial.

### CALF JUMPS

Stand erect with your arms semi-extended overhead. This vertical jump requires minimal knee flexion. Your calf muscles should create the vertical push. Your arms should extend fully at the top of the jump. This relatively low-intensity movement can reveal abnormal knee motion in athletes with poor side-to-side knee control. Try to land softly on your toes with your knees over your second toes. Do these in front of a mirror or with a partner to make sure your knees aren't collapsing in upon landing, or that one foot lands sooner than the other. Your goal is to do as many jumps as you can in 15-20 seconds.



**Calf jump:** Handler is preparing to jump vertically. The push for this jump should come from the calves.

**Broad jump:** Note starting position for this exercise.



Land softly with your knees over your toes and try to stick the landing.

### BROAD JUMPS WITH STICK LANDING

Prepare for this jump in a tucked athletic position with your arms fully extended behind you at the shoulder and your knees bent. Begin by swinging your arms forward then jump both horizontally and vertically at approximately a 45° angle to achieve maximum horizontal distance. Stick the landing with your knees flexed to approximately 90° in an over-exaggerated tucked athletic position. Do not add distance to the jump at the expense of technique perfection. It is better to focus on the landing than distance. Your goal is to do 10 of these.

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## BARRIER JUMPS (DOUBLE LEG)

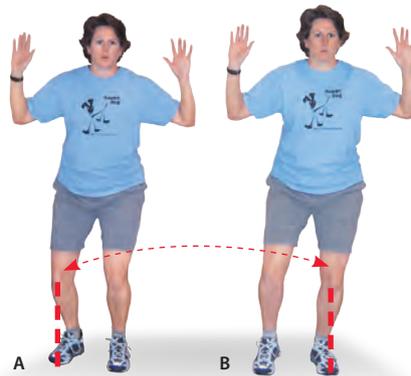
In this exercise, you will be jumping from front to back, then side to side, over a barrier. We recommend that in the beginning that you use a folded dog leash; a rolled towel creates a more challenging barrier. Your goal is to find one direction for about 20 seconds. Stand with your feet close together and your knees slightly bent behind the barrier. Jump forward over the barrier keeping your knees bent and staying close to the barrier. When landing on the other side of the barrier, immediately jump backward to your initial position. Repeat this sequence as quickly as you can while maintaining proper form. Keep your eyes up as much as possible. You can improve speed and efficiency by learning to maintain core center-of-gravity control, by landing lightly on your toes, and by preparing for the change of direction before you land. Jump directly over the barrier and not around the sides. Next stand with your feet close together and your knees slightly bent on one side of the barrier. Jump sideways over the barrier while keeping your knees bent and staying close to the barrier. When landing on the opposite side, immediately redirect back to the initial position. Repeat this sequence as quickly as you can while maintaining proper form. Remember to land softly while keeping your knees over your second toes. Don't perform a double hop on the side of the barrier. Early in the training, you may focus on the barrier, but as your technique improves, try to shift your visual focus away from the barrier; lift your head and look forward.



*Barrier jump, side to side: Handler is preparing to jump to her left over the barrier. Notice that her knees remain over her toes during this exercise.*



*180° jump: Handler is preparing to jump vertically and spin to her right. Notice that her knees are flexed and positioned over her toes.*



*Lateral jump: In A, the handler is landing with more weight on her right leg, while in B she is landing with more weight on her left leg. When landing and taking off, keep your knees over your toes and don't let your knees collapse inward.*



*Lunge jump: The starting position for the lunge jump is the same as the lunge strengthening exercise. In this figure the handler has pushed vertically up from her front support leg (her left leg). Her arms are raised to increase the vertical jump. The landing position will be the same as the starting position.*

## 180° JUMPS

Stand erect with your feet shoulder-width apart and your arms slightly up and out from your sides. Initiate this two-footed jump with a direct vertical motion combined with a 180° rotation in mid-air, keeping your arms up to help maintain balance. When you land (facing the opposite direction), immediately reverse the jump. The goal is to achieve maximum height with a full 180° rotation. Your body should be fully extended and your arms over your head at the top of the jump. Try to jump and land in the same footprint. Your goal is to do 10 of these jumps. This exercise also supports balance and strengthening.

## LATERAL JUMPS

Training yourself to pivot off one foot to change direction without allowing your knee to fold inward is critical for the protection of your ACL. This drill is one simple way to work on this skill. Stand in a slightly tucked position with your feet shoulder-width apart. Jump sideways toward the outside foot and land in a slightly tucked position. You can land on both feet or keep the inside foot up and poised for a subsequent jump to the other side. Keep your pelvis forward, your legs open, and your knees above your toes. Do this in front of a mirror or with a partner to make sure your knees aren't folding inward as you land. Your goal is to do as many of these as you can in 30-45 seconds.

## LUNGE JUMPS

Start in an overextended lunge position with your hips pushed forward and your front knee positioned directly above the ankle and flexed to 90°. Your back leg should be fully extended at the hip and knee and providing minimal support for the stance. Jump vertically off your front support leg while maintaining the starting position during flight and landing. The push for the jump comes from the front support leg. When landing, both feet should hit the ground at the same time. Repeat the jump as quickly as possible while still achieving maximum vertical height. Your goal is to do 10 on each side. This is a challenging exercise that might not be appropriate when you first start this program.

## COOL DOWN

You probably already do a cool down with your dog following a run. You and your dog can walk for 3 to 5 minutes, and you should do longer-hold stretches (30 seconds or more for each side) for another 5 to 6 minutes.



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Help Clean Run look at the risks of our sport in a measured and analytical way by participating in our Agility Handler and Dog Health Survey at <http://survey.cleanrun.com>

Results of the survey will be shared with the agility community.

## SUMMARY

Agility is a competitive sport that requires the types of high-risk movements that most commonly result in knee injuries. Women athletes are more prone to knee injuries than men. In this article we have presented an ACL protection exercise program that is modified from the one developed at the University of Utah Sports Medicine Center. The 20-minute program is designed to fit into your busy training and trialing schedule, and it doesn't require any specialized equipment. Our goal is to help the average agility handler to understand her risks, help her become stronger and more flexible so she avoids injury, and improve her success in the ring.

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*Anita Keetch, MS, ATC, has been a certified athletic trainer for 17 years in the Salt Lake City Area. As an independent consultant, she has trained and advised recreational, high school, and collegiate athletes on injury prevention and rehabilitation.*

*Denise Apperson, Ph.D., lives in Austin, Texas, with five Smooth Fox Terriers and three cats. She competes in agility, flyball, and conformation. She tore her right ACL at her first agility trial in 2002, and had surgery later that year. She trained and trialed with knee pain for over a year until she incorporated the ACL protection exercises into her routines.*



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