Teaching Technique #10:

The lunge

1. When instructing proper exercise technique for the lunge exercise, list some of the common errors observed in beginners.

Allerheiligen: Some of the major technique errors for the lunge include:

a. Not stepping far enough forward. A short step forward and a deep squat with the lead leg may cause the knees to extend past the toes and exert excessive stress on the knee. A short step forward may also result in a squat of insufficient depth. Proper stance length is achieved when the lower leg is just slightly forward of vertical in the bottom position.

b. Not landing on the heel of the lead foot. Some beginners will land on a flat foot with the lead leg and this will cause a jolt to the body and knee. The jolt may cause knee/low back injury and also result in losing control of the bar. The lifter should control his or her descent by landing on the heel of the lead foot and smoothly rolling onto the ball of the foot (the lifter should not raise the heel of the lead foot off the floor or even shift the weight mainly onto the ball of the lead foot) as he or she squats, until the upper leg is parallel to the floor.

c. Rotating the bar on the back. Some beginners may push forward with the right or left hand when stepping out with the lead leg. This movement will cause the bar to turn on the back, causing a biomechanical technique error and/or placing an unnecessary strain on the low back. The spotter(s) should help the lifter by pointing out this error.

d. Stepping too laterally. The beginner may step too laterally with the lead leg, placing unnecessary stress on the low back and placing himself or herself in a biomechanically poor leverage position.

e. Not pushing up forcefully. While it is permissible to take several small steps backward with the lead leg after full leg extension, many lifters fail to achieve the full benefits of the lunge because they push up slowly with the lead leg. If the lunge is to be used as a "power exercise," with moderate to heavy loads, then the lifter should concentrate on controlling the weight during the descent, followed by a forceful extension of the leg. If the lunge is to be used as a heavy strength training exercise, the lifter (or coach) may choose to use the split squat lift. The split squat is similar to the lunge, except the lead leg stays in front during the desired number of repetitions for each leg. The lifter is basically performing a squat off one leg when performing the split squat. Generally, more weight can be used for the split squat than the lunge.

f. Not keeping the back straight. Some beginners will round the lower back, which places excessive stress on the lower back. The back should be kept straight or slightly concave by pulling the shoulders back, protruding the chest outward and "locking" the upper and lower back (locking means to make the upper and lower back rigid, and not bending the upper or lower back). The back does not need to be perfectly vertical, but it should be "locked."

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Brown: The most common mistake I see beginners make with the lunge exercise is the tendency to take too short a step with the lead leg. When taking too short a step, the athlete allows his or her knee to extend past the toes, thereby placing too much pressure on the knee extensors as well as the knee.

A second common mistake made by beginners is the tendency to look down at one’s lead step. By doing this, the athlete takes too short a step and bends at the waist, thus putting undue pressure on the lower back and possibly losing his or her balance.

Finally, beginners may start with too much weight, causing them to drop their back leg to the floor and experience extreme muscle soreness.

Varner: Common errors include:

a. The bar is not centered evenly on the trapezius.

b. The torso does not remain straight, rigid and upright throughout the exercise.

c. The beginner tends to look down or lean forward when taking the step forward, which causes the torso to lean forward, making the center of gravity shift in the sagittal plane and placing strain on the lower back.

d. When initiating the movement, the beginner usually takes too short a step, causing the point of the knee to exceed the boundary (planer) of the foot.

e. The beginner uses a resistance that is too heavy.

f. The base of support is too narrow to accommodate the balance of the bar.

g. Beginners sometimes hold their breath.

Coach’s Checklist

The Lunge

- Bar is evenly loaded with collars
- Hands are placed evenly on the bar, using a slightly wider than shoulder width pronated grip with thumbs around the bar
- Bar is centered on upper back (on top of the trapezius) below the seventh cervicle vertebrae to assure a straight torso
- Feet are parallel, approximately hip width apart
- Torso remains straight and rigid throughout the exercise
- Shoulder blades are pulled together and chest is held up and out
- Head remains facing forward throughout the exercise
- Lead foot takes one long step forward; toes may be pointed slightly inward for balance
- Lead knee position should be directly over the foot at the lowest position for greater stress on the hip extensors
- Too short a step (knee is past toes) will cause a large force to be placed on the knee extensors
- Descend slowly until front quadriiceps is parallel to the floor
- Trailing knee should not touch the floor
- Back leg stays as straight as possible
- Push off with the lead leg; use several short steps if necessary to return to starting position
- Alternate lead legs until exercise is completed
- Inhale as forward step is taken, hold breath as foot is planted and leg drive begins, and exhale while returning to starting position

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2. Are there any special safety and/or spotting considerations for the beginner learning the lunge exercise?

Brown: For safety and proper technique instruction, all persons learning the lunge should begin with no weight at all (body weight only). This allows the beginner to learn proper technique, and any mistakes are easily identifiable and the injury factor is greatly reduced.

The athlete then graduates to the use of a stick held in the same manner as a barbell on his or her upper back. When the athlete feels comfortable with the stick and technique is acceptable, he or she is allowed to lunge with a barbell or heavier weight. Some beginners may choose to use dumbbells held at their sides instead of the barbell on the back.

Varner: a. If there are no spotters available, the exerciser should take short steps back when returning to the starting position.

b. If one spotter is available, the spotter should follow the lifter from behind and spot under the arms or chest, being careful not to interfere with the rear foot.

c. If two spotters are available, they should follow the lifter on each side.

d. Some safety considerations for the beginner are:
   i. Always use collars on the bar when performing the lunge.
   ii. For better support, wear a belt snugly around the waist; knee wraps are optional.
   iii. Wear properly fitted shoes that provide adequate foot and ankle support.
   iv. Perform the lunge on a surface that will not allow you to slide or be unstable.
   v. Wear comfortable clothes that allow adequate hip and leg mobility.
   vi. Check athletes for health problems concerning the knee and back area.

Allerheiligen: The beginner may experience safety/spotting problems by: (a) not using a spotter, (b) having no one to help correct improper lifting technique, (c) having no locks on the bar, (d) not having the bar centered on the back or (e) squatting down too fast, causing an uncontrolled descent. If possible, the lifter should be stepping into a squat rack (if the depth and breadth are adequate). Lifters should always wear suitable footwear. Shoes should have side walls for stability. Running “flats” are not a suitable shoe for strength training.

3. Are there any prerequisite strength or skill requirements before beginners should include the lunge in their workouts?

Varner: a. The beginner should possess an adequate degree of flexibility in the hip and leg area.

b. A standard degree of motion for the lower extremities should be:
   i. hip flexion—90 to 120 degrees
   ii. hip extension—0 to 30 degrees
   iii. knee flexion—0 to 135 degrees
   iv. knee extension—135 to 0 degrees
   v. dorsi-flexion of the ankle—0 to 120 degrees
   vi. plantar-flexion of the ankle—0 to 50 degrees

c. The beginner should possess a certain degree of body control and balance. A good measure of this requirement would be to perform the lunge with body weight only (hands on hips).

d. Adequate thigh and calf strength to perform the lunge
properly with no resistance (body weight) is necessary.

**Allerheiligen:** Generally speaking, no prerequisite strength and/or skill level is required for beginners. If you have a beginning athlete or an athlete with previous leg or low back injuries, you may wish to consult with the sports medicine staff about any exercises the new athlete should not be performing.

**Brown:** As stated before, all persons begin the lunge exercise with no weight and graduate to barbell and/or dumbbells. Before prescribing the lunge exercise, it is required that the athlete build a good foundation of leg training through the following exercises: leg extension, leg curl (flexion), leg press/hip sled and squats.

A good leg training base will help in learning the technique properly, minimize muscular soreness and make the exercise more enjoyable. Encouraging all athletes to add lunges to their training routine will help reap positive results.

4. Are there any particular instructional methods you have found helpful when teaching the lunge to your athletes?

**Allerheiligen:** For the beginner there should be a sequential teaching format. If possible, mirrors and video recorders should be used for feedback. A sample sequential teaching format follows:

a. Use just the body weight of the lifter when first teaching the lunge. For this technique (and also b and c below) have the lifter hold the bottom position momentarily so he or she “feels” the bottom position. This will also aid in balance control.

b. Depending on the strength level of the athlete, use either a broom stick, a standard bar or an olympic bar for the next teaching phase.

c. Use light weight for the first several workouts and concentrate on technique, not on how much the athlete can lift.

d. Initially, perform no more than three sets of 10 repetitions when weight is added to the bar. Performing five to six sets of 10 repetitions would make the beginner sore.

e. Using weights of great intensity during early teaching may cause technique errors, cause injury and be psychologically detrimental to the athlete by decreasing the success ratio of complete and incomplete attempts (including incorrect lifts).

f. Do not sacrifice correct technique by using high intensities. The athlete may have good technique with lighter loads, but technique may deteriorate quickly with heavy loads.

g. Videotaping from the side, back, or back/side angle is very helpful for proper technique development.

**Brown:** Since taking a long enough step with the lead leg seems to be the most difficult aspect of the lunge, the athlete is taught to exaggerate pointing the toe of the lead foot, just as a gymnast would. This technique cue helps the athlete take a long enough step that his or her weight will be evenly distributed between the front and rear feet. Also, a verbal cue, such as “Take a giant step for mankind,” helps to remind the athlete to take a long enough step.

**Varner:** Some instructional methods are:

a. An actual demonstration of the exercise performed by the coach or teacher.

b. Use of lines or markers on the floor to help keep the athlete from crossing over the midline (knee past the foot).

c. Use of foot placement devices (footprints, dots) on the floor.

d. Have the athlete fix the eyes on an object straight ahead at eye level.

e. If accessible, videotape the athlete to observe the actual lunge form and to correct mistakes.

5. What have you found to be the main benefit of using this exercise with your athletes?

**Brown:** A few of the outstanding benefits of the lunge exercise include greater flexibility in the hip flexors and extensors, improved balance and greater leg strength. Increased speed through increased stride length is a direct result of the lunge exercise.

For those athletes who are also bodybuilding, the lunge exercise is beneficial in sculpting the thighs prior to competition.

**Varner:** The lunge extensively works the hip flexors and hip extensors. This is very important for improving stride length and increasing the range of motion, therefore beneficial in running and speed development.

The increased range of motion and strength provided by the lunge is
also beneficial in reducing chances of injury in some athletic events.

The lunge is a great substitute for the squat or other major leg exercises where back problems exist, because the lunge places less pressure on the back while working the legs and hips effectively. By working one leg at a time, muscle proprioception is enhanced, thereby improving an athlete's balance and body control. This would be helpful in agility improvement for most athletes.

The lunge increases hip flexor range of motion, therefore improving lunge-type movements specific in certain athletic sports, i.e., baseball pitcher, volleyball digger.

**Allerheiligen:** The lunge may be used as either a core or supplemental exercise. If the lunge is used as a core exercise, it would usually take the place of either the back squat, front squat or leg press/sled. The number of sets for the lunge may be the same as the squat, but the repetitions per set may be more. A microcycle for squats may include repetitions in the range of two to three; this type of load would be very difficult when performing lunges.

The lunge may also be used by some athletes who have knee problems. Proper lunge technique requires that the knee not extend beyond the toes, resulting in less stress on the knee joint than the squat, where the knees extend beyond the toes.

The lunge can be considered a bilateral movement, and will help allow for equal development of both the left and right legs. The lunge also offers a good variety in the training program and is especially beneficial to those athletes who require ultimate leg power or who jump from one leg (high jumpers, shot putters, long jumpers or basketball players).