



# OFF-ICE

*Plyometrics and Agilities*



REVISED 2/19



## OBJECTIVES

- To understand the importance of athleticism
- To determine what activities can enhance performance
- To provide guidelines for a safe conditioning environment

## PLYOMETRICS

Plyometrics is the movement or activity that bridges the gap between strength and speed by utilizing the Myotatic Stretch Reflex. This reflex is called upon when the muscles are loaded in an eccentric contraction (muscle lengthening) and then immediately followed by a concentric contraction (muscle shortening). By performing plyometrics, the hips, knees and ankles are worked. It is imperative that a strong base strength is developed before a program is started. Exercises include jumps, hops, bounds, leaps, skips, throws and pushes. When performing these exercises, the goal is to train the nervous system to react explosively with maximal force production. Teaching muscles how to absorb shock also aids in injury prevention.

- All plyometric and agility drills should be supervised.
- Drills should be done for quality, not quantity (minimal foot/skate contacts, maximum intensity and quality of movement should be emphasized).
- Athletes should be able to squat 1.5 times their body weight before engaging in an intense plyometric program.
- Low-level, double leg exercises must precede any higher-level single leg movements.
- As strength level increases, plyometric intensities should increase.
- Do not perform to fatigue. Allow for complete recovery time.
- Maintain core stability and perfect posture during exercises.
- When dry land training, be sure to wear the proper foot wear and have a shock-absorbing surface.

- Movements should be as sport specific as possible.
- Plyometrics for the same body part should not be performed on consecutive days.
- Always perform a proper warm up and flexibility program.

There is a long list of plyometrics that an athlete can perform. The following are basic and very productive as long as they are performed correctly. Know your limitations and the stage of training that you are at.

### Low Level

1. **Jump Rope** — Use different variations and patterns to get the most out of this exercise. Start double legged and proceed to single leg variations.
2. **Squat Jumps** — Same as a regular squat, but now we are leaving the ground, with perfect form, and performing the jumps continuously.
3. **Tuck Jumps** — Standing with feet together, jump up bringing the knees to the chest. Variations: heels to butt; include 90, 180, 270 degree turns; performed continuously, etc.
4. **Box Jumps** — Start with a low box (18 inches) and proceed to a higher one (24-36 inches), Jump onto the box making sure the landing is soft and quiet. Try not to bottom out.
5. **Skipping** — A basic fundamental movement that involves coordination and explosiveness, and involves jumping from one foot to the other.

### Medium/High Intensity

1. **Explosive Step Ups** — Start with one foot on the box and drive up as high as possible, switching



feet in air. Use variations such as alternating lateral step ups.

2. **Ice Skaters** — Perform lateral hops from one leg to the other. Use different variations such as “stick and hold”, continuous and “two bounces and go”.
3. **Lateral & Forward Cone/Hurdle Hops** — Set up cones or hurdles. Start with two feet hopping forward, then switch to one foot landings as you progress. Change to a lateral direction on two feet, changing direction and alternating one foot or two feet.
4. **Broad Jumps** — Jump on two feet for distance. Use variations such as “stick and hold” and continuous.
5. **Hurdle/Barrier Hops** — Try jumping for height off of two feet, landing softly and holding the landing. More advanced players should try continuous hops.
6. **Lunge Jumps/Slip Squat Jumps** — Out of a lunge position, try to get as vertical as possible.

## AGILITIES

Agilities are drills that emphasize the ability to rapidly and efficiently change direction while controlling the body's center of gravity.

- Drills should be as sport specific as possible.
- Emphasize quality, not quantity. The drills should not be conditioning drills.

- Combine agility training with balance, reflexes, anticipation and hand-eye coordination.
- Drills should be monitored by a coach or other instructor.
- Begin with a proper warm-up and flexibility program.

1. **Agility Ladder Drills** — Work on foot quickness, changes of directions, body awareness and control. These serve as a great warm-up. Use a variation of slides, twists, skips, crossover steps and shuffles. Let the imagination adjust the movements to as sport specific as possible.
2. **W Drill** — Five cones are set up in the shape of a “W,” with varied spacing between the cones. Start out looking at all cones. Move by shuffling, sliding, sprinting, backpedaling, and/or any other desired movement. Control the body's center of gravity as each cone is reached and then change direction to the next cone.
3. **Pro Agility/“NFL Shuttle”** — Use three cones, tape, lines on a field/ice spaced five yards apart. Start on the middle line/cone/tape. On command, sprint to either side, touch the line and change direction. Sprint 10 yards back to the other side, touch, change direction, and cross the middle line again. Sprint, shuffle or backpedal. Try to improve your time on each rep.
4. **Jump Rope/Dot Drill** — This is also a great agility workout, adding different foot work and combinations. It is great for the improvement of coordination.



## PLYOMETRIC EXERCISES

### Double Leg Hops

**Equipment:** none

**Start:** Stand with the feet shoulder-width apart

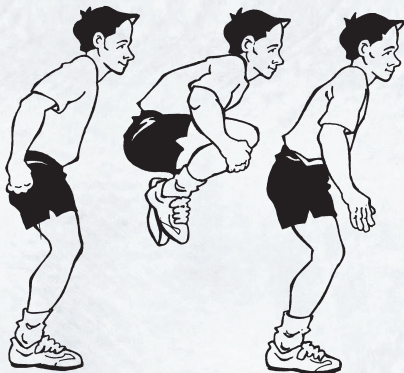
**Action:** Squat down and jump as far forward as possible. Immediately upon touching down, jump forward again. Use quick, double arm swings and keep the landings short. Do in multiples of three to five jumps.

### Tuck Jump with Knees Up

**Equipment:** none

**Start:** Stand with the feet shoulder-width apart and the body in a vertical position; do not bend at the hips.

**Action:** Jump up, bringing the knees up to the chest and grasping the knees with the hands before the feet return to the floor. Land in a standing vertical position, without any forward bend. Repeat the jump immediately.

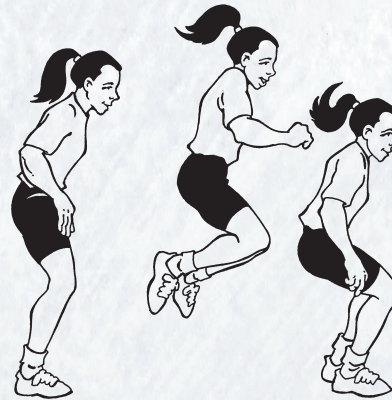


### Tuck Jump with Heel Kick

**Equipment:** none

**Start:** Stand with the feet shoulder-width apart and the body in a straight vertical position with the arms by your sides.

**Action:** Keeping the knees pointed down but still in line with the body, jump and kick the buttocks with the heels. Repeat the jump immediately. This is a quick-stepping action from the knees and lower legs. Swing the arms up as you jump.

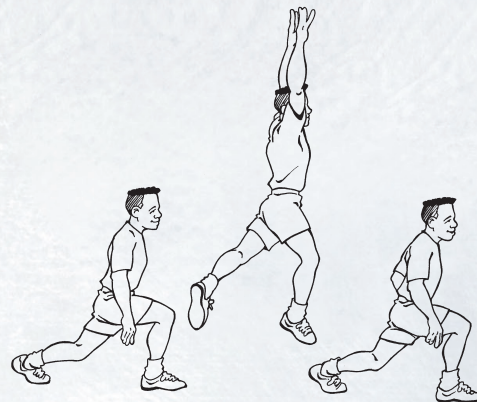


### Split Squat Jump

**Equipment:** none

**Start:** Spread the feet far apart, front to back, and bend the front leg 90 degrees at the hip and 90 degrees at the knee.

**Action:** Jump up, using the arms to help lift and then hold the split-squat position. Land in the same position and immediately repeat the jump.



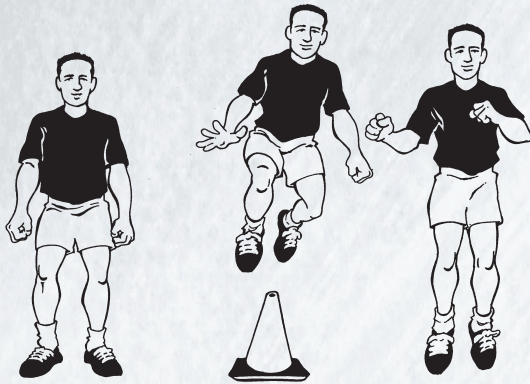


### Lateral Jump Over Barrier

**Equipment:** one cone or hurdle

**Start:** Stand alongside the object to be cleared.

**Action:** Jumping vertically but pushing sideways off the ground, bring the knees up to jump sideways over the barrier.

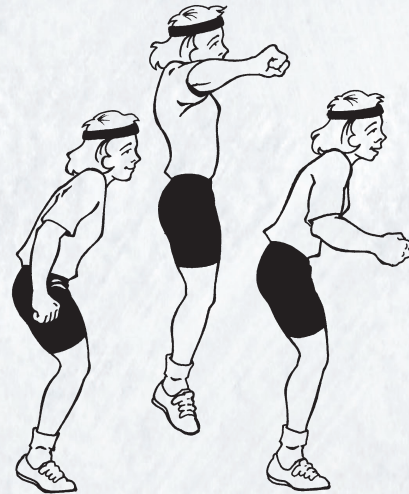


### Two-Foot Ankle Hop

**Equipment:** none

**Start:** Stand with the feet shoulder-width apart and the body in a vertical position.

**Action:** Using only the ankles for momentum, hop continuously in one place. Extend the ankles to their maximum range on each vertical hop.

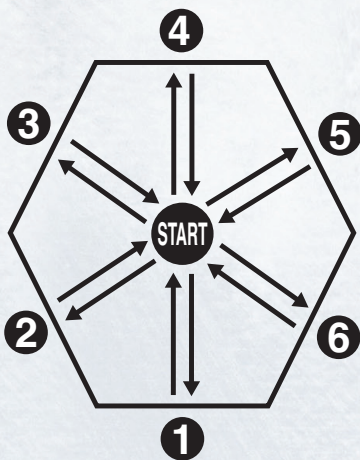


### Hexagon Drill

**Equipment:** a hexagon of tape on the floor with sides about 24 inches long

**Start:** Stand in the center of the hexagon with feet shoulder-width apart.

**Action:** Jump across one side of the hexagon and back to the center, then proceed around each side of the hexagon. This may be done for a specific number of complete trips around the hexagon or for set amount of time.



### Split Squat with Cycle

**Equipment:** none

**Start:** Standing upright, spread the feet far apart, front to back, and bend the front leg 90 degrees at the hip and 90 degrees at the knee.

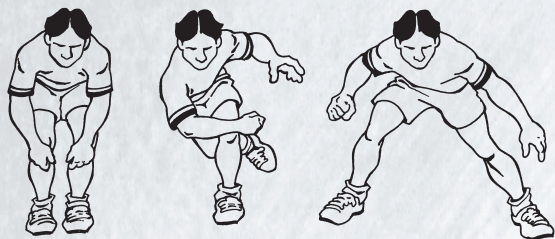
**Action:** Jumping up, switch leg positions - the front leg kicks to the back position and the back leg bends up and comes through to the front. While bringing the back leg through, try to flex the knee so that it comes close to the buttock. Land in the split-squat position and jump again immediately.





### Lateral Bounds

Perform a skating motion between two marks on ground, one yard apart. Work on lateral movement. The swing leg should come behind planted leg.

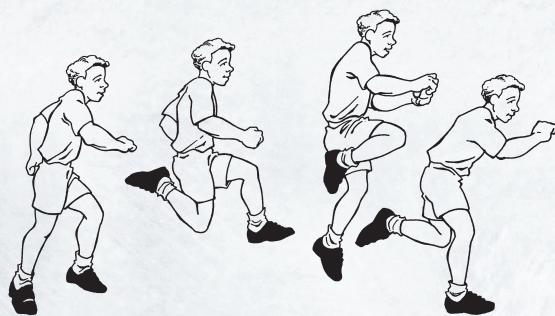


### Single Leg Hops

**Equipment:** none

**Start:** Stand on one leg.

**Action:** Push off with the leg you are standing on and jump forward, landing on the same leg. Your opposite leg should swing to increase momentum. Once you land, take off again. Your feet should move as if you were on a hot plate. The movement is very similar to running on one leg. Perform sets on both legs.



## SPEED/SPRINTS/CONDITIONING

### Speed Training

- The only way to get fast is to run fast.
- However, there are many other ways of improving your speed and efficiency of movement.

### Means of Speed Training

1. Run sprints really fast!
2. Over speed training (down hill sprints, cords, more advanced techniques)
3. Resistive runs (uphill, cords, tire pulls, partner resistive)
4. Slide board

### Starts

1. **Leaf Falls** (straight, 90 degree, laterally)
  - Start standing with torso erect and hands down along your side.
  - Lean forward as far as possible.
  - Your first step should be short and powerful.
  - Think about driving the ground down and back.
  - Try to avoid reaching with the first step.
  - Finish by sprinting 10 yards.
  - 90 degree — Start the same way but bend at the hips 90 degrees.

2. **Ball Drops**

Work on reaction, first step explosion and hand-eye coordination. A partner stands approximately 10 feet away, holds a tennis ball at shoulder height and then drops it. On the action of the hand releasing the ball, sprint as fast as possible and try to catch it before it bounces twice.

3. **Conditioning**

- Be as sport specific as possible.
- Vary the modes to avoid boredom but allow enough time for enhancement.
- Emphasize anaerobic conditioning.
- Alter work/rest ratios throughout offseason, preseason and in-season.

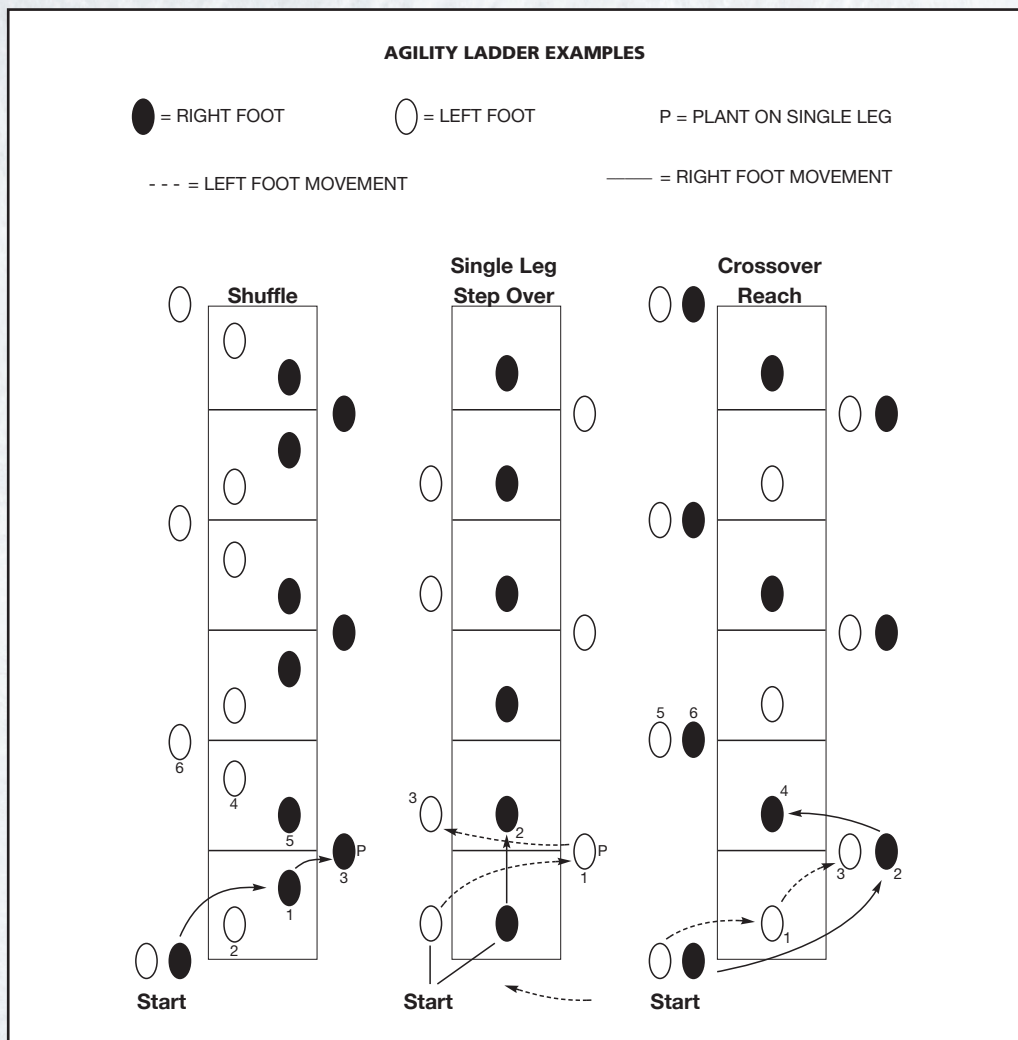
Time on/off	Work:Rest	Season
:30 on/1:30 off	1:3	early OFF
:30 on/1:00 off	1:2	late OFF
:30 on/:30 off	1:1	Preseason



### Means of Conditioning

1. Intervals (can be both aerobic and anaerobic depending on work to rest ratios)
2. Slide boards (aerobic as well as anaerobic)
3. Tempo runs
4. Wind sprints
5. On-ice sprints
6. Bike/treadmills

It is important to remember that work-to-rest ratios will be the determining factor in the systems worked. The intensities along with the volume should also vary when conditioning for the different systems.



### LEARN MORE

Click on the following link(s) for more information on the topics covered in this chapter. (*Internet access is required*).

[www.usahockey.com/page/show/1578029-dryland-training](http://www.usahockey.com/page/show/1578029-dryland-training)