

Plyometric Progressions Mini-Book

By

Lee Taft

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Plyometric Progressions

Introduction

Plyometric training has been around for a long time. Because of the results many of the European and American athletes were supposedly getting from the use of plyometrics it really became a buzz word in the field of sports performance. I think what had gotten lost in concept of plyometrics years ago was the extensive progressions and foundation that must exist before taking on a program of this nature. Every coach and athlete in Sports was taking on advanced plyometric routines. The volume and intensity were both high. This leads to many injuries.

Plyometrics are a form of explosive exercises that creates what called a Stretch Reflex in the muscle. The muscle goes from an eccentric action to a concentric action quickly. The nervous system is highly excitable during this action. The goal is to improve how quickly an athlete can apply force to the ground or another object and move either the body, as in sprinting or jumping, or a ball or implement, as in throwing or hitting.

In this mini-book I will discuss the progression of lower body and upper body progressions when introducing plyometrics.

It is important to understand that the athlete must have a solid strength foundation in order to advance into more intense plyometrics. But even youngsters can participate in lower level plyos as part of game like activities.

I hope you enjoy the information in this mini-book and if you have questions please email me at lee@sportsspeedetc.com

Lee Taft

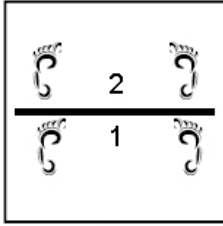
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Plyometric training is one of the most over used forms training in the sports training industry. It is largely misunderstood and misused by many. The premise behind plyometric training is to increase the ability of the muscles via nervous system to produce force faster. It is an explosive form of training. Its purpose is to aid in increasing speed and power.

Even though the actual purpose of plyometric training or shock training, as it is originally referred to, was initially intended to be done at higher intensities, it can and should be modified so that even the pre-adolescent athlete can participate in activities that require quick jumping. Examples of these would be jump rope, hop scotch, and Ladder drills. Plyometrics can be as safe as any other form of training, yet if misused, can result in various degrees of injuries and poor motor programming.

Plyometric training should be taught from a foundational stand point and gradually progress to a more advanced level that is suited and needed for the particular athlete or group of athletes. Prior to beginning any plyometric program the coach should instruct all athletes on the proper techniques of landing and jumping. Even though, during plyometric exercises there isn't much time spent on the ground, Landing is the most important aspect of keeping the athletes safe; More to come on jumping and landing in a moment.

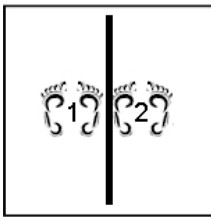
A great way to get athletes to learn to be quick off the ground is to use simple line drills, ladder drills, and other forms of low intensity drills. Here is a small sample of drills that are great for beginners or warm ups for more advanced athletes.



1-2-1

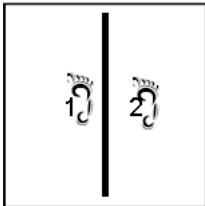
This is a simple line drill that forces the athlete to move quickly back and forth over the line.

Line Drills:



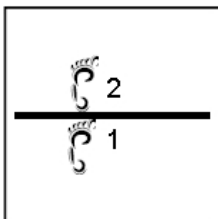
12-21

Side to side jumping drill



1-2-1

Single leg side to side (more advanced)



1-2-1

Single leg front to back (more advanced)

Four Square:



1-2-3-1 Four square pattern jump drills



1-2-3-4-1 Four square pattern



1-4-1 Four square angled pattern



1-2-3-4-1 Four square single leg patterns (more advanced)

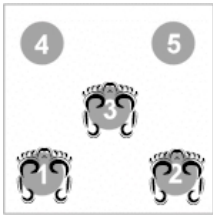


31-42 TWIST 24-13 Pattern jumps and twist feet to other boxes

Dot Drills:



1-2-3-4-5-3-1 2 foot jumps to each dot



1-3-2-3-1 Triangle jumps



Single leg jumps (more advanced)



13-35 1 foot to 2 foot back to 1 foot

Ladder Drills:



one step in each box



Hop in each box



Jump in each box



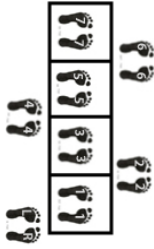
Jump and straddle laterally



Two feet in and out of each box



Two feet in and out sideways



Two feet in and over



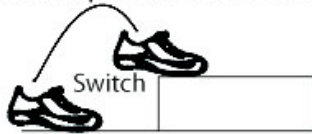
One foot side hops (more advanced)



Two feet to one foot back to two feet angled

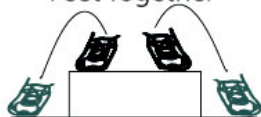
Low box:

Alt Tap Box With Foot

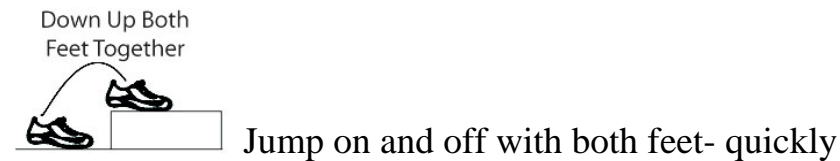
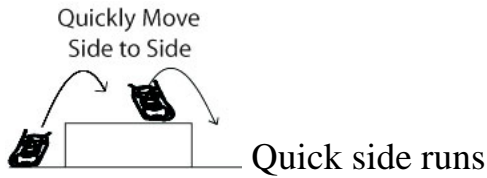


Quick foot runs

Down Up Both Feet Together



Straddle jumps



These above drills are all simple to teach and allow any age athlete to learn coordination drills while improving the foundation of plyometric training.

**All Graphics were created by Tony Reynolds of www.Pssathletics.com
They are from his best selling product called Trainer Clipart**

**To learn more about the fantastic graphics I used for low level line
drills, box drills, four square, ladder drills, and dot drills from Tony's
Trainer Clipart go to:
<http://www.sportsspeedetc.com/c12/c6/Trainers-Clipart-p90.html>**

Jumping and Landing

Jumping and landing techniques are crucial to teach to younger and lesser experienced athletes that have never done any form of plyometric or jump training. In order to be able to correctly perform plyometrics the execution of jumping and landing must be mastered first, not to mention a certain level of strength in order to withstand the forces when dealing with higher level jumps.

The primary issue with landing is the inability to stabilize the legs via the hip musculature, and the feet via the lower leg musculature. The hip weakness can have a major impact on the functioning of the feet and ankles as well. The other area of concern with landing is the strength of the musculature around the pelvis and spine. The muscles must be strong enough to dissipate forces away from the pelvis and spine.

Without going into too much “depth” the major concern is that the knees are able to remain in line with the feet and not cave in (valgus) during landing and jumping. The other concern is the ability of the pelvis and spine to avoid extreme flexion or extension of the spine during landing.

Many plyometric activities require the athlete to rebound off the ground quickly using little bend of the knee and primarily force production from the lower leg. Examples of this form of quick jumping would be jump rope, line drills, and hop scotch type activities. But when more advanced jumping from higher heights are being introduced the athletes must learn to push the hips back and allow the shoulder to come forward during the landing. If the hips do not go back, during a jump that will require the knees to bend quite a bit due to the height of the jump, the knees will get pushed forward as the athlete goes way up on the balls of the feet. This technique puts large amounts of stress on the knee joint and soft tissues. Another potential injury that can occur from this knee forward approach is to the lower back. When the knees push forward the hips will follow and the lower back will hyperextend in many cases to maintain balance and an upright position. If this is done aggressively there can be damage to the structure of the low back.

This is why it is a must that all athletes learn how to jump and more importantly how to land.

Here are some basic plyometric and jumping/landing exercises and progressions: (Mike Boyle, a well know strength coach also teaches a similar progression. Some of my information has been modified from Mikes in regards to my progressions)

1) In-place: Great for any age and ability

- a) In-place jump and hold- The goal with the in-place jumps is to properly assess jumping and landing technique from a quarter squat depth. Each landing should be held for at lead 2 second before another is performed. (*this can be done by having the athlete drop off a low box and hold the landing as well*) **Low level**



- b) In-place jump and rebound- When the athlete lands after a jump they will perform a short quick ‘rebound’ then hold. (*This rebound action is a great way to check for balance and landing control. If they are unable to rebound quickly just using the lower legs to rebound with they are not well balanced.*) **Low level**





- c) In-place continuous jumps- Here we want the athlete to land back into a quarter squat depth and immediately recoil and jump once again.

Low level



- d) In-place rocket jumps- The athlete will now jump with the arms reaching straight over head as if pretending to be a rocket. This can be done with holds or continuous jumps. **Moderate level**

No picture available- Simply jump as high as possible with arms reaching up.

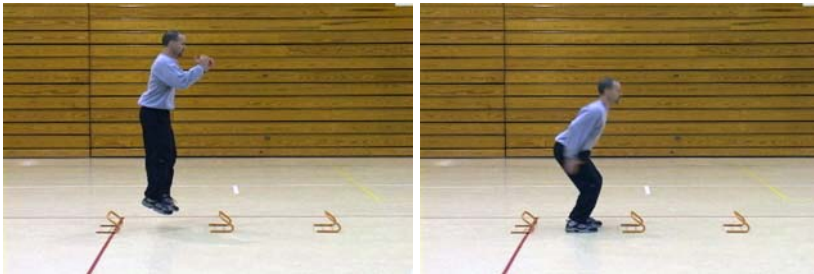
- e) Tuck jumps- The athlete will jump as high as possible from a less than quarter squat position and when at the top of the jump tuck the knees up toward the chest. These jumps are done quickly off the ground. (Requires more coordination and strength- I recommend for the athlete from age 13 and up) **Moderate level**

2) Linear jumps: Great for any age, may not want to use hurdles for smaller and younger athletes due to safety

- a) Low hurdle jump and hold- Athlete will jump forward over a low mini hurdle and hold each landing for control. **Low level**



b) Low hurdle jump and rebound- When the athlete lands after a jump they will perform a short quick ‘rebound’ then hold. **Low level**



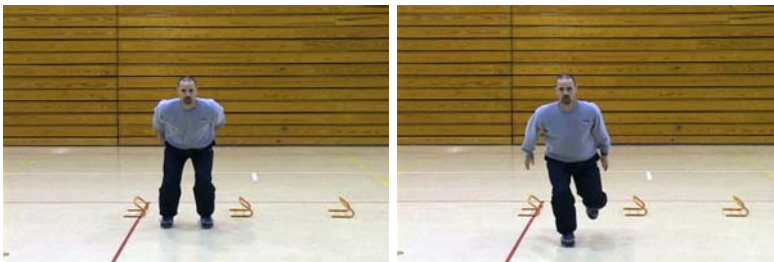
c) Low hurdle continuous jumps- Athlete will jump repeatedly over the hurdle with no stopping. Emphasis is on quick jumps. **Moderate level**



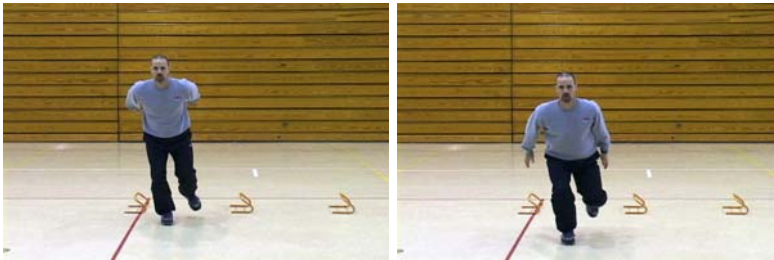


3) In-place hops: More advanced- I recommend using with ages 10 and older, or at least kids that are light enough to handle the landing. It depends on the individual, but usually around 10 years old they have developed enough coordination to handle low level hops. Don't encourage maximum high jumps- keep it lower and safer.

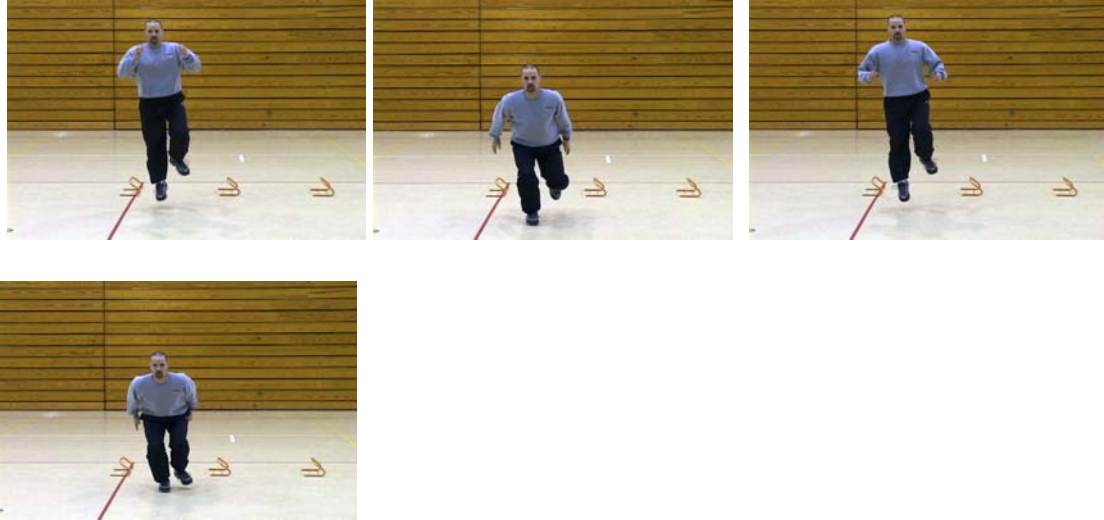
a) Jump to one foot landing and hold- The athlete will lightly jump off two feet and land on one foot and hold. **Moderate level**



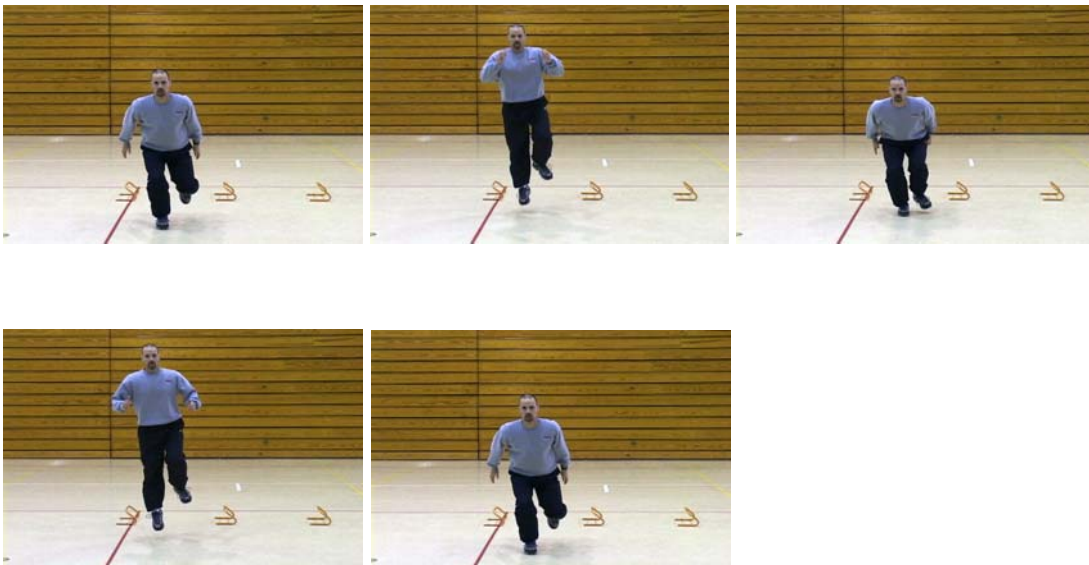
b) Hop and hold- The athlete will hop on one foot and hold **Moderate level**



c) Hop and rebound - The athlete will hop on one foot and upon landing perform a quick rebound and hold. **Moderate level**



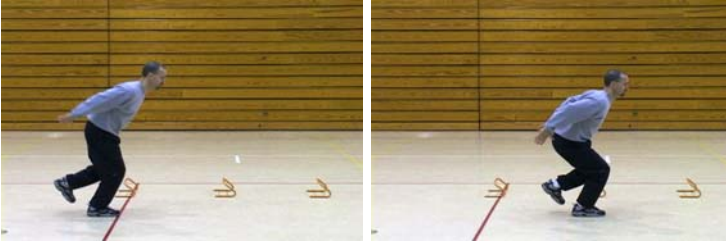
d) Hop continuous- The athlete will continue hopping. **Moderate level**



4) **Linear hops**: More advanced- I recommend using with ages 10 and older, or at least kids that are light enough to handle the landing. Hops moving

forward can sometimes be easier- like hop scotch. The holds may be more difficult. Don't encourage maximum high jumps- keep it lower and safer.

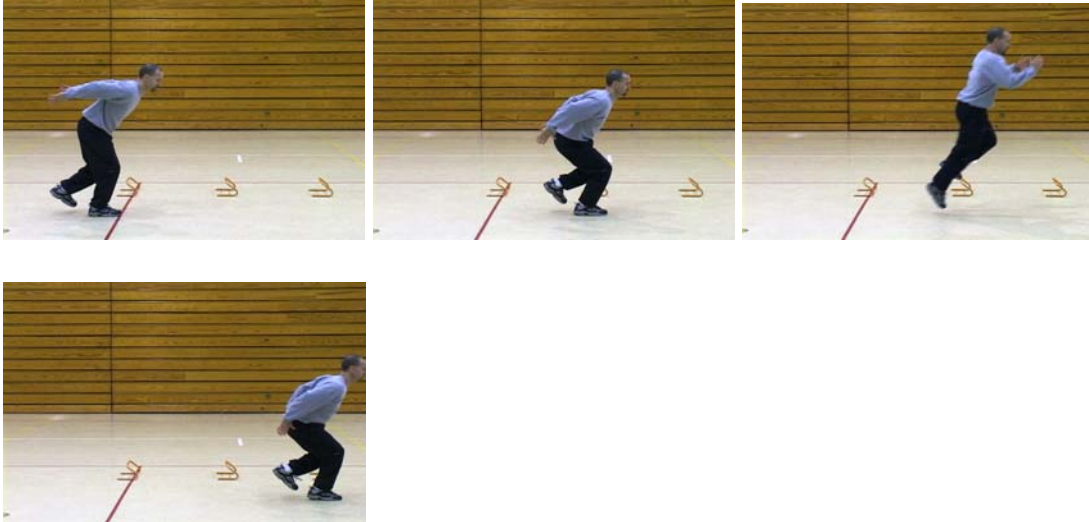
- a) Hop and hold- The athlete will hop forward and hold the landing.
Moderate level



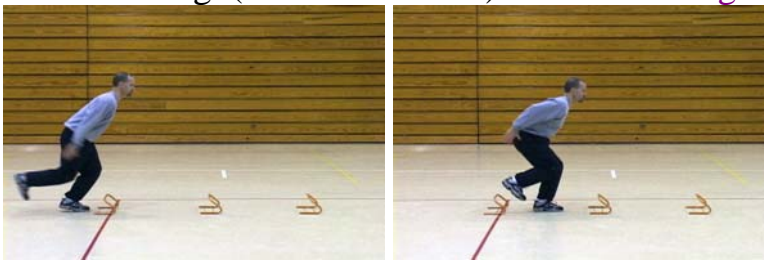
- b) Hop and rebound- The athlete will perform a quick low rebound after the landing and hold. Moderate level



- c) Hop continuous- Continue hopping with no pause. Moderate level



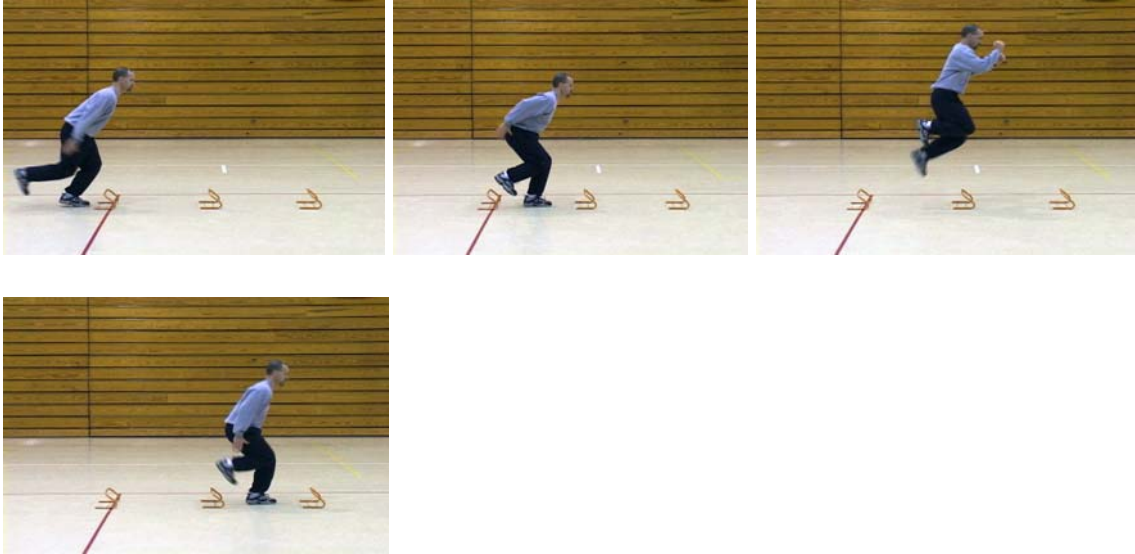
d) Hurdle hop and hold- The athlete will hop forward and hold the landing. (4-6 inch hurdles)...**Moderate/high level**



e) Hurdle hop and rebound- The athlete will perform a quick low rebound after the landing and hold **Moderate/high level**



f) Hurdle continuous- The athlete will continue hopping. **Moderate/high level**



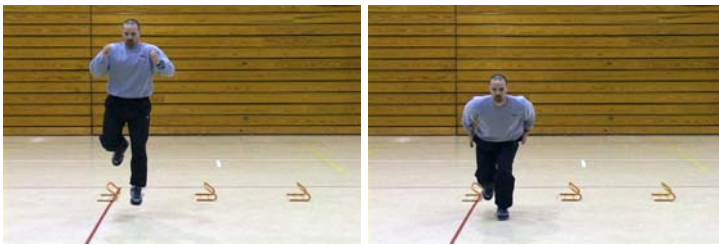
5) Lateral jumps: Great for any age, may not want to use hurdles for smaller and younger athletes due to safety.

***There are no pictures available. This is the same as the forward jumps but done laterally.**

- a) Lateral hurdle jump and hold- Jump laterally over the hurdle and hold the landing. **Low level**
 - b) Lateral hurdle jump and rebound- Rebound quickly upon the landing over each hurdle and hold the landing after the rebound. **Low level**
 - c) Lateral hurdle jumps continuous- Continue jumping with no hold. **Moderate level**
- 6) Lateral hops: Moving laterally and medially with each leg. : Once again I would introduce around age 10 or older depending on the individual. If the lateral jumps are over a line it is not going to be too stressful, unless the athlete is heavy for their strength and ability. Keep it low and teach the landing techniques.
- a) Lateral hop and hold- The athlete will hop over a line or hurdle and hold. **Moderate/high level**



b) Lateral hop and rebound- The athlete will hop over a line or hurdle and rebound and hold. **Moderate/high level**



c) Lateral hop continuous- The athlete will continue to hop with no hold. **Moderate/high level**



Follow the same progression with the outside leg as well. Here is a short example of a lateral hop and hold with the outside leg:



7) Bounding/hopping: Can be much more advanced, but if done at a low level can be done by any age level. Once again- hop scotch is an example of a hop and bound activity that most children can do. Use good judgment. **High/moderate**

a) Right/left bounding - The athlete will bound from one leg to the other in a continuous pattern. **High level**



b) Hop bound- The athlete will hop from right foot to right foot then bound to the opposite. **High level**





- c) Ice-skaters- The athlete will leap from the right leg to the left leg with sideways leaps. It looks somewhat like an ice-skater! **Moderate/high level**



- 8) Upper body: Outstanding for any level as long as appropriate exercise is chosen. Younger athletes should stick to light medicine ball plyometrics where as older more capable athletes can do more advanced. *One important point to remember with baseball players using upper body plyometrics is to protect the wrists and fingers. Don't do anything that is of high risk!!*

- a) Quick chest pass- The partners stand roughly 10 feet apart. Use a medicine ball that is light enough to move it quickly back and forth. Use a variety of stances (parallel, staggered, one leg...) to add a different stimulus. **Moderate level**



- b) Quick push pass- Partners stand sideways facing in opposite directions. The stance is similar to their hitting stance. Quickly throw the ball to the partner. Upon catching it reverse the momentum quickly and throw it back. **Moderate level**



- c) Overhead quick pass- Partner will quickly throw the ball back and for the both catch and throwing the ball above the head. Use a variety of stances. Be sure to use a light ball that is not too stressful for the shoulders! **Moderate/high level**



- d) Side quick toss- Partners stand sideways facing in opposite directions. The ball is tossed quickly back and forth using extended arms and with both hands cupping the ball rather than one hand behind it and pushing it. **Low level**



- e) Wall dribble- Standing close to a wall with the right arm out to the side and elbow at 90 degrees or wider, bounce the ball quickly off the wall keeping the arm from dropping down. A basketball can be used as well. Perform on both sides **Moderate level**



- f) Wall clap/plyo push ups- Lean against a wall with arms extended. Quickly bend the elbows so the body falls toward the wall. Just before the head and chest would touch the wall extend the elbows and push the body away aggressively. **Low level**



- g) Bench clap/plyo push ups- Use the same procedure as above but with a lower angle of body lean. **Moderate level**



h) Kneeling clap push ups- Perform the clap push up from the floor with a straight line from the knees to the shoulders. **High/moderate**



i) Regular clap/plyo push up- Keep the body rigid as the clap push ups are performed. **High level**



These exercises can be made more demanding by using a weighted vest of increasing poundage. The key is to be quick and to expose the nervous system to new and different challenges that cause adaptations to occur. Once again, don't get to intense with these upper body exercises due to the wrists and shoulder potential for injury. Also, if an athlete is unable to perform 20 pushups easily with great form they should not be performing explosive pushups from the ground.

*Please keep in mind that there are many exercises that can be added to the above list. The most important factor in all exercises is proper technique!

Guidelines for Plyometrics:

Intensity Days Sets Reps Rest

Low level	3-4	2-5	8-10	:30-1:30
Moderate level	2	1-4	6-10	:45-1:30
High level	1	1-3	4-10	1:00-3:00

- Keep in mind that depending on the ability of the athlete and age, sets, reps, and intensity level can vary tremendously. This is simple a basic guide.
- Always Error on the side of caution. Plyometrics can enhance the athlete's physical abilities, but if misused, they can do more harm than good.
- Always do quality of quantity.
- Remember that athletes get a lot of foot contacts and pounding to their joints doing other activities throughout the day and week.

Here is an example program to implement Jump training/plyometrics into your program. I suggest doing plyometrics after a thorough warm up or at least near the beginning of the workout.

Day #1 (Moderate/low level day)

In place jumps

- Jump and hold- 2 sets of 6/1 second hold/rest 30 seconds
- Jump continuous- 3 sets of 5/rest 45 seconds
- Tuck jumps- 2 sets of 8/rest 60 second

Bounding actions

- Ice skaters- 3 sets of 10 seconds/rest 60 seconds

Upper body

- Chest pass- 3 sets of 7-10 second/rest 60 seconds
- Side quick toss- 2 sets each of 7-10 seconds/rest 45 seconds

Day #2

Lateral jumps (advanced- if done without hurdles it would be moderate/adv.)

- Side hurdle continuous jumps- 2 sets each of 6 hurdles/rest 30 seconds
- Lateral hurdle hop and hold inside and outside leg each for 1 set in each direction/rest for 45 seconds each

- Lateral hurdle hops continuous- 1 set in each direction and with each leg/rest for 45 seconds each

Upper body

- Kneeling clap push ups- 1 set of 5/rest 30 seconds
- Regular clap push ups- 3 sets of 5/rest 45 seconds
- Wall dribble- 2 sets of 10 seconds each/rest 45 seconds and alt. arms

Day # 3

Linear jumps

- Jump and rebound- 2 sets/6 reps/30 second rest
- Continuous jump- 3 sets/6 reps/30-45 second rest

Linear hops

- Continuous hops- 2 sets/8 reps each/45 second rest

Bounding

- Right left bounding- 4 sets/20-30 yards/2:00 rest

Upper body

- Overhead pass- 3 sets/8 reps each person/30 second rest
- Quick push pass- 3 sets/5 reps each side/person/30 second rest

*Keep in mind that even though the sets and reps seem low, my philosophy with jumping and plyometrics has always been to go hard with high quality and never high quantity. Plus, there are going to be other exercises in the warm up, and speed portions of the workout that will be fairly demanding as well. As I mentioned earlier, plyometrics need to be taught properly so the benefit can be gained from the workout. Keep a close eye on joint positions when they land.

Using the description and progressions listed above regarding jumps/plyometrics, you can simply plug them into a workout on each day that meets the needs of the athletes and team. Don't let younger lesser experienced athletes follow the same progression as a stronger more able athlete.

Enjoy implementing a low level plyo program for all your athletes and watch them progress to more advanced training.

Lee Taft

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**All Graphics were created by Tony Reynolds of www.Pssathletics.com
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