

35 Recommendations for Developing Better Horizontal Jumpers

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Developing elite horizontal jumpers is not easy. Managing the physiological, psychological, technical, and tactical requirements needed for success is a long-term holistic process.

This article is the first of a series laying out my ever-evolving blueprint for working with horizontal jumpers. It offers an overview of my recommendations as coaches and athletes plan their training program. The remaining articles will discuss these components in greater detail and begin building the comprehensive program.

Recommendations for Long-Term Planning

I approach programming from the perspective of broad to narrow. Understanding big-picture principles provides essential bases for successful day-to-day practices.

Here are five recommendations in addressing long-term development:

1. Elite athletes must keep general training to a minimum. Gone are the days when building an “aerobic base” and regarding it as beneficial to specific development was acceptable. General work can enhance recovery and aid in injury prevention but shouldn’t be developed beyond what is absolutely necessary.
2. You should address specific training and technical development all season long. This includes continually using the most important exercises and best training methods.
3. Generally speaking, “less is more” in most aspects of training. Elite jumpers respond best to greater intensity and lesser volume. Much of the literature—especially regarding plyometric training—emphasizes volume far too much.
4. Training quality is the most important aspect of programming and planning. You should monitor daily sessions for all specific exercises. The target is always the highest-quality speed and power expression. The session or particular exercise should stop when the outcome drops below desirable levels.

5. With specific training continually present in some form, it is important to think in terms of emphasis shifts rather than rigidly focused training blocks. Done correctly, emphasis shifts provide seamless transitions throughout the year.

Recommendations for Speed Development

Horizontal jumps are speed-dominant events. Speed-based programs have been highly successful in developing the best jumpers in the world. Approach speed can determine up to 95% of the distance achieved and, therefore, remains the single most important quality a jumper can develop.

Of the two jumps, the long jump requires greater approach speed. With the need for stability and control, the triple jump involves slightly lower speeds. Programming for speed development is a multi-dimensional process involving many moving parts. While perfecting the skill aspect of sprinting requires considerable repetition, the inclusion of complementary training makes continued speed development possible.

Here are five recommendations for speed development:

1. Speed development should be related to the long- or triple jump approach for the majority of the year. You can start approach development as early as the first specific phase and continue to implement it for the rest of the season. Rhythmic approach running at a sub-max pace is a great way to begin. Athletes' rhythm and feel during the approach run will significantly improve their ability to generate higher speeds.
2. You should emphasize maximum velocity sprinting mechanics from day one. Coaches often ignore max velocity work until late in the preparation period. Few training methods have a more significant impact on max velocity ability than practicing the skill itself. Therefore, it is essential to devote as much time to sprinting skill as to strength- or power-related exercises.
3. Intensity and technique are the cornerstones of a speed-training program. Athletes need to do accelerations and max velocity sprinting at or near 100% effort followed by maximum recovery periods. Stop the session when fatigue compromises technique and performance.
4. Acceleration sessions typically consisting of sprints less than 40m in length and a total of 300m should be employed all year. Successful methods for acceleration development include hill sprints, sled sprints, plyometric combination sprints, and medicine ball throwing to sprinting variations.
5. Long speed endurance development plays a key role in developing a relaxed sprinting style and enhancing the jumper's ability to move with ease during high-velocity takeoff. However, many high school and college programs overuse speed endurance training. Overdevelopment of this quality is to the detriment of more important qualities such as speed, strength, and power.

Recommendations for the Approach Run

As vital as speed development is for a horizontal jumper, it is during the approach run where all can either be gained or lost. Technical elements of the approach run include rhythm, timing, consistency, and accuracy. All require considerable attention within the training program.

Full-approach practice also plays a vital role in developing the specific strength and power requirements for high-speed takeoffs. This is the only possible type of practice that can develop such qualities.

Here are five recommendations to plan for and develop the approach run:

1. The starting method—whether a run-in, walk-in, or standing start—should be consistent. Developing an effective approach means practicing it the same way every time. The rhythm and feel of the approach must become second nature.
2. Use a check mark for the third stride (6 steps) because fouling issues are related in large part to errors during those first three strides. By hitting the same mark every time on the third stride, the athlete controls this section of the approach and, therefore, helps to minimize error later on.
3. Use the same number of running strides every time, ideally 16–24 depending on the athlete's speed and strength. Once the optimum approach distance has been established, it should always be practiced the same way. Consider extending young athletes' approach when they have improved speed, strength, power AND technical proficiency at higher speeds. A long jumper who relies more on vertical velocity than horizontal velocity may use a slightly shorter approach.
4. Ideally an athlete will use a relaxed and progressive acceleration pattern during the approach run. An approach is only successful if it helps the transition to an effective takeoff. Therefore, timing, rhythm, and posture are essential throughout.
5. Reach optimal takeoff speed roughly five meters from the board and maintain this speed. Until this point, velocity should be gradually increasing. During the final 5m the jumper begins to prepare for takeoff

Recommendations for Technical Sessions

Technical jump and approach sessions generally make up a large chunk of a jumper's training program. They provide an essential link between all other training components and event-specific performance. These sessions provide far more than just a technical stimulus. For example, there is not a more specific plyometric action for the long jumper than actually long jumping. These sessions are extremely important on many levels and should be a priority for coaches and athletes.

Here are five recommendations for planning and implementing technical sessions:

1. Technical sessions don't always involve jumping into the pit. However, they should remain specific to the technical requirements of the event. They are the highlight of the week for many jumpers and ideally occur after a rest day or a short speed/power day.
2. Technical sessions can emphasize the following:
 - Approach rhythm/timing/posture
 - Approach speed/top-speed mechanics
 - Penultimate stride action—roll, push, and extension
 - Takeoff plant—extend, fast paw down and back, push, and extend
 - Free-leg action—parallel thigh block, lower leg tucked under, hips forward
 - Flight—tall and long body throughout
 - Landing—hips and feet far forward with feet together. Dig heels down into sand and pull with hamstrings
3. Three effective tools you can use during technical sessions and their specific purposes:
 - Place a low/medium hurdle 1–2 meters past the takeoff board. The goal is reaching the hurdle with free leg knee drive before leaving the takeoff board. Helps with board penetration and takeoff angle.
 - Penultimate step plant on a 2–3-inch board/box. Provides greater eccentric load during takeoff plant.
 - Place string/rope at the landing spot/goal. Reaching past a visible marker during landing improves foot placement and correct body positioning.
4. Athletes must develop the skill of board accuracy during each session. Board accuracy has two components. The first is physiological, and the second is a skill-based technical issue. A learning concept called Practice Variability may be beneficial in this regard. It can take many forms in relation to the horizontal jumps. Here are a few examples:
 - Systematically or randomly alternate varying stride numbers during jump attempts and aim for the same board position strike
 - Slightly alter starting position (+/-30cm) and aim for the same board position strike
 - Use cluster sets of approach stride numbers, followed by alternating random number of strides during short approach jumps
 - Use random approach length with unknown stride number and aim to strike the board accurately
 - Respond to specific directions for targeting the board in a random fashion (short, long, 3 inches past the board, etc.)

5. These technical drills can benefit jumpers' development:
- Standing penultimate—penultimate leg bent at knee up, land with heel lead, roll on and off foot
 - Continuous knee drive drill—drive free leg knee up and down with support leg stiff-hopping forward
 - 1-step takeoffs—continuous takeoffs with 1 running step in between
 - 3-step takeoffs—continuous takeoffs with 3 running steps in between
 - 5-step takeoffs —continuous takeoffs with 5 running steps in between
 - Alternate easy skip/aggressive skip—drive knee on aggressive skip like a takeoff
 - Power skips—alternate jumps working on knee drives
 - Mini-hurdle takeoffs—work on penetration past hurdle
 - High hurdle takeoffs—work on vertical components of jump
 - Penultimate step-box drill—run penultimate off low box onto takeoff and jump
 - S/L depth takeoff—drop from low box into takeoff action
 - S/L depth takeoff with preceding running strides—as above with a run onto the box
 - Short run jumps, w/wo landing, w/wo weight vest—4, 6, 8, 10, 12, etc. strides
 - Rhythm runs approach work—using 70–80% of speed
 - Rhythm runs with a pop-up—70–80% runs with a pop-up at end

Recommendations for the Weight Room

Weight training is an important and highly individual aspect of the training program. It requires a great deal of consideration and planning. Strength can provide a base for a body resilient to injury and an explosive body capable of generating great force. You should implement special guidelines to ensure that your strength program targets the needs of each athlete. A strength program implemented incorrectly can have an adverse effect.

Here are five recommendations for designing a strength training program:

1. Spend the early years of specialized development increasing maximum strength levels, primarily in the squat, step-up, lunge, and pulling movements. As a rule of thumb, a full squat of 2x body weight, power clean of 1.5x, power snatch of 1.3x, and parallel step-up of 1.5x are optimal. These are general guidelines and not necessary for athletes with excellent high-velocity qualities. The sooner athletes attain optimal maximum strength, the sooner they can focus on special strength training. You should plan a brief session for maximum strength maintenance every ten days or so.
2. The most important qualities for a jumper are elastic and reactive strength and high-speed strength. Special strength should be developed through high-velocity and maximum effort

repetitions using exercises such as jump squats, hang power cleans, hang power snatches, and squatting exercises using pneumatic machines.

3. Relatively low-cost technology helps determine power output and velocity during certain exercises. I recommend using it to determine optimal power training loads for your athletes and provide information about session quality. Track the quality of performance during every session whenever possible. If the desired power output or velocity is no longer possible because of fatigue, an alteration to the session needs to occur. Remember my earlier recommendations: quality over quantity and less is often more.
4. There is a negative relationship between the development of maximum strength and special strength in advanced jumpers. It is a common mistake for coaches to place a huge emphasis on heavy loads in the weight room for the majority of the year. The saying “Strong is never strong enough” is simply not true for high-velocity speed/power athletes.
5. Strength training programs for jumpers often include bodybuilding-style circuits. Typically they occur on low-intensity days and are used for general strength. These circuits are unnecessary for many male athletes. Female athletes who will likely never gain upper-body bulk can incorporate them. General strength routines for jumpers should focus mainly on the rotation core, lower back, feet and ankles, and lateral moving lower body exercises.

Recommendations for Plyometric Training

Plyometric or jump training is a popular method of training. It can elicit tremendous neuromuscular responses by providing great stimulus in the form of extremely fast eccentric-concentric muscular contractions. You might argue that this is the most specific form of strength/power training. This exact muscular loading sequence is replicated during all aspects of horizontal jumping events and, therefore, plyometric training benefits these athletes.

As with most high-intensity training methods, plyometrics can be regarded as high-risk/high-reward. Careful programming with correct technique, progressions, and exercise choices is especially important.

Here are five recommendations for including plyometric training:

1. The speed at which a muscle is lengthened during the stretch-shortening cycle is a key aspect of successful plyometrics. The greater the rate of stretch, the greater the resultant force during the subsequent contraction. No matter the level or intensity of the plyometric exercise being performed, athletes need to approach each repetition with this concept in mind.

2. A recommended plyometric progression for developing jumpers:
 - Standing multi-jumps
 - Linear/lateral multi-jumps
 - Skipping variations
 - Hopping variations
 - Bounding variations
 - Basic low- to high-box single-depth jumps
 - Multi-box depth jumps
 - S/L depth jumps
 - S/L depth jumps with run in
3. Generally speaking, I don't recommend an intensive plyometric-based program for elite jumpers. By the nature of their event, triple jumpers require a high ability to perform specific plyometric actions such as hopping and bounding. Their overall program should differ from long jumpers, high jumpers, and pole vaulters, who only require a single maximal-effort takeoff action. Plyometric training should reflect specific event requirements and it is important to understand that a jumper's technical training should be included when assessing plyometric load.
4. Depth-jump height is an important discussion point. It is wise to progress gradually the box heights at the pace by which the athlete increases his/her rebounding ability. Adapting to a new box height may take several sessions, so do not immediately return to the previous box if rebounding height suddenly decreases.
5. Plyometric/jump training should include a variety of landing methods to develop stretch reflexes and eccentric abilities. Almost all the plyometric progressions listed above can be performed with a static landing/pause. This method is great for developing stability and eccentric strength. Both flat foot and ball of the foot contacts should be used during depth jumps to mimic sprinting and takeoff actions.

Recommendations for Readiness, Recovery, and Restoration

No training program can succeed without carefully monitoring the three Rs: Readiness, Recovery, and Restoration. The human body can only withstand so much. With athletes and coaches wanting to push the limits of human performance, understanding the holistic view of health and recovery becomes vital. Developing optimal health with performance is a difficult process that may take several minds to master. Ice bags and ibuprofen aren't enough to compete at the highest level any longer. Health and high performance require full-time monitoring, evaluating, and adapting to be optimized.

Here are five recommendations for approaching Readiness, Recovery, and Restoration:

1. Readiness, Recovery, and Restoration is a 24/7/365 consideration. Health maintenance encompasses a vast array of components: the amount of quality sleep, the variety of organic quality food, the management of various stressors, and more. Serious athletes need to consider everything they do as it all can have a positive or negative impact on their health. Their health habits contribute greatly to their ability to benefit from their training routines and recover from them.
2. Readiness, Recovery, and Restoration are enhanced through proper warming up and cooling down. A thorough and well-designed warmup and cool-down program is easy to achieve but often is a neglected aspect of the daily training routine. Warmup and cool-down should be progressive and cover non-specific and specific movement patterns and muscle groups. Both are great places to incorporate general strength routines and general fitness work.
3. Following the above points allows the body to utilize its natural healing process and become highly efficient at dealing with positive and negative stressors. The better the human body is at this, the more comprehensive it will be at optimizing performance.
4. Water immersion techniques aid the recovery process. Twenty minutes neck-deep in a swimming pool daily or every other day is ideal. Light mobility exercises can be performed during each pool session. A number of successful jumps programs feature a 1-to-1 ratio of land sessions to pool sessions.
5. A rarely used set up of an 8-10 day cycle allows you to spread out the training elements over a longer period. By taking your current 7-day program and including one or two lower load days you are enhancing the adaptation process. Not only does this set up add more recovery days, it also allows for higher training loads to be used during specific days. This can be especially effective when working with older athletes.