

Long Jump: Technique and Training

Identifying Jumpers

- ▶ Good HS jumpers come in all shapes and sizes, but there are some critical attributes that all great jumpers will have:
 - ▶ Speed—Great jumpers are usually very fast, and all jumpers should be trained as sprinters. Don't ignore mechanics (front side vs. back side).
 - ▶ Power—Great jumpers usually display a great ability to generate power AT BODYWEIGHT (but not necessarily in the weight room)
 - ▶ Other indicators:
 - ▶ Slender
 - ▶ Long Achilles tendon
 - ▶ Large ROM of the hips—naturally long strides

Long Jump Technique—The Approach

- ▶ 90% rule—In the long jump, 90% of the jump (board accuracy, speed at takeoff, total possible distance) is in the approach.
- ▶ The farthest possible jump distance is determined at toe-off. All the athlete can do once he or she is in the air is SHORTEN it.
- ▶ Therefore, 90% of your time should be spent practicing the approach.
- ▶ Come up with a system for finding an approach distance and determining the correct placement of coaching check marks for each of your athletes (example system later).

Approach Goals

- ▶ The ideal speed the athlete should be running before takeoff is referred to as MAXIMUM CONTROLLABLE VELOCITY.
- ▶ Not FULL SPEED
- ▶ The athlete needs to be able to lower themselves into a power jumping position without slowing down—this cannot be done at the athlete's maximum possible running speed.
- ▶ The goals of the approach are to attain maximum controllable velocity at takeoff, achieve proper takeoff position, and jump accurately from the board.

Approach Phases

- ▶ An ideal system would include a 3-phase approach, with a coaching check mark at the conclusion of each phase.
- ▶ My vocabulary
 - ▶ Drive Phase
 - ▶ Transition Phase
 - ▶ Attack Phase

Drive Phase

- ▶ From the start, the athlete should accelerate out the back of the approach similar to how a sprint race should be run.
 - ▶ NO FLUFF!
- ▶ The volitional part of the approach: Push-Push-Push!
- ▶ Characterized by low frequency, high displacement, the generation of momentum.
- ▶ Consistency in this phase is fundamental for success as most variance at takeoff mark occurs from inconsistency in the first 4-6 steps.

Transition Phase

- ▶ Here, the athlete should transition to upright sprinting with proper frontside/backside mechanics.
- ▶ Acceleration should continue.
- ▶ The transition from volitional to non-volitional (reflexive) running.
- ▶ Exhibit short ground contact times
- ▶ Sound acceleration mechanics must precede this phase.
- ▶ Maximizing large ranges of motion at the hips help to elicit stretch reflexes that maximize velocity.

Attack Phase

- ▶ In the attack phase, the athlete should focus on maintaining proper sprint mechanics.
- ▶ Acceleration should continue.
- ▶ PENULTIMATE STEP

Penultimate

- ▶ The last 2 steps are the penultimate step (2nd to last) and the final step/jump.
- ▶ The penultimate step sets the athlete up to jump into the pit.
- ▶ This is done by slightly lowering the body—initiating the stretch-shortening cycle.
- ▶ In terms of rhythm, these should be the two fastest steps of the approach.
- ▶ Tall tall flat flat
- ▶ "Don't break the ice"

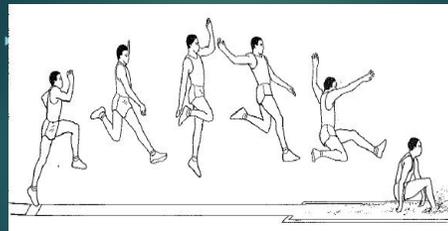
Takeoff

- ▶ The mechanical success of takeoff is due to:
 - ▶ Body position and posture
 - ▶ The action of the takeoff leg
 - ▶ The swinging movements of the other limbs
 - ▶ Takeoff foot position in relation to cm
 - ▶ Minimal amortization upon impact
 - ▶ "Double Block"

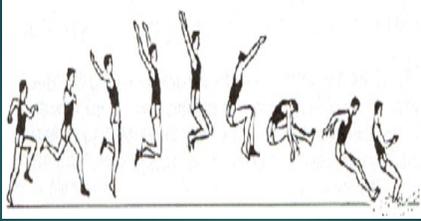
Flight

- ▶ 3 basic in-air models
- ▶ Hitch kick
- ▶ Hang
- ▶ Sail

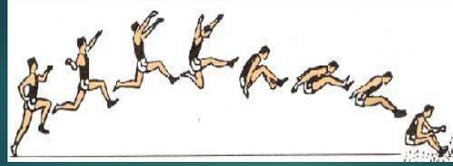
Hitch



Hang

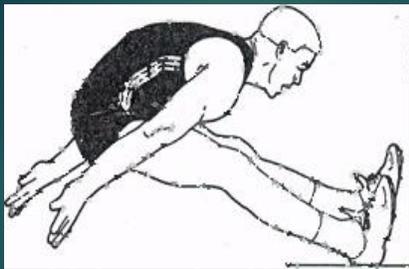


Sail



Landing

- ▶ Personally, this is where I spend the 2nd most amount of time.
- ▶ This is where I think the biggest improvement can be made for most jumpers.



Landing

- ▶ THE ACCORDIAN DRILL
 - ▶ Standing—same biomotor pattern
 - ▶ From a chair in the sand
 - ▶ Low speed running
 - ▶ Full speed running

Long Jump Training

- ▶ Speed at takeoff is the most important quality determining jump distance.
- ▶ Because of this, all long jumpers should be trained as sprinters.
- ▶ Acceleration through maximum velocity.
- ▶ The faster an athlete can run, the faster their MCV can be.

Speed Training

- ▶ Most approach distances are between 25-35 meters and the entire process takes less than 8 seconds.
- ▶ Athletes should do acceleration and maximum velocity training at these distances and beyond.
- ▶ Sets of 20-60 meter sprints. Shorter early in the season and progressing as the season progresses.
- ▶ As the athlete gets stronger and faster, the approach will need to be remeasured.
- ▶ Speed endurance training is not necessary.
- ▶ Endurance training is not necessary.
- ▶ What is endurance????????????????
- ▶ Work capacity training is necessary.
 - ▶ The ability to handle a high work load-lots of jumps

Plyometrics

- ▶ Plyometrics are vital for developing jump ability
- ▶ Plyometrics are almost always overused.
- ▶ According to the NSCA, the number of ground contacts should be:

| Plyometric experience | Beginning volume* |
|------------------------------------|-------------------|
| Beginner (no experience) | 80 to 100 |
| Intermediate (some experience) | 100 to 120 |
| Advanced (considerable experience) | 120 to 140 |

*Volume is given in contacts per session.

Plyometric Intensity

| Factor | Effect |
|---------------------|--|
| Points of contact | The ground reaction force during single-leg lower body plyometric drills places more stress on an extremity's muscles, connective tissues, and joints than during double-leg plyometric drills. |
| Speed | Greater speed increases the intensity of the drill. |
| Height of the drill | The higher the body's center of gravity, the greater the force on landing. |
| Body weight | The greater the athlete's body weight, the more stress is placed on muscles, connective tissues, and joints. External weight (in the form of weight vests, ankle weights, and wrist weights) can be added to the body to increase a drill's intensity. |

Types of Plyometrics

| Type of drill | Rationale |
|-------------------------|--|
| Jumps in place | These drills involve jumping and landing in the same spot. Jumps in place emphasize the vertical component of jumping and are performed repeatedly, without rest between jumps; the time between jumps is the stretch-shortening cycle's amortization phase. Examples of jumps in place include the squat jump and tuck jump. |
| Standing jumps | These emphasize either horizontal or vertical components. Standing jumps are maximal efforts with recovery between repetitions. The vertical jump and jumps over barriers are examples of standing jumps. |
| Multiple hops and jumps | Multiple hops and jumps involve repeated movement and may be viewed as a combination of jumps in place and standing jumps. One example of a multiple jump is the tippie-hop. |
| Bounds | Bounding drills involve exaggerated movements with greater horizontal speed than other drills. Volume for bounding is typically measured by distance but may be measured by the number of repetitions performed. Bounding drills normally cover distances greater than 90 feet (30 m) and may include single- and double-leg bounds in addition to the alternate-leg bounds illustrated in this chapter. |
| Box drills | These drills increase the intensity of multiple hops and jumps by using a box. The box may be used to jump on or off. The height of the box depends on the size of the athlete, the landing surface, and the goals of the program. Box drills may involve one, both, or alternating legs. |
| Depth jumps | Depth jumps use gravity and the athlete's weight to increase exercise intensity. The athlete assumes a position on a box, steps off, lands, and immediately jumps vertically, horizontally, or to another box. The height of the box depends on the size of the athlete, the landing surface, and the goals of the program. Depth jumps may involve one or both legs. |

Recovery

- ▶ Frequency
 - ▶ Typical recovery time guideline: 48 to 72 hours between plyometric sessions. Same as speed training and weight training.
 - ▶ Using these typical recovery times, athletes commonly perform two or three plyometric sessions per week.
- ▶ For this reason, plyometrics and weight training should all be done on the same day as speed training. Be careful with the dosage!!

Drills

- ▶ Drills are everywhere.
- ▶ Find what works for you and your athletes
- ▶ Don't be afraid to "invent" a drill to teach a skill or fix a problem
- ▶ Art vs. Science

How to determine approach distance and check marks

- ▶ Determine number of steps (14-18 based on strength and experience)
- ▶ Lay tape measure
- ▶ Run 8-10 approaches along tape measure
- ▶ Mark the 6th, 10th, and last step in the approach
- ▶ Average the three marks.

Questions and Discussion