

Jeff Hartwig- Pole Vault Clinic Notes

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Coaching the Pole Vault

World Class Made Simple

Beginner Technique

- Emphasis on run and plant
- Proper Balance and Alignment at takeoff
- Define the target of swing rotation
- Controlling the jump with the top hand.
- Each phase of the vault is dependent on the previous phase(s).

The Run and Plant

- Control and tempo of the run starts from the first step.
- Don't outrun your technical ability.
 - PR 8' = 8 step run PR12' = 12 step run
- Short Run start should be similar to long run.
- The run should be balanced, upright and fluid in movement.
- Pole carry should start high and be in rhythm with the run.
- Pole drop should be gradual and smooth as run accelerates.

Key Points of the Plant

- The plant should occur over the last two steps of the run.
- Across the penultimate step the pole should move from the hip upward through a curling action of the arm.
- At the support phase of the penultimate step the pole should be at the side of the head. (Answer the telephone)
- Across the final step, the pole should continue to move upward even as the vaulter takes off.

Critical Success or Failure of the plant

- The plant does not stop at takeoff.
- The run does not stop at takeoff.
- Avoid the inclination to pull down with the arms.

Balance and Alignment

- Proper Balance and Alignment is critical to preserve the energy created from the approach.

- Balance is the vertical position of the body as it leaves the ground.
- Alignment is the posture that allows the body to project forward beyond when the pole impacts the box.

Balance

- When a vaulter hits the box keeping balance is essential to ensure a smooth transition into the air.
- Balance can be assessed by watching posture at take-off and where the vaulter lands.
 - Leaning forward or back
 - Lateral, left or right.
- Don't confuse loss of balance with misdirection.
- Alignment
- Proper alignment allows the body to move forward without compromising posture. This sets up the swing.
- Common Misconceptions
- Tucking the elbow
- Planting over the head.
- Jamming the left arm forward to bend the pole.

Bottom Arm Pressure, What to do?

Pressure through the bottom hand!

- Bottom hand pressure in any direction should not compromise the position of the chest and torso.

- The torso must remain perpendicular to the runway to achieve maximum benefit of the swing.
- Pressure straight up is the most effective way to deliver energy of the run into the pole (pole speed) and maintain posture to finish the jump (swing/rotation)!

Defining the Target of Swing

Swing rotation on the pole should occur starting at the hips and then through the shoulders.

- The target should be to swing up the pole, not at the crossbar.
- Horizontal movement through the air is determined by the runway velocity and take-off.
- Rotation on the pole should occur in anticipation of pole movement to vertical.

Controlling the Jump

THE TOP HAND MUST CONTROL THE JUMP

- At take-off the top hand drives the pole to vertical
- Through the swing the top hand keeps pressure on the pole.
- The top hand controls the turn.
- The top hand pushes off.

Each phase is dependent on the previous phase.

The phases in the pole vault are sequential.

- Each phase does not start and stop independent of the others.
- There is a certain amount of overlap and follow-through for each phase.
- An athlete must anticipate this follow-through to successfully transition from one phase to the next.

Key Tips for Beginners!

- Don't outrun your technical ability!
- Learning to run with the pole off the runway can be as beneficial as anything you do on the runway!
- Swinging on the pole is largely based on proper balance and alignment at take-off!
- Swing up the pole not at the crossbar!
- Control the jump with the top hand!

Advanced Technique

Continued improvement of run and plant

- Use of mid marks and speed marks can ensure improved consistency in the run.
- A good run and takeoff must have follow-through!
- Improve power and energy through proper alignment and balance.
- Shoulders and hands are a moving triangle.
- More attention to swing mechanics
 - Defining the “bottom” of the swing.
- Rotation through the hips translates to better rotation around the shoulders.
- Learning to swing with straight arms generates more power and is more consistent.

The Advanced Run

- Speed marks are visual marks used by the vaulter to control the start of the run and lock into a consistent pattern of acceleration.

- I like 4th step or 6th step, depending on length of run.
- This develops consistency at the start of the run.
- Variations in stride length occur more at the beginning of a run than at the end.
- Speed marks are worthless if the vaulter doesn't use them.
- Mid-marks or Coaches marks give more accurate feedback as to the reliability of the run.
 - The mid-mark changes as fitness improves.
 - Adjusting to the mid-mark is more reliable than adjusting to the take-off.
 - Trial and error will lock in the best mid-mark.

Run through the take off, not to it!

One of the first things that can cause a vaulter problems is not finishing the run into the air.

- Some common misconceptions are:
 - A vaulter should stop and jump up at take-off.
 - A vaulter “hangs” on the pole or drags his trail leg.
 - A vaulter should cock his leg back in order to swing stronger.
 - A vaulter must swing a straight trail leg!

Follow through is Key

- The result of a good strong take-off is the follow through of the step into the air!
- This gives the effect of a hang or delay in the swing action of the leg but in reality, the swing

should be immediate and result in the change of direction of the leg without delay.

Power and Energy

- As Power improves, transfer of Energy should improve.
- Without proper alignment and balance efficiency of transfer of energy is lost.
- Continued exposure to jumping ensures development of neural pathways as fitness improves.
- Fatigue will limit ability for vaulter to work on improvements.

The Moving Triangle

- Thinking of your arms as a movable triangle will help vaulters visualize the correct torso posture at takeoff , into the air, and through the swing.

Where is Bottom?

Many times we just think of swing as a means to turn upside down.

But what is the best way to maintain energy as we swing?

- Just like a gymnast doing giants, the swing has a bottom and a top.

- Swinging through the proper zone accomplishes several tasks.
- Maintains more energy in the jump
- Keeps pole bent longer, which gives vaulter more time to rotate.
- Maintains pole speed.
- The swing is almost elastic in that the rebound through the bottom follows through the top of the jump.

Swing Rotation

To maximize efficiency of transfer of energy and maintain pole speed, swing must initiate through the hips and then transfer to the shoulders. This allows the vaulter to keep speed to the top of the jump.

Swinging with straight arms is a defining characteristic of World Class Vaulters.

- Every vaulter while learning has a strong tendency to pull down with the arms to initiate swing and assist rotation.
- Controlled strength and precise timing is required to allow vaulters to swing while keeping the arms extended.

- The most efficient way to apply consistent pressure to the pole is through fixed arm length. Its nearly impossible to apply even pressure with bent arms.
- Swinging with straight arms gives vaulters a stronger more powerful finish to the top of the jump.

Key Points for Advanced Vaulters

- Continued refinement and improvement of the approach and take-off.
- Strength development takes on a greater roll in progress.
- Focus on more specific elements will lead to greater improvement.
 - Weak link effect.
- Constant challenge to find weakness.

The Mental Approach

Emotion vs Technique

- Great jumps come from less than perfect technique when Emotions are balanced.
- Too emotionally high can cause lack of focus.
- Too emotionally low does not stimulate CNS excitement.
- Adrenaline drives performance, technique must remain consistent.

The Mental Approach

- Too much coaching is worse than none at all.
- Be a cool/confident coach.
- React to athletes confidence.
- Use cues to engage thought processes.
- It takes 10,000 reps to perfect behavior.
- Always expect the unexpected.
- Progress comes in many different forms.
- Be specific each end every day.
- Short run PR's are just as good as Long Run PR's.

Training Vaulters in the High School Season

How do we find the time for training and technical work?

- Training and technical work should compliment each other.
- By breaking the physical training into four components and applying different components to each days workout, a vaulter can accomplish both tasks.

Four components of physical training.

- . Strength
- . Core and Balance
- . Power
- . Speed

Strength Training

- General strength is essential for overall physical development.
- General strength training also provides a balancing effect to offset the imbalance of development of vaulting. This also helps with injury prevention.
- Strength work stimulates endocrine function that is important to anabolic development.
- Traditional lifting protocol 3-4 sets 8-10 reps.

Some examples of strength exercises.

- Bench Press
- Curls
- Military Press
- Lat Pulls
- Flys
- Lateral Raise
- Russian Twist
- Hanging leg lift
- Back Hypers
- Squats
- Hamstring Curls
- Leg Extensions
- Toe Raise
- Romanian Dead Lift
- Dead Lift
- Leg Press
- Dips
- Rows

Use your own be creative !

Core and Balance

- Core strength has become the latest buzz word in training and fitness.
- Pole vaulters benefit greatly from increased core strength.
- Core strength also referred as the center of power development, stabilizes the spine as well as shoulder and pelvic girdles.
- Aids in injury prevention.
- Can easily be done anywhere without specialized equipment!!

Breaking down core training!

General Core development exercises.

- Uses mostly body weight resistance.
- Some done with partners.
- Endless lists of exercises.

Hurdle Mobility

- Excellent for development of running mechanics.
- Improved range of motion training.
- Increases flexibility and strength through the hips.

General Core

Generally choose 8-12 exercises and 1 set of 10-20 reps.

Examples:

- Two-legged squats
- Single leg squats
- Push-ups
- Sit-ups
- V-ups
- Back Hypers
- Back Hypers w/
Twist
- Pushups w/ Clap
- Crunches
- Toe Touchers
- Leg toss w/ partner
- Wrestlers bridge
- L-overs
- Push-up toe walks
- Side-ups
- Good mornings
- Lunges
- Handstand (still)
- Handstands walking
- Decline push-ups

Hurdle Mobility

6-10 Hurdles, 2-3 passes each exercise

To increase difficulty, raise the hurdles and/or add ankle weights.

- **Walkover** – Step over with alternating leg.
- **Same leg Walkover**- Step over and step between so that lead leg is always same.
- **Over/Back**- Step over 1st hurdle, then step backward back over, then forward over two, then back one, forward two and so on.....alternating step pattern
- **Over/Under**- Step over, turn sideways, duck under the next, then stand up over next. Maintain same lead leg through.
- **High Knee Side Skips**- These are done down the sides or middle. Always lead same leg, down and back.
- **Straight-Leg Side Skips**- Down sides. Lead leg same.

Power Development

- Highly important aspect of development/ High Risk
- Explosive strength is important in virtually every sport.
 - Olympic lifts, plyometrics, Explosive throws all comprise exercises that contribute to power development.

- These exercises should be used with caution as they can cause injury if done improperly.
- Use cautiously during peak performance – reduced volume.

Power Development

Examples:

1. Olympics – Clean, snatch
 - i. 6-8 sets, 1-4 reps
2. Plyometrics – Box jumps, bounding, hurdle hops, dynamic step-ups, sled pulls.
 - i. 3-6 sets
3. Explosive throws (med balls)-
Overhead back, Underhand forward, Hammer L/R, Back/Forward w/Hop, Squat Thrust
 - i. 3-4 sets x 3-4 reps

Speed Development

- You can never be too fast!/ Watch volume
- Recovery from CNS recruitment is slower than muscle dev.
- These exercises should be used with caution as they can cause injury if done improperly.
- Full recovery between reps will maximize white fiber recruitment.

Speed Development

Examples:

- Short Sprints- 20-40m sprints
 - Make your vaulters race. Nothing provokes athletes to work hard then old fashioned competition
 - Handicap their starts
 - Use blocks for variety
- Sprints w/ Pole
 - Forget about marks, just run fast.

- **Overspeed** – {This is one to be careful with}
 - Either with a bungee or speed pulley system or downhill.
 - Must control the amount of increased speed to maintain mechanics
 - Low volume – 2-3 reps max.
- **20-30m Fly's**
 - Use a 10m roll-in and hold wide open for distance
 - This allows vaulter to set up similar to start of run with pole

How do we put it all together with the limited amount of time we have?

- **Strength** – As time permits, or away from normal training times on their own.
- **Core and balance**- Something every day
 - Can be incorporated into warm-up routine.
 - Can be done at night on their own.
 - Can be done following jump practice.

- Power and Speed – 1-2 times per week
 - Normally after jumping or non-jump days
 - Can be separate or together.

General Weekly Planning

- Jumping 3-4 times a week is ideal but not always practical.
 - Early season use short runs for volume and as a response to adverse conditions.
- Watch the weather to make a plan that best suites balance for the weekly workouts.
- Plan from week to week as athletes respond to training.
- Overtraining can be as detrimental as no training.
- Make it fun – Add fun competitive activities to the weekly plan to keep athletes stimulated and motivated to work.

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