



Pole Vault 2019

An Opportunity to Go Higher
by Dr. Joel Sievers

Good High School Vaulter



College Vaulter, New Mexico's latest 16'er





Introduction

Why I love pole vault:

1. The thrill! It is a rush like catching a wave, skiing a double black, or your 1st dunk.
2. The challenge! It takes a combination of so many skills to vault high, especially the mental aspect.
3. The huge opportunity for improvement!
4. Technique, strength, hard work, and mental fortitude can make an average athlete a great pole vaulter!
5. The high degree of collegiality between pole vaulters.
6. The joy I get out of helping young student athletes discover they can accomplish so much more than they imagined!

Fundamentals

Physics: more energy into the equation = more height, technique primarily helps limit ones energy loss (and transfer that energy from horizontal to vertical).

As an All American, I & other top vaulters worked on plant/ takeoff/ invert almost every practice.

Vault is so sequential, it is very easy to be working on swing or rock back and start making mistakes on the approach or plant, so we have to continuously go back to those skills.

Video is so helpful to slow things down and see exactly what your athletes are doing. Most of the more obvious errors begin with a problem 1 or more phases earlier in the vault.

Pole Vault Phases

Approach

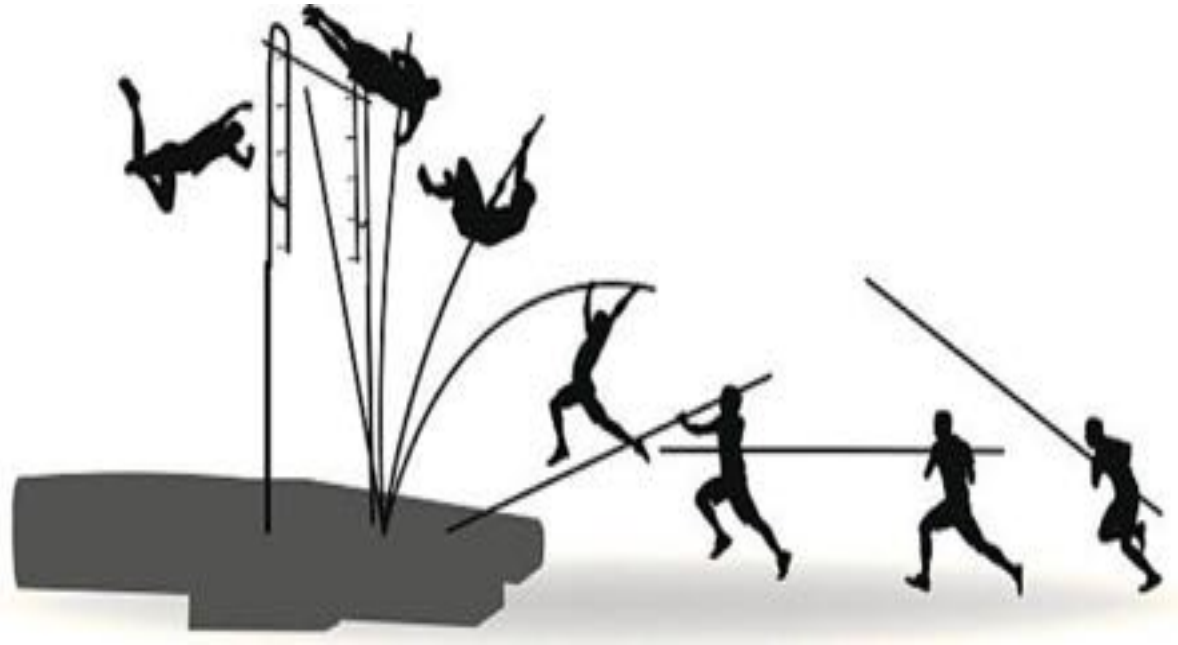
Plant/ Take Off

Swing

Rockback/ Invert

Pull & Turn

Push-off & Clearance



Today's Points of Focus *(the low hanging fruit)*

Approach

Plant/ Takeoff

Invert



The Approach

This is the beginning and arguably the most important part of every vault. It's not just about speed, but maximum controllable speed, that prepares you for a great plant and takeoff.

1. Comfortable pole carry, slightly across your body
2. Smooth, rhythmic, continuous acceleration coinciding with a gradual lowering of the pole.
3. Not tight, but not too much arm movement, keep top hand on the hip with elbow at 90 degrees.
4. Stay tall (at least in last $\frac{1}{2}$ of approach), with relatively high knees.
5. Accelerate all the way into the takeoff.



European Athletics Indoor Championships Praha 2015 6 - 8 March

Pole Vault Men - Final LAVILLENIE Renaud

Approach Velocity 6.04 attempt 1

15 - 10 m

9.80 m/sec

10 - 5 m

10.00 m/sec

ERKOVIĆ



The Approach

COMMON PITFALLS:

1. Inconsistent steps
2. Speed peaks too early
3. Lowering pole too soon or too late
4. Not tall at the end
5. Overstriding into takeoff
6. Top hand carried behind or below hip

SOLUTIONS:

1. emphasize rhythm over and over and over, lots of pole runs, rhythm runs as part of warm up and between jumps
2. Consider 4th step check mark
3. More gradual smooth acceleration.
4. Consistent gradual lowering of the pole.
5. Emphasize turnover in the last 3 steps.
6. Keep hand on hip, primarily to set up the plant & limit excessive arm movement

The Mental Difficulty of Plant and Invert

A plant at full speed is mentally daunting, especially if confidence is low. It's like going into a big hit in football and opening up right before impact. At the most critical time our instinct is to shorten our levers and brace for impact. Most vaulters tend to not fully extend or decelerate, obviously those are counterproductive.

To fully invert requires full commitment and a high level of trust in self, pole, training! It feels really weird, you don't feel in control, it's like you're going tip over backwards onto the runway. Most good vaulters (even college) approach vertical, but never fully commit.

The Plant & Takeoff

The plant is the most talked about area of vault technique, and as simple as it seems it is so often performed poorly.

1. Should be powerful and flow directly out of the approach.
2. Head and chest are high, top arm maximally extended, bottom arm fully or mostly extended forward & overhead approximately shoulder width below the top.
3. For the swing, it's critical to keep separation between bottom hand & hip.
4. Pole tip drops into box as vaulters hands raise, no need to push tip down, if pole lower has been started early and plant is initiated early.
5. Plant cannot be timed with last step, or it will be Late and/or Overstriding will occur. We have to teach separate timing of plant starting before takeoff.

Plant & Takeoff

5. Jump / drive in and up powerfully, & without deceleration.

6. High knee drive

7. Push off into a long trail leg



Plant & Takeoff

COMMON PITFALLS:

- 1. Low plant**
- 2. Late plant**
- 3. Excessive breaking of bottom arm**
- 4. Poor knee drive**
- 5. Deceleration**
- 6. Head/chest down**

SOLUTIONS:

- 1. Walking, running (to slow it down)**
- 2. Pop-ups/short-run (speed it up some)**
- 3. Lift in & wall plants (to feel the pressure)**
- 4. Approaches into a weighted sliding box (full speed)**

Invert (a.k.a. Rockback)

1. Ideally maintain speed and flow from the swing into the invert without a big pause in the rockback!
2. I prefer the term INVERT because they need to get upside down and vertical, too often vaulters get “rocked back” into a tight tuck and never get the hips up to the pole.
3. The bottom arm has to break to allow the hips to come forward and up.
4. Work on getting the hips and thighs high on the pole, if the knees come toward the pole (and chest) the hips may stay low, and then the vaulter is behind the recoil.
5. If the hips are above the shoulders when recoil begins they will start to get big increases in height. The vaulter will feel the “pop” of the pole and won’t flag off as much.

Invert (a.k.a. Rockback)



Invert (a.k.a. Rockback)

6. Swinging to a “hips high” position. (pop ups, hanging rope, rings, etc.)
7. “Drop” the shoulders. This actually makes it easier for the hips to rise and get tight on the pole. Don’t throw the head back--it will cause the hips and legs to flag off.
8. If they are looking at the bar, it’s hard to drop the shoulders.
9. A good invert keeps the vaulter ahead of the recoil (timing-wise) and allows for as much as 12 - 18” of greater hip height over the bar.
10. Being “ahead” makes the turn and pull easier. It also makes it much easier to stay vertical longer and continuing up the pole.



The Mental Game

- ❖ **How do you build confidence when every attempt is flawed and every meet and most practices end with a miss?**
 - **Build confidence in phases, step by step. Even your “tough” athletes need encouragement.**
 - **Every success, no matter how small is noted, complimented and reinforced. This doesn't mean that you don't offer instruction on errors. It's about complimenting the success, speaking to what needs improvement, then reinforcing the success!**
 - **Remind them it's a process. Success is not about making this bar. It's more about improving technique. Make or miss, that will lead not to just making this bar, but also bars 6" and 12" higher.**

Helping Higher Level Vaulters

1. **Set goals--both short and long term.**
2. **Identify 2-3 places technique or training is limiting their progress and performance.**
3. **Speed: on the runway, in the swing phase, through the invert (without losing patience).**
4. **Crispness: explode on the takeoff, stay tight on the pole out of the invert, good clearance positions**
5. **Big fish in the small pond, pushing past complacency.**
6. **Outside coaching/ camps/ and competitions are very important.**
7. **The mental game, it ups the ante the higher they jump.**
8. **Most top level vaulters have been injured. They are more aware of the potential danger.**

Pole Vault Safety

1. **Good coaching.**
2. **Ensure proper progression.**
3. **Good approach and plant/takeoff**
4. **Land on buttocks or back. Not on feet!**
5. **Keep feet under the head if bailing out.**
6. **Increase the pole selection.**
7. **Rules limiting poles under bodyweight are well intended but limit our choices. In practice, holding down a foot equals about 10 lbs of pole stiffness.**

Building a Vault Program

❖ Which athletes?

- The crazy
- The alternative athlete
- The gymnast/cheerleader
- The one that can't do anything else.
- Need some speed, aggressiveness, strength, balance, and the ability to accept coaching.

❖ What age?

- The earlier the better, middle school or early high school.

Building a Vault Program

❖ What about Poles?

- Share
- Rent
- Loan

❖ Other equipment

- Hanging rings, rope, high bar/chin-up bar, sliding plant box

❖ Other

- Summer opportunities, camps, clubs
- Find a place to jump in offseason
- We are hoping to start some street vaults in the summer.



Walking with the pole

Wall Plants



Running Hang Drill (jogging plant/take off)



Plant Action Drill (Jogging Plant)



Sand Pit Plant Drill



4 Step Running Plant



Plant with Lift



Short Run with & w/o blocked bottom arm





Plant & Take-off Video Clips

Running Plant Drill

<https://www.youtube.com/watch?v=Lt7eRcz2Qsl>

Plant Action Drill

<https://www.youtube.com/watch?v=Ge9ViQiU1Ck>

6 Step Continuous Running Hang Plant Drill

<https://www.youtube.com/watch?v=XlYoNRxkPI8>

Four Step running plant and take off Pole Vault drill

<https://www.youtube.com/watch?v=3LyFu8MruV8>

Pick off Plant Pole Vault Drill

<https://www.youtube.com/watch?v=8kupONnGivg>

Pole Vault Plant Drill into Long Jump Pit

<https://www.youtube.com/watch?v=C-Dr0lY8mVQ>

Pole Vault Turn & Push Off Drill

<https://www.youtube.com/watch?v=MBvb3K9OdDU>

POLE VAULT TURN & PUSH-OFF DRILL 3

<https://www.youtube.com/watch?v=MBvb3K9OdDU>

1 STEP WALL PLANT WITH POLE

<https://www.youtube.com/watch?v=-Sglpbb2Kpo>

Running Drills with pole

<https://youtu.be/814aFoXRoGI>

Rock back & Pull/ turn/ push drills

<https://youtu.be/uFyECpq7vtw>