

Pole Vault Safety

by Jan Johnson



Part of the process of learning to pole vault is learning to manage risk. It should be a big part of any pole vault education program. The five basic elements of risk management are (1) controlling the environment, (2) developing good basic skills, (3) making adjustments for consistency, (4) understanding the basic concepts of pole vaulting, and (5) supervision.

I. ENVIRONMENT

Control risks by making the pole vault environment as risk-free as possible. This requires a daily assessment prior to actual vaulting. Here's a checklist of some of the conditions to be regularly monitored.

1. Are pads and the top cover properly fastened together? In most cases, where they are not attached or buckles or straps are broken, you can use pieces of old bike inner-tubes, clothes line or some other form of rope to keep things together. Is the entire landing area covered by a common top pad, so no cracks or holes exist on the primary landing system?
2. Is the landing system large enough? This issue is very important when considering safety. It is perhaps best answered by considering how high the potential users of the pad are going to vault. As a rule of thumb, larger is better in vaulting pits. The width and length dimensions should be carefully considered when assessing the safety value of a pole vaulting pad. The new minimum overall dimensions for high school pole vault landing pads are 19'8" (6.0M) wide by 20'2" (6.15M) long, with no less than 16'5" (5.00M) behind the back of the box.

It is important to note that many vaulting pads currently in use are smaller than the above recommendation. The perimeter of these landing systems should be padded with no less than 2" of dense foam padding as outlined by the current National High School Federation (NHSF) rules. Old high jump or pole vault pad sections may be used for this purpose.

The vast majority of catastrophic injuries in pole vaulting in the past 15 years have involved unpadded hard surfaces surrounding landing pads. Thus, the padding of any and all hard surfaces around the perimeter of minimum-sized landing systems is very important.

3. Are the standards fastened to the ground and/or counter-weighted, so they are stable and won't tip over? Sand bags can be made from old car inner-tubes (free at any tire shop) filled with sand. Another good method to stabilize standards bases is to bolt them to $\frac{1}{2}$ or $\frac{3}{4}$ inch plywood so that a couple feet of the plywood fits under the outside edge of the pad. Note that the sand sacks or plywood on the bases should not interfere with the base protector padding.
4. Is the pit in proper position? Many times during the course of practice or a meet the pad may slide back too far. The new NHSF rules allow it to be only 3" behind the back of the box. It is also important to cover any hard surfaces in this area with a box collar or other suitable padding. Since the pads can also become crooked at times, it is important for vaulters and coaches to monitor this and participate in keeping the pit in proper position. Don't wait for some else to do it.
5. The shape of the padding around the planting box is also important. Two important design features here can help minimize

risk: (1) the “front buns” should extend at least to the front of the planting box, when the landing system is in proper position, and (2) the inside edges of the front buns that surround the planting box should be slanted up and away from the box to offer protection right to the edge of the box, at the same time allowing the pole to bend.

6. Is the box set in the runway properly and are its dimensions correct? Does the box meet NHSF rules? It’s a good idea to consult the appropriate rule book for this information, and then use a tape measure to check all dimensions. The most important criteria to consider are as follows:

The box should be approximately 8.8" deep from the top of the runway down its stop board to its bottom. It also should be approximately 16" across the top of the back. The sides (120 degrees) and back (105 degrees), of the box should also be slanted to allow the pole to bend and roll properly. Under no circumstances should the box ever have a front edge raised above the top of the runway. Sometimes a pole plug can get caught on the front edge or “lip,” which can be very dangerous. A vaulter who lowers his pole tip too soon and slides it into the front of the box could catch his tip on the lip, which would produce a rejection-type jump.

7. Are the poles in good condition? Are there any deep nicks or scratches that may compromise the integrity of the poles? Are nicks, scratches, max weights and max hand-hold marks visible? Fiberglass poles should be carried in protective tubes or cases. Storage is important to the life span of poles. It’s best to store them on a rack inside the equipment area out of direct sunlight.
8. Are weather conditions safe for pole vaulting? Rain, sleet, snow and excessive wind can make pole vaulting too dangerous.
9. Head protection is certainly another element of controlling risk. Currently, no specific helmet for pole vaulting exists. However, helmets may be worn as an added safety measure. Several brands of hockey and skating helmets offer excellent protection to the sides and back of the head. These helmets are lightweight, and they offer foam inner-liners and a hard plastic outer-shell with an adjustable chin strap.

The helmet should be considered a personal piece of equipment supplied by the vaulter. It is important to note that even with large landing pads and additional padding of hard surfaces, the planting box area still remains a haz-

ardous area for potential injury.

Perhaps most important of all, a helmet should never be a substitute for proper equipment, or technique.

10. Each season, it is a good idea to consult your specific rule book regarding vaulting facilities and equipment; it offers important information regarding equipment specifications and safety.

Three basic sets of rules exist for pole vaulting in the U.S. They are the NCAA rules (college), The USAT&F rules (domestic youth and open competition) and the NHSF rules (high school competition).

II. ACQUIRING GOOD BASIC SKILLS

Besides the environment, another important area to consider in managing pole-vaulting safety is the teaching of basic skills.

The following learning process explained here is called the “Standing Grip Progression.” It is an effective way to determine the appropriate grip heights and approach distances for beginning and intermediate vaulters while they learn basic skills. For students to improve and—just as important—to see it happen, pole vaulting should be taught as a simple progression of skills in the following order:

1. Students should begin learning by first doing “jump-over” drills. To select the proper grip for this first portion of the progression, they should place the butt-plug end of the pole between their feet, and reach as high up the pole as possible with both hands, as if they are reaching up to grasp a climbing rope. In this position, if they are right-handed, they should place their right hand above their left hand. This is their beginning or “standing grip.” Once the standing grip has been determined, they should place their bottom hand approximately 6–12" below the top hand for all the beginning drills progressions. Once the standing grip has been determined it is time to work on “jump-overs.”

Jump-overs are not actual vaults, but instead little mini jumps where the vaulter carries the pole in the over-head position with the tip in front of his or her body approximately 12" off the ground. The vaulter then takes one or two walking steps forward and practices jumping to the correct side of the pole, and from the correct foot. This should be done with the hands high over the head and without the butt plug touching the ground, as they jump over it. Note: Right-handed jumpers should jump





- off the left foot driving the right knee to the right side of the pole. Left-handed jumpers should jump from the right foot, driving the left knee to the left side of the pole.
- Students should then practice vaulting into a long jump pit, carrying the pole over their heads and gripping the pole approximately 1' above their standing grip with their top hand. These vaults should follow a run of about 3 lefts.

The emphasis should be on taking off on the correct foot and going on the correct side of the pole. For right-handed vaulters this will mean driving the right knee to the right side of the pole. It is important to note that they will almost immediately begin to raise their grips to higher positions on the pole. Ultimately, they will be able to grip approximately 2–3' above their standing grips from three lefts.

- Next, the vaulters should jump from three lefts onto a pole vault pad; they should make no attempt to swing up or turn over. They should carry the pole in the over-head position described above with a beginning grip of 1' above standing grip, and progressing in the same practice session to a grip between 2' and 3' higher.
- Next, they can progress to a run of three lefts, carrying the pole in normal position with the top hand in the hip area. The emphasis should be on shifting the pole on the second left (assuming the vaulter is right-handed).

They should concentrate on correct pole planting whereby they begin shifting the pole to the overhead position on the second left so they have enough time to complete the hand movement to the overhead position.

- Again vaulting from an approach of three lefts, the vaulters should emphasize staying right side up just after take-off, and then swinging a straight trail leg to an "L" for the landing on their feet on the pad.
- Once more vaulting from an approach of three lefts with the appropriate hand-hold, plant and swing, the vaulters should emphasize appropriate technique with new emphasis on shooting the feet up over the top hand and turning over to face the runway while landing on their feet in middle of the pad.
- Now the students should practice running with the pole. They should focus on horizontal pole carrying with the top hand next to the hip. The hand should have a relaxed grip with the pole tip directly in front of the body. The pole should be held steady while the vaulter is running with erect posture.
- Next, the vaulter should practice running and shifting hands in the proper planting motion on a pre-determined left or right take-off foot. For most beginners, the length of this run would be five or six lefts.
- As the vaulters master the above progressions, they should advance to longer approach runs and higher hand-holds. These vaults should be accomplished with no pole bend.
- Normally, vaulters are ready to begin bending the pole when they are capable of holding a top hand grip 3' above their standing grip from a run of five lefts.

Note: The practice of counting lefts or take-off feet is encouraged to help vaulters so they know when to begin shifting the hands up to an efficient take-off position. It also acts as a method to control the length and accuracy of the approach run.

III. BASIC ADJUSTMENTS FOR CONSISTENCY

The relationships between technique, grip height, approach run and pole stiffness are essential to understanding pole vaulting. Note the following rules of thumb, and incorporate them into a program. Keep in mind that the relationships among these items are the basis for improving technique, as well as safety. These adjustments are continual, because they occur on a jump-by-jump basis. Students should:

- Lower their grip if they are not penetrating deep enough onto the landing pad to produce a safe vault.
- Lower their grip if they are landing near the side edges of the pad.
- Lower their grip if they are over-bending their pole (more than 90 degrees).
- Raise their grip if they are not over-bending the pole but are landing too deep in the pit.
- Go to a slightly stiffer pole if they are over-bending their pole and landing well into the pit.
- Go to a softer or shorter pole (but never under their body weight) if they have mastered the progression outlined above and they can't bend the pole.
- Check their take-off step on a regular basis. They should adjust the starting point of their run so that their take-off foot is directly under their top hand at the moment of leaving the ground.
- Never adjust the grip upward in increments larger than 2" or 3" per jump.

IV. UNDERSTANDING BASIC CONCEPTS OF THE POLE VAULTING DISCIPLINE

Advice for Vaulters: The key to practicing safety and acquiring basic skills is understanding the task of pole vaulting, its risks and its mechanics. If novice vaulters absorb the following concepts, they're off to a good start. I arbitrarily suggest 10 of these concepts. As vaulters develop, they will find that these concepts become natural instincts and that new ways of looking at themselves and their performances will occur to them. When this happens, they make mental or paper notes which help many athletes advance to the next level. Here are my arbitrary 10 key concepts:

1. A short run with a low grip is the safest

- and fastest way to learn technique.
2. Students should not progress to the next skill until they have mastered the one that precedes it.
3. Pole bend is a result of proper size poles and skill mastery.
4. Pole bend is not encouraged or recommended until basic skills have been mastered.
5. The proper size pole can't be determined until all basic skills have been mastered from five lefts.
6. Good basic technique helps athletes vault higher and more safely.
7. Understand the progression of poles.
8. Put more emphasis on clearing bars above the hand-hold, and less emphasis on high hand-hold.
9. De-emphasize pole bending; it is best to first learn with no bend in the pole.
10. Focus on high hands and jumping up at take-off.

V. SUPERVISION

Advice to Adult Supervisors: For those who participate wisely, pole vaulting is fun and very rewarding. Unlike coaches, pole-vaulting supervisors need not be experts in

mechanics, but they should be accomplished in relationships—likable and competent facilitators of plans and organizers of people.

Vaulters do not need motivation. They will be the first to arrive at practice and the last to leave.

The lessons of pole vaulting are similar to those of life: They reflect the relationships among meaningful preparation, conceptualization, work and rest, satisfaction and luck, the law of averages, educated guesses and conquering fears, confronting problems and making adjustments. The pole vault supervisor needs to understand these interactions to provide a fun and risk-free environment.

AT&F

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