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Wisconsin Track Coaches Clinic

Packet #1

Basic Skill instruction Methodology / HS Weight Rule Change Proposal

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PART 1.0 GRASS VAULTING THE FIRST STEP IN THE BEGINNERS PROGRESSION

The skills and progressions outlined below are designed to enable the beginning vaulter to properly carry and shift the pole for a proper take-off. The methods by which the vaulter carries and shifts the pole greatly influence his or her pole vaulting technique, and how high the pole can be gripped. In general, it is suggested that beginners practice each of the following skills approximately ten times per practice in the order they are presented below. For the purpose of simplicity all drill and technique descriptions are given right handed, except where noted. Although it is called “Grass vaulting”, this series of beginning drills and exercises may be preformed on nearly any smooth playing surface.

Note: The key to building efficient technique is the repetition of skills which appropriately replicate the key portions of the motor whole.

1.1 BEGINNING GRIP SELECTION

Selecting the proper starting grip (called standing grip) is very important for learning the beginning skills progressions. Selecting a grip that is too high will make it impossible to learn the most efficient take-off technique. Once the proper beginning grip has been established, the vaulter may progress quickly to the optimum grip. This is done by raising his or her hand-hold in small 2” or 3” increments. For the purposes of learning the grass vaulting sequence outlined below, the students should start by gripping the pole only as high as they can reach with their top hand when the pole is standing vertical with the plug between their feet. They should reach up with both hands as if to hang from a rope, with their bottom hand approximately 6” below the top hand. In general, right handed vaulters will place their right hand at the higher position, left handed vaulters will place their left hand at the higher position. Sometimes it is good to experiment a little bit with right or left handedness, before settling on the style that best suits the vaulter. Also, sometimes it is best to select right or left handedness based upon which leg feels stronger to jump from.

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1.2 OVER HEAD CARRY TIP-TAPS

Using the “standing grip” and carrying the pole overhead, the students should walk slowly tapping the pole plug on the ground with the contact with each take off foot (left foot for right handed vaulters). They should tap the plug directly in front of their take-off, so that their top arm is extended directly over head, just as the pole tip and the take off foot strike the ground. This is best done slowly, pushing the hands up from the side of the head (just above the ear) so that the top arm is completely extended above the head just before the pole tip strikes the ground simultaneously with the contact of the take-off foot.

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1.3 JUMP-OVER DRILLS (WITH OVER HEAD CARRY)

The general idea of this drill is to jump off the take-off foot, keeping the hands high overhead, and then sweep the tip of the pole backwards so that it does not touch the ground, while keeping the hands high. It is also important to keep a vertical body posture, to hold the trail leg back so it doesn't sweep forward in front of the hips. Once again, the vaulters should grip the pole only as high as they can stand and reach, their hands should be between 6” and 12” wide. They should jog slowly carrying the pole in the overhead position. Assuming they are right handed they should take-off the ground driving their right knee to the right side of the pole. Left handed vaulters will be exactly the opposite. It is important for the students to have their top hand is extended all the way up above their head at the moment they jump off the ground. Then while in the air, they should sweep the pole backwards in a rowing motion, so that it ends up behind them, ending under their bottom hand armpit as they land on both feet on the ground. The general idea is to jump up off the take off foot keeping the hands high over the head, and then sweep the tip of the pole backwards so that it does not touch the ground, while keeping the hands high. It is also important to keep a vertical body posture, to hold the trail leg (take off leg) back so that it doesn't sweep forward in front of the hips.

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1.4 JUMP-HITS (WITH OVER HEAD CARRY)

As they become proficient with Jump-Over’s, gradually have them raise their grips in 2”or 3” increments. Suddenly the pole plug will begin to slightly brush the ground as it passes beneath their body. This is called a jump-hit, because it gives the vaulter the feeling of jumping off the ground ,and being in the air before the pole plug hits the ground. Be careful, caution them not to grip too high, or to plant the pole in front of their body too far. Also never do this drill on wet grass or other slippery surfaces. When done properly, they will feel a hesitation between the time they take-off and the time the pole tip contacts the ground under their bodies. Most average high school vaulters will be capable of gripping approximately one foot above their standing grip to accomplish this drill. Exceptional athletes may be able to grip as high as three feet above their standing grip. The jump-hit drill is a good indicator of athletic ability, in that it accounts for the vaulters take-off angle, and his jumping ability.

1.5 STANDING CARRY AND STANDING HAND-SHIFTS

Using the proper pole carry, and planting motion is crucial to learning the correct beginning technique. It is best taught by first having the students practice standing plants. The angle at which they carry the pole, and the timing and technique by which they shift the pole from the carry to the take-off position greatly influence the rest of their vault. So it is very important to teach proper carry and planting technique. Once again they should only hold as high as they can stand and grip. Now however, they should widen their hand spread slightly to approximately 10” to 14”. Next they should assume a static carry position where by the pole tip is approximately waist high with the elbows bent 90 degrees, so that the top hand is just behind their hip area. That portion of the pole just below the top hand should lightly be touching the student’s waist just above the hip area. The students should be told not hold the hands low, below the hip area. A low hand carry or a hand carry that is too far behind the hip area will make the correct shifting motion difficult to accomplish later when they start vaulting. The shoulders should be square to the front with the hands loosely grabbing the pole. The thumb of the bottom hand should carry most of the weight of the pole. The thumb and fingers of the top hand should be pointing downward. (still photos of proper beginning carry) Next they should practice the proper shifting (planting motion) while standing in place. They should think of keeping their shoulders and hips square to the front and at the same time shifting their hands slightly forward, so that the top hand is slightly in front of their your hip, thus pushing the entire pole slightly forward in front of the body keeping the pole tip no higher than the waist. Next, they should lift both hands up so that the heel of the top hand slightly brushes their rib cage, as the hands ascend upward. Next their hands should “flip over” so that their thumbs point upward with the elbows under the hands. Finally, they should press their hands straight up so that the top hand is over the for-head and as high as possible. Standing carry’s and plants should be practiced approximately ten times at the beginning of each practice session. Many elite vaulters practice standing plants throughout their carriers.

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Note: Most beginners seem to want to carry the pole tip too high, and the hands to low, making an efficient planting motion nearly impossible.

1.6 DEVELOPING THE PLANTING HAND SHIFT MOTION FROM 3 LEFTS ON GRASS OR THE TRACK

Next have the students walk and carry the pole correctly concentrating on proper hand and tip position as outlined above. During these practice plants they should be told to hold the pole as steady as possible, trying not to swing it back and forth or forward and back. Planting the pole properly is very important, it should be practice over and over many times concentrating on the following basics: It is best done on grass or a track surface, from an approach of three lefts. Assuming right handedness, the athletes will jump from their left foot, and they will begin shifting the pole for the planting motion with the contact of the next to last left foot. (See diagram below) The timing of the shift is important, it should begin at the exact moment the next to last left foot strikes the ground. The vaulters should sift the hands forward and up as outlined above in the standing carry and plant section. Please note that it is OK to start the approach with either the right or the left foot, but only lefts are counted for a total approach. Once the athlete can walk and plant the pole properly, have them run slowly and plant. As they become more proficient they may increase their running speed. Note: This drill may also be done from an approach of one left. In which case the hand shifting motion should begin at the very moment of the first left foot contact with the ground.

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1.6.1 DIAGRAM: THREE LEFTS APPROACH, STARTING WITH A LEFT

L-3	R	L-2	R	L-1	S
(Take off)	(Penultimate)	(Push step)		First step	Start

1.7 POLE PLANT NOTES

The shifting of the hands from the hip (pole carry) to the over-head position for the take-off is called the pole plant. The pole plant is considered by most experts to be the single most important phase of pole vaulting. An efficient pole plant should prepare the vaulter for the take-off with a minimum loss of speed, and create the highest take-off angle possible.

1.7.1

In the beginning, it is best to carry the pole, so that the pole tip is parallel to ground, with both elbows bent 90 degrees, and the bottom hand thumb under the pole, so that the bottom hand wrist is not bent. It is important to note that carrying the pole tip too high, so that it is above the chest area at the time the shift begins will cause a looping planting motion that often times results in a late plant, or a “slam plant” and a low take off angle.(photo of correct carry posture)

1.7.2

Assuming the vaulter is right handed: begin the approach (running slowly) counting only left foot contacts with the ground. On the second left contact begin shifting the pole forward and up. It is permissible to start your approach with either foot, but it is important to only count left foot contacts, so that, if you take your first step with your right foot you actually run one more step. . (sequence of pole plant jump over on grass).

1.7.3

Once you have started the planting motion with your hands, it is important to first push your hands slightly forward and then up so that the hands do not swing out away from your body. The vaulters hands should continuously move forward and then upward so that the top hand is directly above the for-head before the vaulter jump’s from the

ground, on your third left. The smooth steady shifting motion is very important and should be practiced many times so that it becomes habit.

1.7.4

The techniques with respect to the carry and hand shift are the same as the standing plant drills.

1.7.5

In addition to the above, it is important to not over-drive the lead knee and at the same time keeping the trail leg down and back. These two components should combine to help keep the vaulters body right side up for the first moment after take-off. This delay is sometimes called the hang. It allows the vaulter to grip the pole higher because his weight is momentarily distributed lower on the pole.

PART 2.0 SHORT RUN VAULTING WITH NO BEND IN THE POLE

When first learning how to pole vault it is safer and more efficient to vault with a short run, low grip, and no bend in the pole. Often times, bending the pole, and or gripping too high too soon, produces dangerous jumps and technical errors that hurt skill mastery. The progression outlined in this curriculum will teach a progression of skills first with no bend in the pole from a very short run (three lefts), and then with no bend in the pole with more speed, and a higher grip (from 5 lefts). During these early practice sessions it is important to emphasize good technique as outlined below.

2.1 OVERVIEW: THE SIX TECHNICAL PHASES OF BASIC POLE VAULTING

The basic technique of pole vaulting may be divided into six basic technical phases as outlined below: Each of these phases may be developed by incorporating short- run vaulting drills which emphasize basic mechanics via the part-whole method.

2.1.1 THE APPROACH RUN AND POLE CARRY

As explained earlier, the vaulter’s approach speed is a very important part of his or her potential as a pole vaulter. Because the pole vault energy equation is very sensitive to speed, it is highly important to have a consistent approach run both in terms of speed and take-off distance from the box (see section 5.5). This is why it is important to have a measured approach run. This is also why it is important to practice pole runs and sliding box for consistency.

2.1.2 THE HAND SHIFT

A properly timed hand shift, beginning at the exact moment the next to last left (take-off foot), strikes the ground, with the pole tip no higher than the vaulter’s midsection, as explained earlier. Starting the hand shift too late, or having the pole tip too high at the beginning of the planting motion, will make it impossible to have a high take-off angle at the moment of lift-off.

2.1.3 THE TAKE-OFF

An efficient, aggressive take off is perhaps the most important criteria for pole vaulting success. In fact, a good take-off sets up the entire technique system that follows. Runway speed, a high take-off angle, and jumping ability, predetermine much of a vaulter’s potential success. It is best if the athlete take off directly under the top hand, so that

the take-off angle is as high as possible. The top hand should be extended directly above the vaulter's head at the instance the pole tip strikes the back of the planting box so that from both the side and rear views, the vaulters body is aligned as vertically as possible. In addition, jumping up in the direction the pole is about to go will help its rotation to vertical. In most cases vaulters who are landing near the edges of the Preferred landing zone may trace these problems back to misalignments at take off.

2.1.4 THE SWING

By gymnastically sweeping or swinging the legs from the take off position to a position over the top hand, the vaulter can both help rotate the pole to vertical, and get inverted for the pull-up and turn. This is most efficiently done from a take off step directly under the top hand. The swing or sweep may be single legged (sometimes called "figure 4") or double legged. A single leg swing is one where the vaulter drives his lead knee up to jump and then holds it in knee drive position while swinging the trail leg. A double leg swing is where the vaulter jumps up aggressively off the ground and then swings both legs together to the feet over top hand position. Both styles are good, neither one is superior.

2.1.5 THE EXTENSION, PULL-UP, AND TURN

If the take-off and swing are well timed, pulling up and turning over to clear the bar is simply and easily accomplished. However it may require a lot of practice. Basically, the sweeping motion of the legs so that the feet go over the hands, is followed by an aggressive extending of the entire body along the top of the pole, and culminating with the pulling of the entire body up in the upside down position. The turn may be aided by crossing the right over the left foot. Additionally, turning the head to the left, in the direction of the turning motion, so that the vaulter is looking down the length of the pole as he or she completes the turn. Basically, the vaulter is trying at first to swing-up, and then later to pull-up, so that the turn is completed in as vertical a position as possible, and the feet go over the cross-bar first.

2.1.6 THE PUSH-OFF

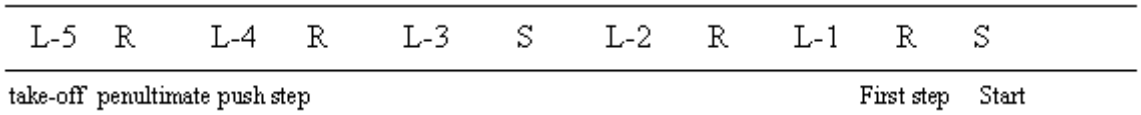
The push-off and cross bar clearance are the result of adequate energy input relative to the resistance the pole offers, and proper technique. The bar clearance is the most important portion of the vaulters jump, yet it is determined by all the mechanics which precede it. As the vaulter finishes the turn phase his eyes should be looking down the pole, in the direction of the planting box. In a good push-off, the vaulter will have the feeling of pushing directly down the pole at the planting box, with his tummy facing the facing the bar. It is important to note that as the vaulter reaches the peak of his or her jump the emphasis must no longer be on going straight up off the top of the pole, but rather dropping the feet so as to pike at the waist, in an effort to lower the feet and legs as they pass the cross bar so the chest and arms many be raised as they too ultimately must pass over the bar. This type of displacement, along with a vigorous pushing motion down the pole with the top hand culminates a successful jump.

2.2 BEGINNING SKILLS PROGRESSIONS

The following skills should be emphasized first from three lefts and then from five lefts with no bend in the pole. Once they have been mastered the student should move on to bending the pole. However, the beginning skills should still be used as a portion of the vaulters warm-up each vaulting.

2.2.1 DIAGRAM

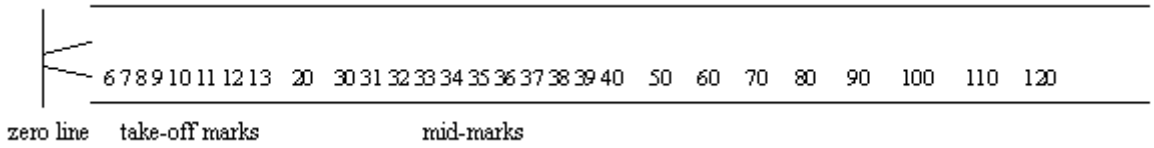
Five lefts approach starting with right foot



To begin the process move the vaulters over to the pole vault runway and have them grip the pole no more than two feet above their standing grip. Before pole vaulting is done, the runway should be marked in feet, measuring from the top of the back of the box. The marks may be painted on or marked with common playground chalk as outlined below, in accordance with the National High School Federation rules:

2.2.2 DIAGRAM

RUNWAY MARKINGS MEASURED FROM THE ZERO LINE at the back of planting box . Markings must not extend more than three inches from the edge of the runway.



At first, it is best to use a overhead carry. This will help the beginner simplify the process of “hooking up” the take-off properly, since the hands don’t have to be shifted.

Definition: “Hooking up” is a pole vaulting term that describes the efficiency with which the vaulter takes-off. In a well “hook-up” take-off, the vaulter loses very little energy as he lifts off the ground.

Note: If the beginning vaulter attempts to grip the pole too high it may be impossible to do the skills successfully. The beginning grip prescribed in this document makes it possible for all beginning participants to vault safely and easily while they develop the necessary skills while gradually raising their hand-holds as pole speed indicates.

The four basic drills described below should be taught in the exact order as prescribed. In the application of these drills always remember the 6 phases of pole vaulting technique outlined above. Essentially the vaulter is assigned to practice the aspects of the six technical phases from a short run with a low grip. This system offers four advantages: 1. It is safer. 2. More repetitions can be preformed 3. It makes the techniques easier for learning. 4. No bending is required.

2.2.3 THE STAY DOWN DRILL

This drill emphasizes jumping off the correct foot, going to the correct side of the pole, and staying right side up just after take-off. This drill is great for simply getting the beginning vaulters used to the idea of riding the pole up into the air a little bit. In the beginning, the students should select a grip no higher than two feet above their stand and reach grip. However, as they improve, they will be able to raise their grips immediately in 2 or 3” increments per jump until the optimum pole speed is reached. In the beginning, it is not necessary to have a measured step system. They simply should start their approach from the 30’ line. However after a few successful jumps it’s a good time to have the students find a valid three left approach for the purpose of this drill. This task may be preformed using the athlete height/starting three left distance from chart A below, or by running a three left approach back from the perfect take-off position as in the long jump. (perfect take off photo) For the purpose of the drill, the students should focus on staying right side up, landing in the center of the PLZ, and keeping the trail leg back and chest toward the pole. It may also be helpful for them to think of jumping up on to the pole, and keeping the chin down slightly on the chest. They should avoid pulling up the pole with their arms. This should be practiced 10 to 20 times with an overhead carry before switching to the traditional carry with the pole at the vaulters side.

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2.2.4 THE SWING TO L-SEAT DRILL

This drill is designed to enable the vaulter to swing the legs with out getting upside down too early in the jump. In order to do this the vaulter must keep his upper body in a vertical position just after take-off and then swing his legs around his waist, thus ending the drill in an L-seat. It is best to start from the 3 left run with the same hand-hold as stay downs, have the students work on not overdriving the lead knee, and kicking the trail leg foot down at the planting box and then around the hips into a sitting position for the landing on the pit. The student should land in what

is commonly called figure 4. They should also focus on jumping from an slightly out or directly under step, driving the chest in front of the hips, like a long jumper, in the direction of the pole. Secondly, they should concentrate on keeping the leg they jump from, commonly known as the trail leg straight at the knee. The shoulders should remain right side up, and not be allowed to roll back. The student should land in the center of the PLZ in a seated L position (figure 4). Trail leg should be straight and right knee in knee drive position, with the shoulders up and the pole below the bottom hand tucked under the bottom hand arm pit.

2.2.5 THE SWING-UP DRILL

The purpose of this drill is to acquaint the vaulters with sweeping the legs gymnastically, in order to achieve inversion, along the top of the pole, just as it reaches the vertical axis. This task should be accomplished by segmenting the swing into two parts: First, the vaulter swings around the waist as in the L-seat drill, and then around the shoulders, into a full body extension up along the pole. Assuming the same handhold and approach length as the previous two drills, have the vaulters take-off in good form, with an out step jumping up on to the pole with their chest forward. Then, using a straight trail leg, swing using a figure 4 L-seat, so that both feet slide together ending above the top hand as it grips the pole. Having accomplished this, then have the vaulters practice swinging and extend up along the top hand, finally allowing the shoulders to drop back, as the bottom hand elbow collapses inside of the pole. Please note that it may take many practice sessions for most students to develop a good swing up drill. In the swing-up progression, the vaulter must first learn how to swing his legs around the axis of his hips and then learn how to get inverted on the pole. Vaulters should never try to throw their heads back for the purpose of inverting. The perfect swing up drill is a combination of technique and proper pole speed as outlined in the pole vault energy equation. As skill and understanding improve beginning vaulters will gradually sweep and invert better. In most case this will take several season of vaulting to accomplish.

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2.2.6 THE SWING-UP AND SHOOT THE TURN DRILL

This is an entire short run vault with no bend in the pole. Its is a very important, and often over-looked skill in fiberglass pole vaulting. It is far better if beginning vaulter's learn this skill before progressing to pole bend. The term shoot the turn means, to extend the legs and hips up aggressively and then pirouette or twist the entire body so that the vaulters frontal plane is facing the landing area. The swing and shoot, as it is sometimes called should be taught as part of the motor whole as soon as possible in the progression of skills. It is not necessary that beginners totally invert when performing this drill. However, it is important to note that the inversion and the turn will be more vertical if the leg swing is aggressive and well timed. At first most beginners will probably only be able to elevate themselves to approximately parallel to the horizontal plane. However, as they improve their technique they will gradually be able to finish turn and push down the pole at approximately 45 degrees to the horizontal axis when the pole is vertical.

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2.3. CRITERIA AND RULES OF THUMB FOR ADVANCEMENT TO LONGER RUNS AND HIGHER GRIPS

Learn all the above first from three lefts, once a skill has been learned from 3 lefts then progress to four, and five lefts. Use Chart 2.2.4 to determine the appropriate distance to move back when advancing to a longer run, or simply have the students re-run their steps back.

2.3.1

In progressing to a longer run the students will have more speed and thus be able to grip the pole higher. Refer to chart C for the basic non-bend handhold adjustments.

2.3.2

When moving back to a longer run its best to not raise the hand-hold until the vaulter has established the run and taken several successful jumps.

2.3.3

Always stress that the vaulters take-off from a position directly under or slightly outside of the top hand.

2.3.4

Never raise the handhold if the vaulter is landing near the edges of the PLZ., since it will amplify mistakes of this kind.

2.3.5

Any vaulter who can grip the pole 3 feet or more above his or her standing grip from five lefts swing up and turn over and land safely consistently in the PLZ is probably ready for advancement.

2.4 APPROACH DISTANCES AND ADJUSTMENTS

The charts listed below are intended to aid the coach and athlete make quick and easy approach distance adjustments for the purpose of managing the vaulter's kinetic energy (speed). Both charts assume distances based upon pole vaulters of average ability who are running aggressively. Vaulters who are exceptionally \fast may find their increments to be slightly greater. Vaulters who are slower may have slightly narrower increments. The purpose of the data is to provide general reference points, so that the practice of running the steps back can be eliminated as a time and energy saving practice.

2.4.1 STANDARD 3 LEFTS STARTING DISTANCES FROM BACK OF BOX

Use this chart to help your athletes determine starting approach distances when employing a standing grip plus two feet for the beginning drill sequence. Once the basic distance has been established then modify it so that the most efficient run length is established. Once a valid three left approach has been established then chart 2.4.2 (below) may be used to establish new approach distances, as the vaulters approach run is lengthened.

Vaulter's height	5’	5’6	6’	6’3
Right footed start distance	30’	33’	35’	37’
Left foot start distance	25’	28’	30’	32’

Chart Notes:

Distances assume vaulters of average athletic ability and aggressive running.

Right foot starting means, the vaulter take his or her first approach step with the right foot.

Vaulters of superior running speed may require greater adjustment distances.

2.4.2 STANDARD ONE LEFT DISTANCE ADJUSTMENTS BASED UPON BODY HEIGHT FOR VAULTERS OF AVERAGE ABILITIES.

Vaulter's height	5’	5’6"	6’	6’3”
1 left	10’	11’	12’	12’6”
2 lefts	20’	22’	24'	25’

Chart 2.4.2 Notes:

Use the above table to add or subtract length to the vaulter's approach, without having to run steps back. Keep in mind that by adding approach distance (lefts) you are increasing speed, by subtracting distance you are decreasing speed. This concept becomes very useful when trying to adjust approach lengths to pole sizes and grip heights. Moving to longer runs, stiffer poles, and higher grips, and increasing the top hand grip to cross bar efficiency is what pole vaulting is all about. Adjusting all these parameters is perhaps the truest application of coaching.

II. ACQUIRING GOOD BASIC SKILLS

Besides the environment, another important area to consider in pole vaulting safety is the teaching of basic pole vault skills. The following learning processes is called the "Standing Grip Progression." When using this method, the vaulter first learns the skills of pole vaulting by using a low hand hold from a short approach distance, then progressing slowly to higher handholds from longer approach distances. The "Standing grip" beginning method is a highly effective way to determine the appropriate grip heights, and approach distances for the beginning and intermediate vaulter while they learn basic skills.

Basic Skills and Progressions outline:
(See chapter 4 for an expanded version of this outline)

1. Students should begin learning by first doing "jump-over" drills on the grass of some other smooth surface. 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, kind of like 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 six to twelve inches below the top hand for all the beginning drills progressions. Once 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: For right handed jumpers, they should jump off the left foot driving the right knee to the right side of the pole. For left handed jumpers, they jump from the right foot, driving the left knee to the left side of the pole.

2. Students should then practice vaulting into a long jump pit, carrying the pole over their heads and gripping the pole approximately one foot 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 two to three feet above their standing grips from three lefts.

4. 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 one foot above standing grip, and progressing in the same practice session to a grip between two and three feet higher with over head carry.

5. 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 over-head position on the second left so they have enough time to complete the hand movement to the overhead position.

6. 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. 7. 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 upon 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.

8. 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. 9. Next, the vaulters 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. (10. 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.

11. Normally, vaulters are ready to begin bending the pole when they are capable of holding a top hand grip three feet 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 AND SAFETY

The relationships between technique, grip height, approach run, and pole stiffness are essential to understanding safe and efficient pole vaulting. This is sometimes called “balancing the pole vault energy equation”. Simply put , it means that the vaulter should make hand hold and pole stiffness adjustments on a jump by jump basis so that he or she are landing safely in the center of the landing pads.
Please note the following rules of thumb, and incorporate them into a program. Keep in mind that the relationships between 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 two or three inches 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. Here are ten important concepts. hey 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 an arbitrary ten:

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 for bending can't be can't be determined until all basic skills have been mastered from five lefts. Good basic technique helps athletes vault higher and more safely.

7. Understand the progression of poles.

8. Put more emphasis upon clearing bars above the hand-hold, and less emphasis upon 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 between 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.

Using the PLZ as a coaching tool:

Overview

Use the PLZ as a guide to help both the athlete and the coach make safety and performance adjustments. The basic idea is to get the vaulter landing in the center portion of the PLZ all the time by managing his or her energy equation. If the vaulter is landing near the edges, then some adjustments must be made in order to improve performance and safety.

Simple rules of thumb

For the safest and most efficient vaulting, the vaulters head and shoulders should land inside the coach's box on all drills and short or long run vaulting. By understanding the concepts of the pole resistance and energy input necessary to move the pole to vertical, the coach and vaulter can easily make the proper adjustments for efficient and safe vaulting. For illustration purposes, all descriptions are made assuming a right-handed vaulter; that is the vaulters top hand on the pole is his right hand.

Blowing Through

If the vaulter's head and shoulders are landing on or near the rear of the preferred landing zone, it is called "blowing through". When a vaulter is blowing through, he is usually hitting bars on the way up, even if the standards are pushed back to the maximum allowed (30"), and he is inverted as far a possible. The cure for blowing through is to slow the speed at which the pole rises to vertical. This can be done by one of the following methods:

Three Methods for slowing Pole Speed

1. For most beginning and intermediate vaulters a slightly stiffer pole (5 pounds) will help slow the pole speed down. In pole vaulting, “blowing through” is a “good problem”, because it means that the vaulter is probably running and planting the pole aggressively. However, since he or she is putting so much energy into the pole, the pole rolls too fast (too much pole speed), so he hits most bars off on the way up, and lands too deep in the pit. In general, if the vaulter is blowing through the pole will be past vertical at the moment of push-off.

2. If the vaulter is landing deep in the pit (beyond the coaches box) and is not over-bending the pole (less than 90 degrees), he usually can simply raise his/her grip to slow the pole speed down. Raising the grip under these circumstances should be done in graduated increments of 2 or 3” per vault until the desired landing location, and pole bend are achieved. Keep in mind, that in most cases, as the grip is raised, the pole gets slightly softer. This concept is outlined in our beginning skill progressions paper. Remember, that as the grip goes up so must the step come out farther away from the planting box, so that the take-off toe is directly under the top hand at the moment of lift off.

3. If a stiffer pole is not available, and the pole is over bending making it impossible to raise the grip any further, the vaulter may achieve the desired pole speed by shortening the run one left. When the run is shortened, the take-off speed is slightly reduced. As a rule of thumb, one left in approach distance is equal to twice the vaulters height. A 6’ tall vaulter will move up approximately 12’ for a one left adjustment. Since the basic formula for energy into to the pole is body weight x take off speed the vaulter can easily apply this simple theory so that their energy input may better equal the resistance the pole offers. For example, a vaulter who was blowing through from 6 lefts, may land perfectly in the middle of the coaches box from 5 lefts on the same pole with the same grip. However, it is always a good idea to lower the vaulter’s handhold slightly for the first few jumps when shortening the approach a left, thus increasing the likely hood of success.

Five methods for increasing pole speed

(In efficient pole vaulting the vaulter must “roll the pole”, so that it is perfectly vertical in the box at the moment the vaulter’s release.) If the vaulter does not roll his pole to vertical then they must try to find a way to increase is or he pole speed.

1. **Run Faster.** By running faster the vaulter puts more energy into the pole and enables it to roll to the vertical plane better.

2. **Plant Better.** By planting better the vaulter has a higher take-off angle and therefore can roll the pole to vertical more efficiently.

3. **Lower Hand Hold.** A Lower hand hold requires less energy (runway speed) to move the pole to vertical.

4. **Stay Right Side Up Longer.** By staying right side up longer just after the take-off the vaulter improves his or her efficiency and enables the pole to roll to vertical more easily.

5. Move To Softer Pole. Softer poles, (pole with lower weight ratings) offer less resistance and therefore are more easily rolled to vertical.

6. Swing Better. The vaulter uses the swinging motion of his legs, (or leg), to invert his body and roll the pole. When this swinging motion is done properly it enables more pole speed.

If the vaulter is landing near the sides of the PLZ (the vaulter may also be spinning), the vaulter needs to lower his grip slightly, and learn how to plant and swing in a straight line into the middle of the pit. These drills are outlined in the beginning skills progression. It is important to note, that going to the side may also be the result of over bending the pole, gripping too high on the pole, not jumping up sufficiently in to the pole, or jumping around the pole, instead of straight ahead at take off (some beginners seem to want to jump around the pole rather than next to it). Also, planting the pole to one side, or the other, at take off will cause the going to the side problem. Sometimes, it is best to view some of these vaults from the back of the runway to determine which of the above technique flaws is causing the problem.

Landing Short

If the vaulter is landing with his head and shoulders near the front of the PLZ (closer to the planting box side than is suggested) he usually needs to lower his grip and/or perhaps go to a slightly softer pole. (Remember that a vaulter must use a pole that is rated above their body weight.) This type of jump is commonly known as “stalling out”, or “coming up short”. Stalling out is usually the result of a poor run, poor plant, too stiff a pole, or too high a handhold. Any of these can cause the vaulter come up short and land in the front-most portion of the landing pads, or worse yet, in the box. (Softer poles and lower grips offer less resistance to getting the pole to rotate or “roll to vertical”. A vaulter who “rolls the pole” all the way to vertical has a greater chance to land in a safe position on the pads. This is the essence of pole vaulting: selecting the proper pole, and hand hold height on any given day which yield the perfect amount of “pole speed”, so that the pole rolls to vertical time after time. It should always be the goal of the coach and the vaulter to select the proper hand-hold height and pole size, on every single jump in practice and meets. By adjusting the pole size, grip height, and the approach length, the vaulter has three variables to work with to achieve proper pole speed.

The Pole Vault Energy Equation And How Its Applies To Safety

Kinetic Energy

The vaulter’s speed and take off technique create his potential for height. In pole vaulting we say that when kinetic energy is combined with the take-off angle it yields the vaulters potential for height.

Energy Equation

The vaulter’s runway speed, and take-off technique create his or her kinetic energy in any pole vault attempt. This energy determines the handhold height and pole stiffness most appropriate for the vaulter. When the vaulter selects the proper handhold and pole size that matches his take-off speed, he produces the perfect amount of pole speed, so that the rotates (rolls) to vertical, just as he or she pushes off to clear the bar. When this happens, the vaulter has “balanced his or her energy equation” so that, he or she is vaulting safely and with optimum efficiency.

Energy input

The speed at which the vaulter takes off, combined with his/her jump up off the ground, and the rigidity of his/her arms at take-off all combine to form the vaulters basic kinetic energy. Vaulters with greater kinetic energy can grip the pole higher and jump on stiffer poles.

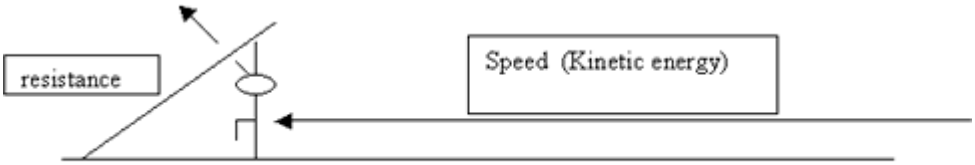

FIG 1.1

Pole Speed

The rate, or speed, at which the pole rises to the vertical position. With perfect pole speed the pole rises to straight up and down vertical at the moment the vaulter releases the pole to clear the bar. In this type of jump the vaulter will land in the center of the PLZ. Pole speed is primarily affected by the vaulters runway speed and secondarily affected take-off and swing up mechanics.

Square or lined up take-off

When viewed from the front or back the vaulter should leave the ground in a position of alignment. The vaulter's body is straight up, neither leaning right or left, and the top hand is positioned over the vaulter's head at the moment of take-off.

Vertical pole

For safe and efficient vaulting the vaulter must select a hand-grip and pole size which best fits his or her running speed and technical efficiency. This process of adjustments is called balancing the pole vault energy equation. The goal of these adjustments is to enable the vaulter to "roll the vaulting pole to vertical", so that he or she can jump with proper technique and land safely on the landing pads. Additionally, this type of energy balanced vault , when rehearsed often enough in practice, also produces the most technically efficient vaults, so that they can clear bars higher relative to their top hand holds, and thus ultimately can vault much higher.

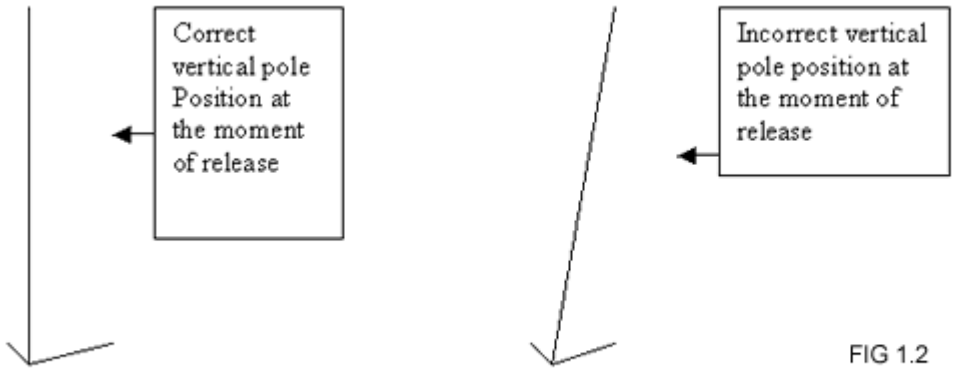

FIG 1.2

Resistance

(also known as resistance to penetration) Resistance is a term used to describe how hard it is to penetrate and land safely on the pads. The resistance a pole offers is predetermined by two components: The stiffness of the pole (length and Max weight), and the handhold the vaulter chooses. If the vaulter chooses too high a grip, or too stiff a pole for his take off speed and mechanics he/she will not be able to execute proper technique, and consequently, may not be in position to land safely on the pit.

The resistance a pole offers is expressed by the inter-relationship between its length and weight values. In general terms 6" in length of a pole equals approximalty 10 pounds in weight. This relationship and the relationships between other poles are easily seen in the relative resistance chart in Chapter 4.

Penetration

Is a pole vaulting term used to describe getting the pole sufficiently to vertical to land in the PLZ.

Rolling the pole

A descriptive term many vaulters use to describe the feeling the have after the leave the ground whereby the pole is lifting them and moving toward vertical. When the vaulter is rolling the pole with too much energy but not over-bending it is called "blowing through". When the pole is not rolling sufficiently and the vaulter is coming up short in the pit it is called "stalling out".

Pole Stiffness

(Resistance) In general terms, the resistance a pole offers to penetration (rolling to vertical), is expressed in its length and weight. Poles that are stiffer, offer more resistance to rolling to vertical (so they help slow pole speed) and offer greater potential for high jumps. Softer poles are easier to roll to vertical, but offer less potential high jumps. As a rule of thumb the relationship between pole length and pole stiffness is approximately 6” in pole length equals 10 pounds in stiffness. So that a 12’ 120 is approximately 10 pounds softer than a 12’6 120.

Grip Height

(Resistance) Grip height measured from the bottom of the pole to the top hand, is another form of resistance to penetration (rolling the pole to vertical). As the vaulter raises his grip two things happen. First and most importantly, the axis through which the hands must pass becomes greater, increasing the poles resistance to rising to vertical. Secondly, the pole becomes slightly softer as it is held higher, thus slightly reducing its resistance to penetration, and returning its unbending energy more slowly.

Push-Off Efficiency

Perhaps the greatest indicator of pole vaulting proficiency is the athletes ability to clear cross-bars above his or her hand-hold height. In general terms, the greater the athlete can push–off above his or her hand- hold, the greater is said to be his or her push-off efficiency. Push off efficiency is the result of proper energy equation management over a period of time so that the vaulter has many opportunities practice proper technique with the pole getting to vertical so that he or she can land safety on the pads.

Grip Height Plus Push-Off Equals Vaulting Performance

The vaulters hand-hold height plus his or her push off efficiency are key determiners in his or her performance. For instance, a vaulter using a 13’ grip to clear a 13’ cross bar would require a 8” push off. Keep in mind the box is approximalty 8” deep.

Take off Angle

The distance between the ground under the vaulters foot at the moment of take off and his or her top hand. The greater this distance, the higher the angle of the pole is as it makes contact with the back of the planting box. In general, taller vaulters with longer arms will have higher take off angles than shorter vaulters with shorter arms. Having a higher top hand position at take off is a mechanical advantage since the pole must rotate (roll) less distance to get to vertical. In general a high take off angle allows the vaulter to grip the pole higher. Beyond the obvious limitations of body type, the vaulter can do several things to increase the height of the take-off angle:

1. Be sure that top arm is extended 100% above head prior to pole tip entering the planting box.

2. Leave the ground so that the take off foot is directly below the top hand at the instant of the pole striking the back of the box.

3. Jump up in the direction the pole is rolling.

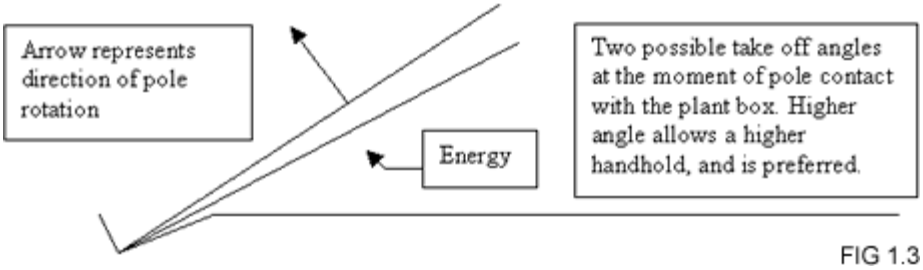

FIG 1.3

Pole Bend

Bending the pole allows the vaulter to grip higher because it reduces the resistance of hand-hold height. Effectively, when the pole bends, the vaulter is actually holding lower than his actual measured grip when the pole is straight. This is the reason vaulters can vault higher on bending poles. As the vaulter begins to learn to bend the pole he or she will be able to raise his or her grip dramatically. It is during this time frame that the PLZ becomes an important coach's tool for safety. Many times during these early stages of bending that control problems develop.

Over bending

Also known as "Smushing" or "crushing" the pole. That type of vault where, the vaulter bends the pole beyond its suggested maximum amount (90degrees). In general producing a slow unbending or return, and disrupting the vault. Many times is produced by over-gripping (trying to hold too high).

Over gripping

Gripping the pole too high for available kinetic energy. Usually the result is too much pole bend or landing short or both.

Under gripping

Holding the pole too low for kinetic energy and take-off angle results in blowing through

HS Vaulting Pole Weight Rule Change Proposal.

Draft #15

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We are suggesting the elimination of the weight and variable pole rule in the NFHS rule book 7-5-3 and 4 and replace it with the following information:

It is recommended that all poles used in competition and practice have suggested maximum grip/weight guidelines for the purpose of approximate hand hold limitations. In addition to the manufacturer's label at the top of the pole, a pole may have between 2 and 4 additional maximum grip lines extending no lower than 12" below the bottom of the manufactures weight label. The additional grip maximum grip/weight guide lines may be listed in 5 and/or 10 pound increments. The additional grip/weight guidelines

assignments may conform to the individual manufactures recommendations or to the industry averages for weight/hand hold limits specified below.

The suggested grip/weight guidelines should go around the entire pole, should be of a contrasting color to the pole, or grip tape and should have the corresponding weight limits written clearly in 3/4" letters. It is suggested that permanent marker be used for best visibility. It is not the responsibility of the officials to enforce hand holds or user weights. These guidelines are solely intended for the benefit of the vaulter and the coach. Rather, it is the responsibility of the officials to monitor and issue warning based upon

The additional grip/weight guidelines assignments may conform to the individual manufactures recommendations or to the industry averages for weight/hand hold limits.

Suggested handhold/user weight limitations

Descending downward from the bottom of the manufacturer's maximum grip line, the following are the industry averages for hand hold limitations and corresponding allowable user weight increases.

<u>60-100 pound poles:</u> each 1.5" grip reduction below the manufacturer's maximum grip line yields *approximately* a 5 pounds increase in maximum user weight

<u>105-150 pound poles:</u> each 2.5" grip reduction below the manufacturer's maximum grip line yields *approximately* 5 pounds increase in maximum user weight

<u>155- 190 pound poles</u>: each 3.5" grip reduction below the manufacturer's maximum grip line yields *approximately* 5 pounds increase in maximum user weight.

<u>195- 230 pound poles:</u> each 4" grip reduction below the manufacturer's maximum grip line yields *approximately* 5 pounds increase in maximum user weight.

Suggested Enforcement and Compliance:

Pt 1. The head pole vault official or his designee may raise a caution flag for any warm-up or competition jump resulting in a dangerous landing near the outermost edges of the landing mat or plant box area. It is suggested that an official's caution signal, shall require a mandatory vaulter - coach conference before the athlete takes another jump.

Pt 2. The responsibility for the use of appropriate hand holds and pole selection rests with the coach, the parents, and most importantly, the vaulter. It is up to the vaulter to use technique, appropriate hand holds, and poles appropriate with their ability to assure safe landings and to take immediate corrective action after dangerous vaults.

Pt 3. It is not the responsibility of the officials' to enforce hand holds or user weights. The suggested grip/weight lines are intended solely for the benefit of the vaulter or the coach. It is recommended that all poles have additional grip/weight calibrations clearly marked on top hand grip area of the pole. The additional calibrations shall not extend more then 12" below the bottom of the manufactures weight label at the top of the pole. Additionally, it is not the responsibility of the officials' to verify the accuracy of the measurement of the suggested grip/weight lines.

Pt 4. Athletes, coaches, and parents at each high school should sign a statement at the beginning of the season agreeing to use a pole and handhold within the limits suggested by the de facto industry standard for vaulting pole calibration.

National High School Pole Vault Waiver

(In addition to the suggested weight grip guidelines we are recommending that every HS and College Vaulter and his parents sign the following waiver, and that it be kept

on file by the head coach and presented to the officials' at every meet. We are suggesting that this is a requirement for participation at all HS and college meets.

Suggested National Pole Vault Participation Waiver

I hereby grant permission for my child to pole vault. I verify that my child has had a physical exam and is capable of participating in the pole vault. I agree to indemnify, hold harmless, and defend my child's school, and their employees from any and all liability for potential injury to my child.

Furthermore; I agree that it is the vaulters' responsibility for a large portion of pole vault safety including: choosing a hand hold and pole selection appropriate with the vaulters' ability and environmental conditions. I agree that pole vaulters' must attempt to land safely in the center of the landing mats on every jump taken and take immediate corrective action if they are landing near the edges of the landing mats.

Name of Vaulter _____

Parents Signature _____

Vaulter signature _____

Rational

1. Reduces the need for numbers of poles and thus greatly reduces expense.
2. A permanent marker line with additional weight limits works for all brands. These limits shall be based upon long standing de facto industry standards for weight limits.
3. Makes the event safer because the current rule (when enforced) often results in kids having to switch to unfamiliar poles on meet day thus increasing risk.
4. Provides suggested visible grip limitations based on user weight and reduces common problem of gripping the pole too high.
5. Affirms the long standing teaching methodology where by: the vaulter uses a short approach with a low grip on a less rigid pole to learn technique. This pole is almost always under the user's weight, but is gripped low from a short run thus allowing more efficient technique development.
6. Sends a clear signal to vaulter and coaches regarding hand hold limits. These markers may be used for improved accuracy and decision making in the education process.
7. Body weight is only one of several factors which determine the amount of force which goes into a pole vault jump. Runway speed, take off angle, and pole plant also have huge effects.
8. This rule change strongly suggests visible grip weight guidelines lines on all poles used in the education and training of pole vaulters. It also allows the manufactures to list or mark poles in this way directly from the factory which is currently prohibited under the variable weight poles declaration in the current rules.
9.

Relatitive Stiffness Chart

	10'	10'6	11'									
10	105	95	85									
	10'	10'6	11'	11'6								
11	110	100	90	80								
	10'	10'6	11'	11'6								
12	115	105	95	85								
	10'	10'6	**11'**	11'6	12'							
13	120	110	**100**	90	80							
	10'	10'6	11'	11'6	12'							
14	125	115	105	95	85							
	10'	10'6	**11'**	11'6	12'							
15	130	120	**110**	100	90							
	10'	10'6	11'	11'6	12'							
16	135	125	115	105	95							
	10'	10'6	11'	**11'6**	12'							
17	140	130	120	**110**	100	12'6 90						
	10'	10'6	11'	11'6	12'							
18	145	135	125	115	105	12'6 95						
	10'	10'6	11'	**11'6**	12'	12'6						
19	150	140	130	**120**	110	100						
		10'6	11'	11'6	12'	12' 6						
20		145	135	125	115	105						
		10'6	11'	11'6	**12'**	12'6	13'					
21		150	140	130	**120**	110	100					
			11'	11'6	12'	12'6	13'					
22			145	135	125	115	105					
			11'	11'6	**12'**	12'6	13'	13'6				
23			150	140	**130**	120	110	100				
			11'	11'6	12'	12'6	13'	13'6				
24			155	145	135	125	115	105				
			11'	11'6	12'	**12'6**	13'	13'6				
25			160	150	140	**130**	120	110				
				11'6	12'	12'6	13'	13'6				
26				155	145	135	125	115				
				11'6	12'	**12'6**	13'	13'6	14'			
27				160	150	**140**	130	120	110			
				11'6	12'	12'6	13'	13'6	14'			
28				165	155	145	135	125	115			
				11'6	12'	12'6	**13'**	13'6	14'			
29				170	160	150	**140**	130	120			
					12'	12'6	13'	13'6	14'	14'6		
30					165	155	145	135	125	115		
					12'	12'6	**13'**	13'6	14'	14'6		
31					170	160	**150**	140	130	120		
					12'	12'6	13'	13'6	14'	14'6		
32					175	165	155	145	135	125		
					12'	12'6	13'	**13'6**	14'	14'6	15'	
33					180	170	160	**150**	140	130	120	
						12'6	13'	13'6	14'	14'6	15'	
34						175	165	155	145	135	125	
						12'6	13'	**13'6**	14'	14'6	15'	
35						180	170	**160**	150	140	130	
							13'	13'6	14'	14'6	15'	
36							175	165	155	145	135	
							13'	13'6	**14'**	14'6	15'	15'6
37							180	170	**160**	150	140	130
							13'	13'6	14'	14'6	15'	15'6
38							185	175	165	155	145	135
							13'	13'6	14'	14'6	15'	15'6
39							190	180	170	160	150	140
								13'6	14'	14'6	15'	15'6
40								185	175	165	155	145
								13'6	14'	14'6	15'	15'6	16'
41								190	180	170	160	150	140
								13'6	14'	14'6	15'	15'6	16'
42								195	185	175	165	155	145
								13'6	14'	14'6	15'	15'6	16'
43								200	190	180	170	160	150

	14'	14'6	15'	15'6	16'
44	195	185	175	165	155
	14'	14'6	15'	15'6	16'
45	200	190	180	170	160
		14'6	15'	15'6	16'
46		195	185	175	165
		14'6	15'	15'6	16'
47		200	190	180	170
		14'6	15'	15'6	16'
48		205	195	185	175
			15'	15'6	16'
49			200	190	180


POLE
ORTANT
THE DISTANCE FROM
OF THE TOP HAND TO
OF THE POLE. DO NOT
THAN SPECIFIED FOR
FOR YOUR WEIGHT
ATHLETIC APPAREL
EL 142722
YOUR MAXIMUM
HANDHOLD IS:
13 feet
12 feet 6 inches
12 feet
11 feet 6 inches

I Support The elimination of the HS weight rule.

CIF SOUTHERN SECTION FINALS

	A	B	C	D	E	F	G
1		name	email	parent	vaulter	coach	offical
2	x	Ben Browder	bbrowder@charter.net			✓	
3	x	Bruce Morris	VERTREAL@earthlink.net			✓	✓
4	x	Phil Molebash	molebash@gmail.com			✓	
5	x	Tim Wann	polevaults@aol.com		✓	✓	✓
6	x	Nick Quist	NICK@CALTRACKREGION.COM			✓	✓
7	x	Ron Misner	syvaultcoach@gmail.com			✓	
8	x	TIM WARD	TIM@BUZZ360.TV		✓	✓	✓
9	x	RAMOSILA	MIKE.RAMOSILA@WILSON.COM				✓
10	x	Russ French	RUSS@RUSSFRENCH.COM	✓		✓	
11	x	Chip Retter	fch.pr_1@hotmail.com			X	X
12	x	Kenneth King	king_k@hotmail.com		✓	✓	
13	x	B.J. Vandrovec	bjvando@msn.com				
14	x	Bill Whitaker	~~[illegible]~~ @				
15	x	↓	BillWhitaker53@Gmail			✓	
16	x	Kevin Magill	KevinM@HighestFlyers.org			✓	
17	x	Sonny Dean	Sdean02@gmail.com		✓	✓	✓
18	x	GREG WILSON	mbhs.track@yahoo.ca			✓	
19	x	Richard Hargrave Hargraves Ph.D.	rah@hargraves.com				—
20	x	Matt Lachman	matthew.lachman@gmail.com			—	
21	x	Greg Ross	GVRoss@gmail.com			✓	
22	x	Steve MORRIS	hotelfirker@gmail.com			✓	
23	x	A.H. Steben	A.H. Steben ~~[illegible]~~ @			✓	steben7@aol.c
24	x						
25	x						
26	x						

CATASTROPHIC AND SERIOUS POLE VAULTING ACCIDENT DATA ANALYSIS

Estimated participation		Rational					
500 colleges/universities X 8 each	4000	half of all colleges in u.s.					
10,800 high schools x 10 each	108650	60% of all HS track teams (18,000) in u.s.					
1000 junior high schools x 10 each	10000	10% of all jr high schools					
aulters (masters, world class, club)	3125						
total annual estimated participants	125775						
Year	frequency	level	box	side	back	on p	other
1971	1	1 college	1				
1972	1		1				
1973	1	1 college	1				
Fiber Sport Training poles begin							
1977	2	1 HS	2				
1980	1	1 open			1		
1981	0						
1982	2	1 hs, 1open	1		1		
1983	3	1hs, 1jrhs	2		1		
1984	1		1				
1985	1	open		1			
1986	1	1 hs	1				
13' deep landing pads allowed							
1987	1	1 hs	1				
1988	5	3 hs, 1 college	2	1	1	1	
1989	5	1 hs, 4 college	1	1	3		
1990	3	2hs, 1 college		2	1		
1991	4	2 hs, 1 college	1	2	1		
1992	2	2 hs	1		1		
1993	3	3 hs		2	1		
1994	4	4 hs (2 unknown locations)			2		
New rules in HS only for body weight and pole size							
1995	1	1 hs			1		
1996	0						
1997	4	4 hs	2		2		
1998	2	1hs, 1 coach (college)			2		
1999	1		1				
2000	1	1-college		1			
2001	2		1	1			
2002	6	2 college 4 HS	3	1	1		
les in HS only for body weight and pole size							
2003	2	1 female college 1 male college	1				
2004	0						
2005	1	1 HS	1				
2006	0						
2007	1	2 college, 1 HS	2		1		
2008	5	3 college, 1 HS	2	1	1	1	1
2009	5	1 open, 2 college, 1 HS female	4				1
2010	4	2 college	3	1			
2011	1	1 HS 1 college	1				
2012	2	2 college , 1 female	2				
2013	4	1 HS male, 2 HS female, 1 college female	4				
2014	1	1 college male		1			
Totals 2003-2014	26	Totals 2003-2011	20	3	2	1	2
Total 1971-2014	82		41	15	21	2	2
*US Athletes only							