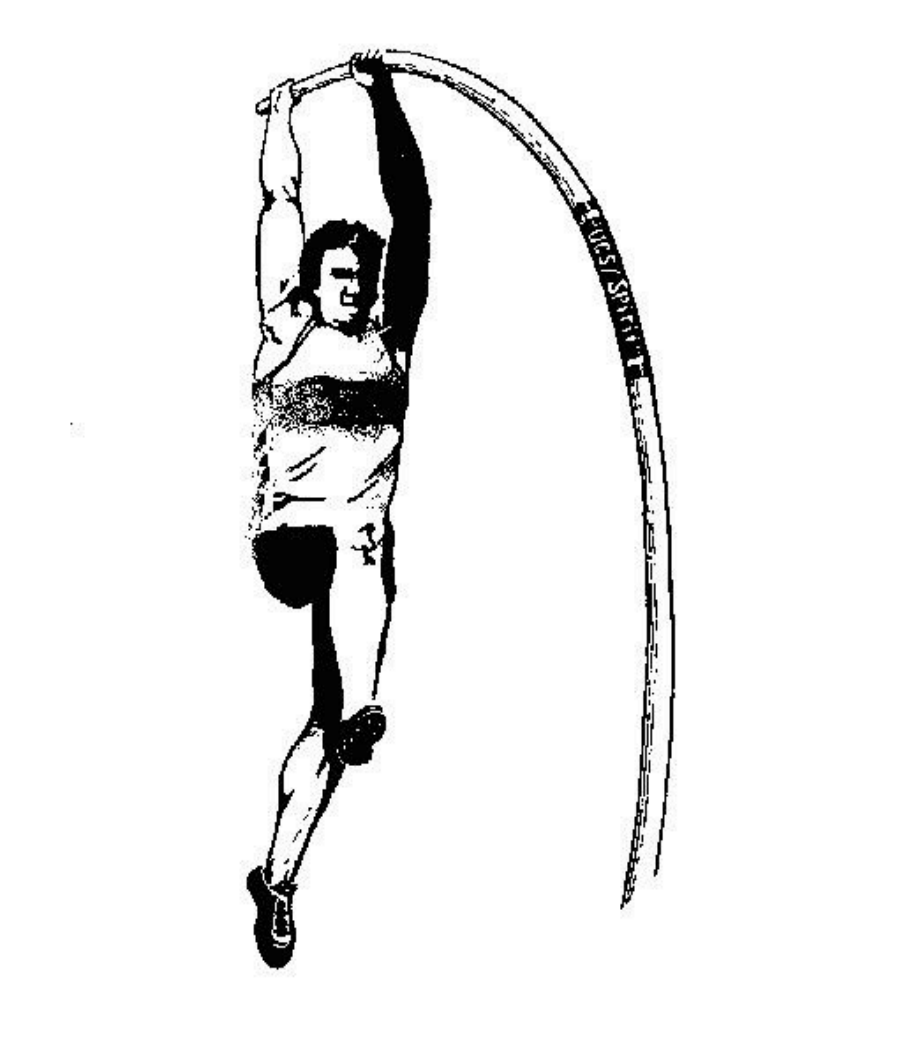
Choosing the Right Pole



Marty Dahlman, Retired Track Coach

BA Denison University, MEd Ashland University
Track Coach – Watkins Memorial High School – 1978 to 2017
Ohio Pole Vault Safety OAT-CCC – 1993 to present
Men's Pole Vault Coach - Team Ohio, Midwest Meet of Champions (2009 - 11)
ASTM Pole Vault Sub-Committee member

Best Vaulters (from Watkins)

SP – STATE PLACER, SQ –STATE QUALIFIER
IQ – STATE INDOOR QUALIFIER

Kyle Burns SP	15-4
David Hill SP	15-3
Mike Huston SP	15-0
Sammi Miller SQ	11-8
Rebeccas Ollish IQ	10-6
Michelle Robbins SQ	10-6
Rachel Arnott IQ	10-6
Taylor Amrine SQ	10-6
Theresa LaGreca	10-4
Pat Walton SP	14-6
Scott Haden SP	14-6
Chris Koon SP	14-4
Troy Rhoades	14-3
Doug Payne	14-0
Chris Dennis	14-0
Dusty Rhoades SQ	14-0
Wayne Ratliff	14-0
Austin Jackson SQ	14-0
Cameron Johnson	14-0
Mitchell Novotni	14-0
Jarod Worcester	14-0

The Rule

Rule 7, Section 5, Article 3

The competitor's weight shall be at or below the manufacturer's pole rating.

The manufacturers must include on each pole:

- the pole rating that shall be a minimum of ¾ inch in a contrasting color located within or above the top handhold position,
- a 1 inch circular band indicating the maximum top handhold position with the position determined by the manufacturer.

Top of pole w/ weight band

Grip Height

Grip Height – How high on the pole the vaulter holds with their top hand

- grip height is determined by how far the vaulter is penetrating into the pit

- the lower the grip height, the easier it is to penetrate

Beginners use a "reach grip" plus 6"

They reach as high as they can – then add 6"

Beginner Reach Grip

Beginner Reach Grip

As the vaulter improves he/she can move up the pole – one hand grip at a time

Improvement means – getting penetration into the pit

Jumping off of the correct foot and on the correct side of the pole

Starting to swing out (first) then up

Grip Range

Grip Range – the area of the pole where the pole is "designed" to be gripped by the top hand

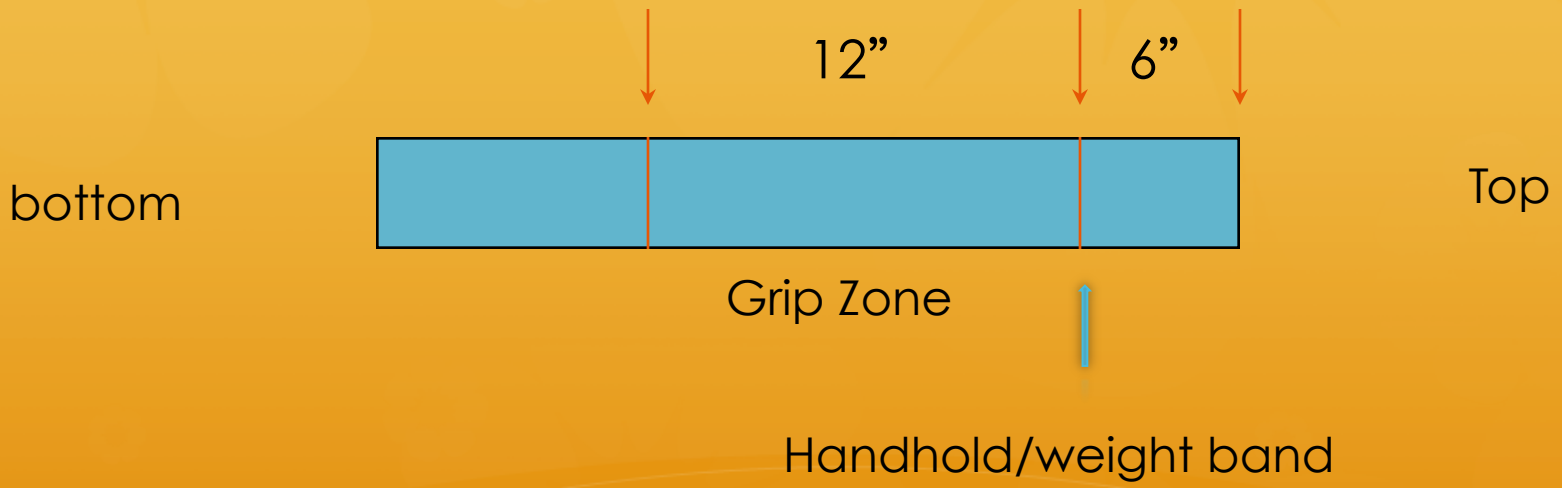
Designed – the pole bends and unbends "correctly"

Spirit Pole Grip Range – from 6" down from the top of the pole (the handhold band) to 18" down from the top of the pole

Holding below the grip range – the pole CAN be used but will not bend/unbend efficiently

Holding over the grip range – ILLEGAL IN HIGH SCHOOL RULES – pole will bend more, unbend slowly and potentially could break

Pole Grip Zones



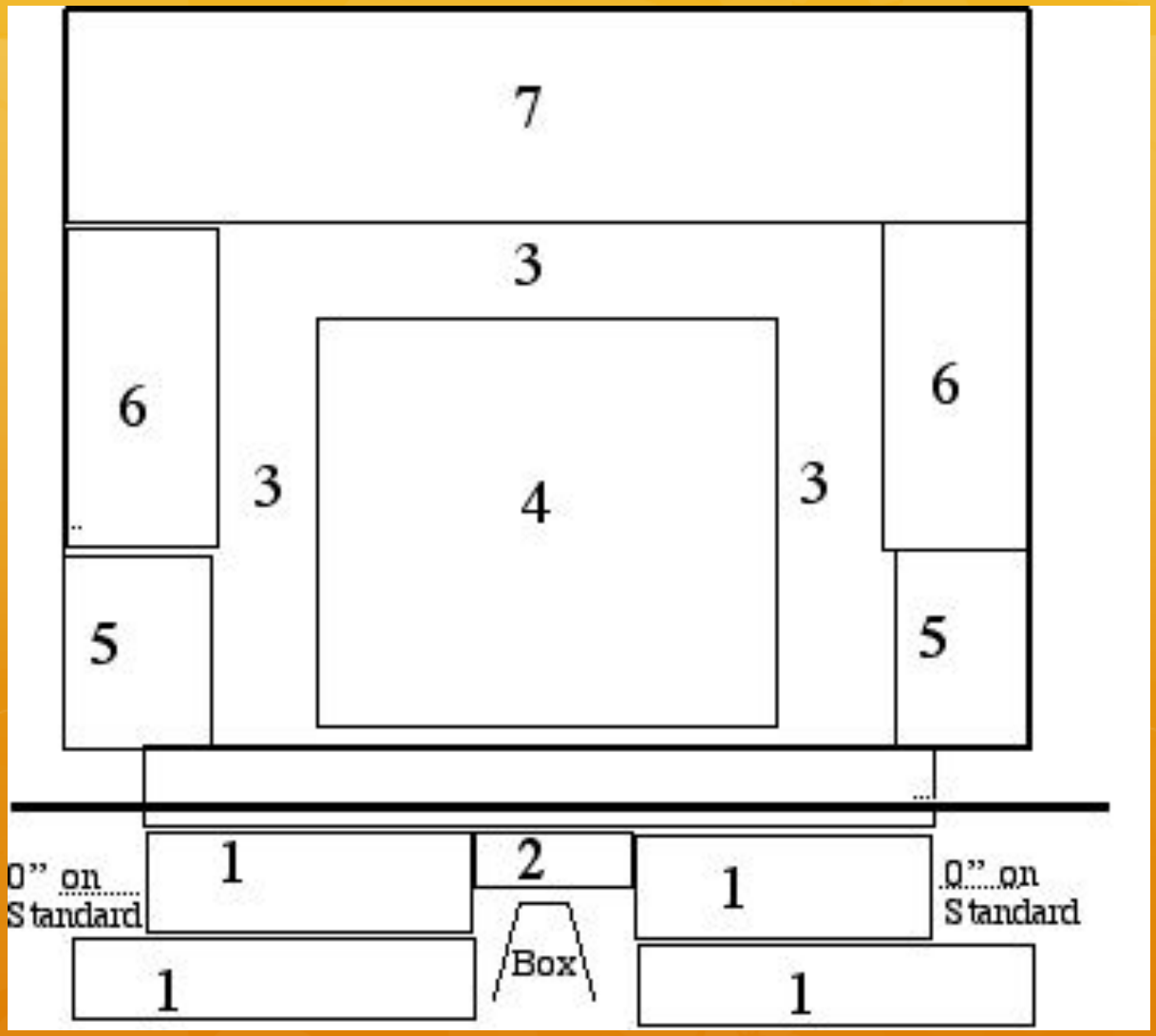
Grip Zone

Holding below the grip zone – the pole won't bend much. That works fine for beginning vaulters (and vaulters working on certain drills) as the pole remains stiff.

Vaulting in the Grip Range

- Once a vaulter is "in the grip range"…
- Coach can determine what is the CORRECT POLE
- REMEMBER – THE RULE (actually 7-5-3)
- Vaulter MUST be on a pole rated at or above his/her weight
- Use the "Coaching Zones" on the PV Pit

Pit Zones



THE WATKINS PV RULE

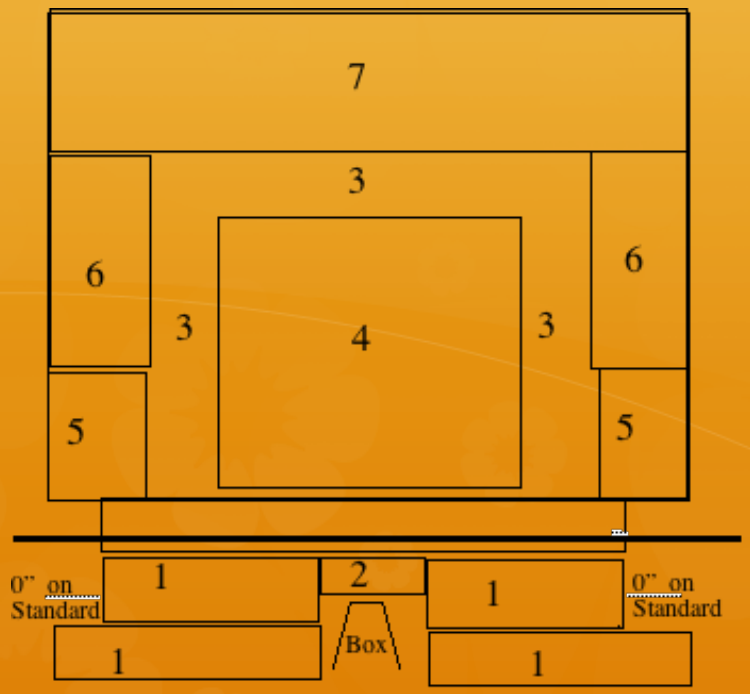
- RULE # 1 - - LAND IN THE BIG BLUE THING!!!!

Pit Zones

Vaulter Must be on a Legal Pole

If the vaulter is landing in Zones 1 or 2

LOWER THE GRIP



Getting the Pole to Vertical

Why does lowering the handgrip work?

While lowering the handgrip makes the pole stiffer, it reduces the amount of energy required to get the pole to vertical

Getting the pole to vertical MEANS getting the vaulter safely over the pit (landing in zone 4) and therefore is the quickest means to making a vaulter SAFE!!!!!!

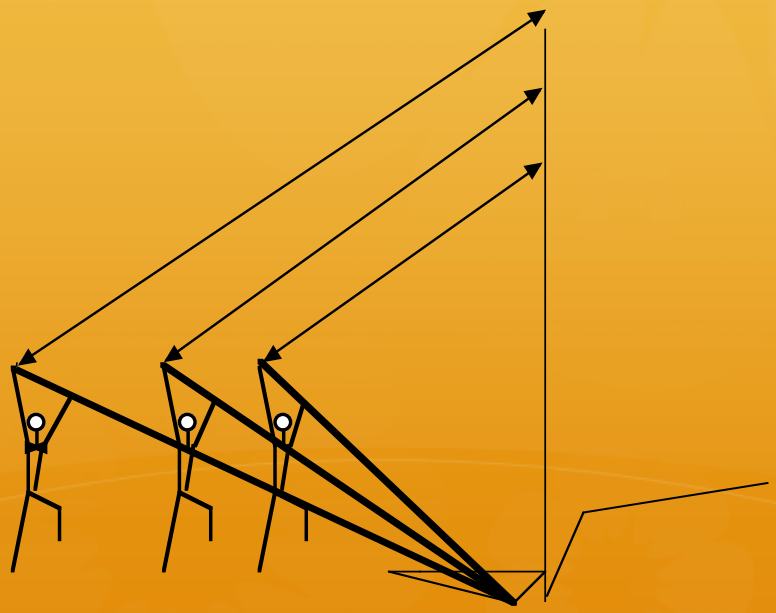
A Side Note

A vaulter who KNOWS that he/she will land in the pit (zones 3, 4, 7) KNOWS that he/she will be safe.

If they are going to be safe – they're concentration can be on how to improve their vault – NOT how to land safely.

IF they are concerned about their safety – their first concern will be " WHERE AND HOW will I land not how will I vault".

The longer the pole, the more energy required to get the pole to vertical – this applies to handholds as well as pole length



A Systematic Method of Pole Selection

Question 1 – When is a vaulter ready to move onto the next pole?

- When a vaulter is:

  - holding at the top grip of the pole they are vaulting

  - when they are landing in deep zone 4 or zone 7 in the pit

  - when they are vaulting with the bar at 28-31.5 on the standards

  - when their "hip height" is occurring past the bar

A Systematic Method of Pole Selection

Question 2 – a stiffer pole or a longer pole?

Item to know – a 140 pound pole is designed to feel like a 140 pound pole at the top grip handhold. For every 1 inch down the pole will "feel" and respond 1½ pounds stiffer.

{*However, as the vaulter is holding lower, it may still be easier to "get to vertical" as it will take less energy*}

Therefore – a 140 pound pole at the bottom of the grip range will feel and respond like a shorter 158 pound pole

A Systematic Method of Pole Selection

Answer – a stiffer pole

1. If the vaulter is at the top of the grip range, and

2. If the vaulter is on a pole less than 15 pounds over their body weight, and

3. If the vaulter is landing deep in the pit, and the hip height over the crossbar is passed the bar with the standards set deep

Go To A Stiffer Pole – Same Length!!!!!!!!

A Systematic Method of Pole Selection

Answer – a longer Pole

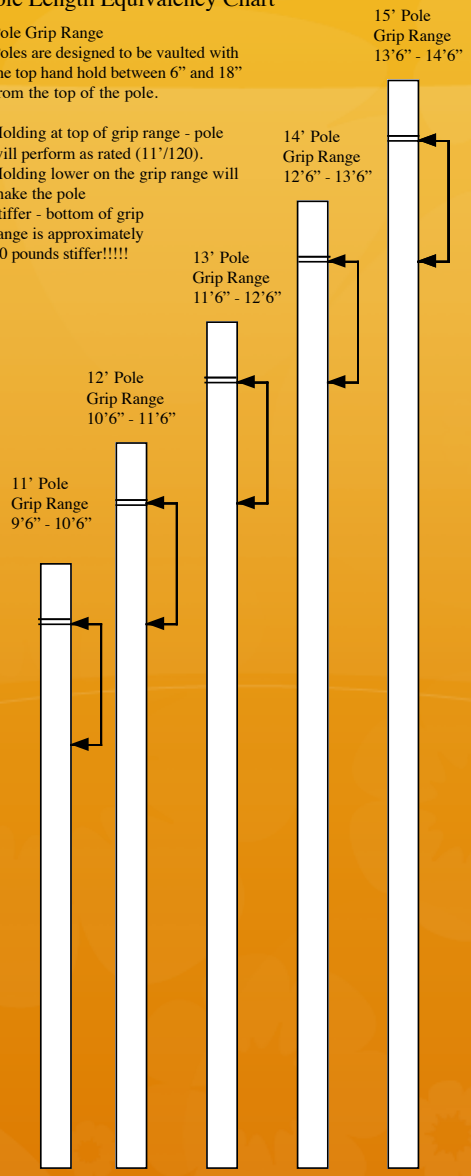
1. If the vaulter is holding at the top handhold, and
2. IF the vaulter is 15 pounds under the weight of the pole, and
3. The vaulter is landing deep, with standards back, and with hip height passed the bar

IT'S TIME TO MOVE TO A LONGER POLE!!!!!!!!!

Pole Length Equivalency Chart

Pole Grip Range
Poles are designed to be vaulted with the top hand hold between 6” and 18” from the top of the pole.

Holding at top of grip range - pole will perform as rated (11’/120). Holding lower on the grip range will make the pole stiffer - bottom of grip range is approximately 10 pounds stiffer!!!!!

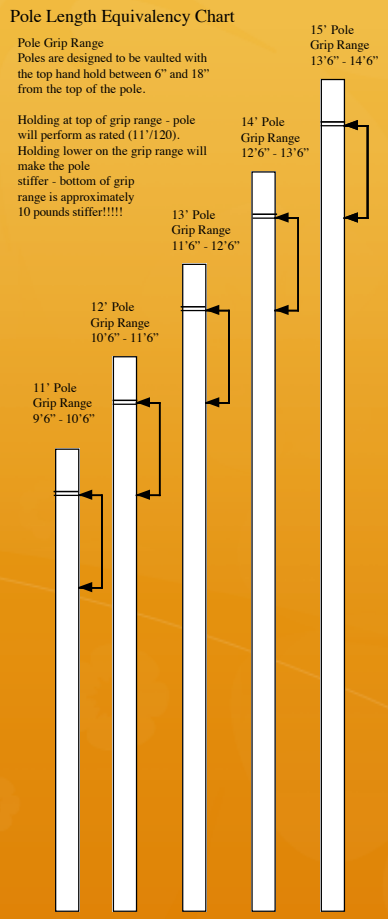


Pole Equivalency

Poles are made so that the top of the grip range of a shorter pole is the bottom of the grip range of a pole 12” longer.

Since we know that the bottom of the grip range is approximately 18 pounds stiffer…

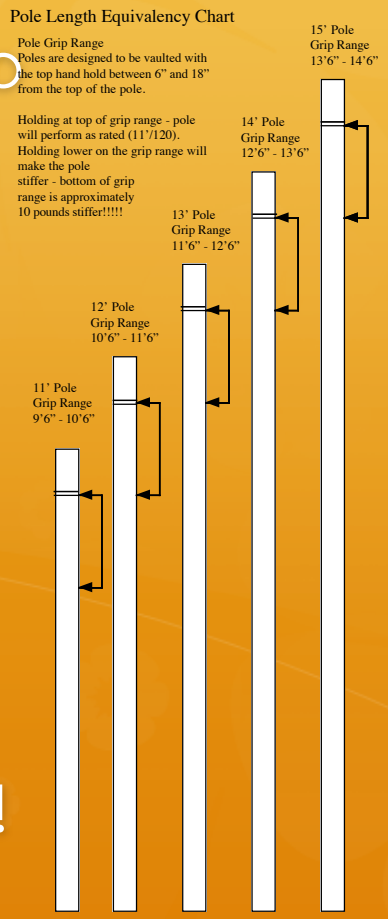
Then we can calculate the following:



Pole Equivalency

A 12'/140 pound pole is equivalent to a 13'/122 pound pole. Since you can't get poles at 122, the move would be from the top of the grip range of a 12'140, to the bottom of the grip range of a 13/125 (knowing that the pole will be slightly stiffer).

KEY – the vaulter still must be on a pole rated OVER their body weight, so the vaulter MUST weigh 125 or less!



Pole Equivalency

- This works for all poles, all brands, 11', 12', 13', 14', 15'. This DOES NOT WORK for 16' poles and beyond (the poles are designed differently).
- THE RULE (7-5-3) still applies – the vaulter must weight less than the pole weight!!!!!
- It requires access to a selection of poles

Kyle's Story

- This is Kyle
- Kyle is a 123 pound eighth grader who has a best jump of 10'0" – on a 12/130 holding near the top of the grip range
- His standards are set at 30", and he is knocking the bar off on the way up. He is landing deep in Zone 4

Kyle's Story

- The next move is to move Kyle onto a 12/140 (Spirit does not make 12' poles in 5 pound increments)
- Why – the equivalent LONGER pole is a 13/115 – UNDER Kyle's body weight and therefore illegal
- IF Kyle continues to vault deep and still peak passed the crossbar – the next move would be onto a 13/125 (equivalent to a 12/143 at a matching grip range)

Kyle's Story

Once Kyle makes the transition to a 13' pole, he continues to improve in speed, strength, technique, and height cleared

As he improves, he moves his handhold from the bottom grip up the pole, ONE HAND WIDTH AT A TIME!!!!

As he moves up, he will need stiffer 13' poles, and eventually move onto a 14' pole!!!

He's Learning!!!!

Summary

When is it time to go to a stiffer pole —

- when the vaulter is landing deep in the pit
- when the vaulter's hip height is passed the bar
- when the vaulter is less than 15 pound over the pole weight

Summary

When is it time to go to a longer pole

- when the vaulter is “top gripping” the pole
- when the vaulter is landing deep in the pit
- when the vaulter’s hip height is passed the bar
- when the vaulter is using a pole that is rated 15 pounds or more over the vaulter’s weight

Issues with Pole Selection

- "Well – we wanted to go higher – so I told him to grip at the top of the longer pole and GO FOR IT!!!!" (I really didn't - he missed the box)

Issues with Pole Selection

- Gripping higher on a pole, moving to a longer pole are a function of how an athlete is performing – not what their "goals and desires" are.

Issues with Pole Selection

- What about mid-range pole – 11'6", 12'6", 13'6", 14'6"??
- Mid range poles can be very effective
- Mid range poles allows a vaulter to change at 9 pounds rather than at 18 pounds
- Mid range poles allow for "shorter" vaulters to get on longer poles
- Mid range poles are NOT ESSENTIAL – if can be done with 12" increments – but they help

Issues with Pole Selection

ESSX
The Right Pole... Period!

PACER MYSTIC

Issues with Pole Selection - Poles

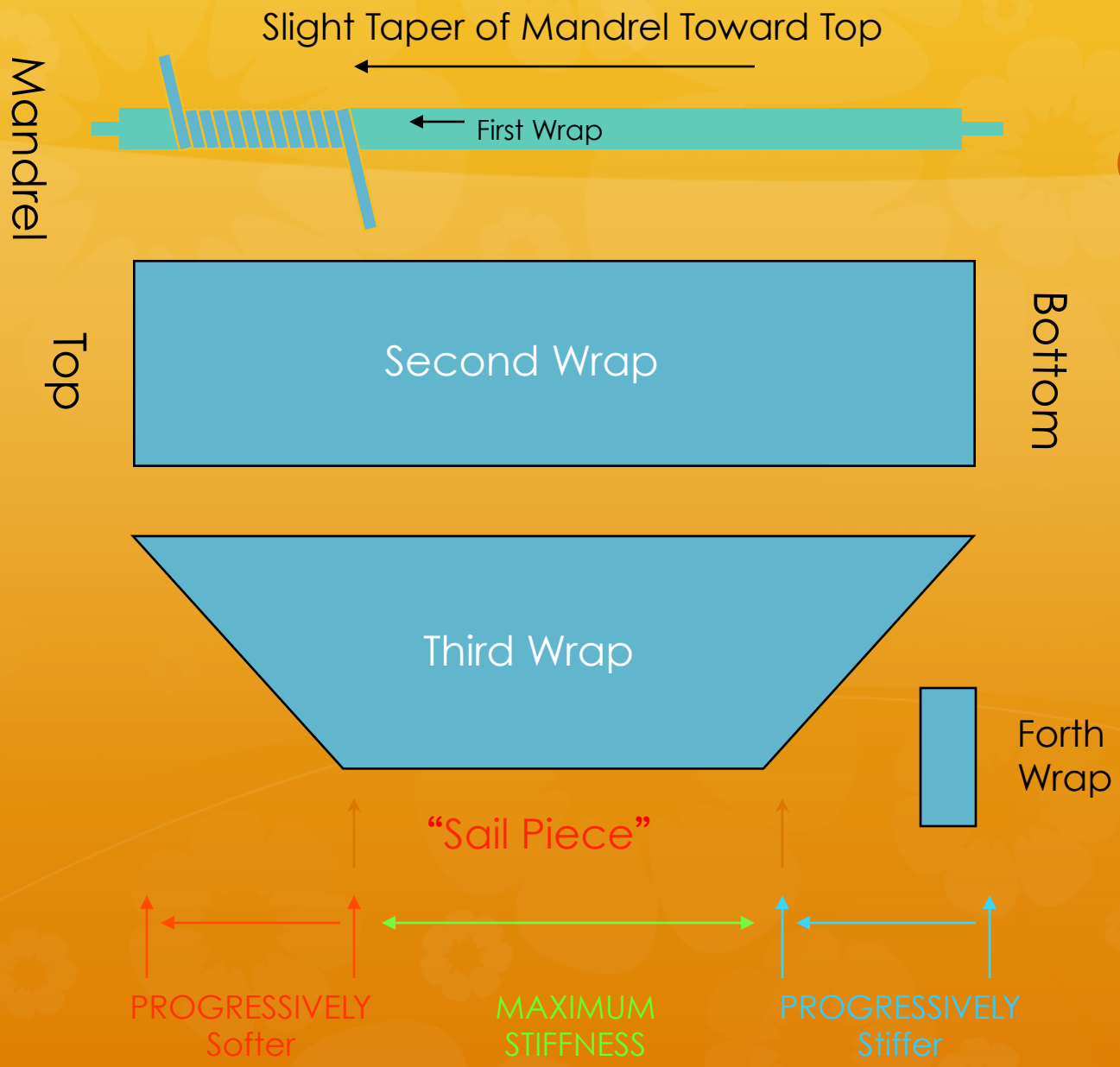
Different Brands of Poles

All Pole Brands are OK – they all work and they all fit the "weight/conversion" method that we have already discussed

Differences in Poles

1. Barrel size
2. Sail Piece Location
3. Material Composition
4. Pole Weight

Pole Construction



Fiberglass:

"E" Type
or
"S" Type

Issues with Pole Selection – Barrel Size

Barrel Size is dependent upon the material and the method used to make the pole

- Thicker walled poles can be thinner (Pacer's Mystic) but feel heavier
- Poles using Carbon Materials are thinner (also weigh less – but cost a lot more!!!)
- Spirit "S Glass" poles are thinner than "E Glass"

Unless a vaulter has very small hands barrel size isn't normally an issue

Issues with Pole Selection – Sail Piece

The sail piece is the third wrap of fiberglass that Allows for the pole to get stiffer as the bend moves through the pole

The sail piece can be cut so that it is lower or higher from the center of the pole

A lower sail piece will allow the pole to bend more easily but will not unbend with as much power

A higher sail piece will make the pole more difficult to bend but will allow for more powerful unbending

Issues with Pole Selection – Sail Piece

Poles that are listed as “high school” or “beginner” poles are poles with a lower sail piece.

Lower sail piece – easier to penetrate, less power on top

High sail piece – harder to penetrate, more power on top

Issues with Pole Selection - Materials

Poles are generally made with Fiberglass. While there are some variations on the type of glass used – they are pretty much the same.

Carbon Poles are made with a mixture of Fiberglass and Carbon fibers. This allows the pole to have the same strength as a Fiberglass pole of the same length/weight, but weigh less (carbon fibers weigh less than fiberglass fibers).

Advantages of Carbon fiber poles – lighter weight
Dis-advantages – Higher cost (about a ½ again as much)
- Durability (some have argued that carbon fiber poles are more susceptible to scratching and breakage)

Issues with Pole Selection – Big Poles

This system for pole progression works through15'7" poles

- This system DOES NOT work the same with 16' poles
  - the sail piece on 16' poles is higher then the progression from the other poles
  - 16' poles requires MUCH better technique, power and speed to use

Most high school vaulters, even the "top" ones, aren't ready to use 16' poles yet.

Issues with Pole Selection – the tall vaulter

A vaulter that is very tall will "stand up" the pole quickly. Often too quickly to effectively use the pole

While the system (top grip range to bottom grip range) works well With most vaulters – there is the "tall" exception

If a tall vaulter is getting to vertical and into the pit too fast – he/she won't have the opportunity to complete their vault

They may move up in pole length prior to vaulting 15 pounds over Their body weight --

Issues with Pole Selection
Jarod's Story

Jarod is a freshman vaulter at my school. Jarod is 6' plus (still working on Trying to get his run/technique together). He weighs 136 pounds, and was Vaulting a 12/140 pound pole holding at the top of the grip range

Jarod's vaults all looked "incomplete". He was getting to pole to vertical so quickly that he was unable to "finish" (swing up – turn) before he was past the bar and into the pit.

A stiffer pole didn't really make a difference, as Jarod wasn't bending the pole much anyway. He was "straight poling" any 12' pole.

Jarod moved to a 13/140 – a big jump – and was holding one grip above the Bottom of the grip range.

While Jarod still is working on his "finish" – the longer pole gives him time to accomplish it while still landing in zone 4 of the pit.

Watkins Pole Selection

Or – nice to be in one place for 35 years to buy poles!!!!

10	8	100	Spirit			2007
11	6	100	Spirit			2001
11	6	100	Spirit		X	2002
11	6	110	Spirit			2007
11	6	110	Spirit		X	2001
11	6	120	Spirit			2002
12	0	110	Spirit			2002
12	0	120	Spirit			2002
12	0	120	Spirit	found		??
12	0	130	Spirit	cut	X	1996
12	0	130	Spirit		X	2001
12	0	140	Spirit			2009
12	0	140	Spirit		X	2001
12	0	150	Spirit		X	2001
12	0	160	Spirit			2009
12	0	160	Spirit	cut	X	2008
12	0	170	Spirit			2009

13	0	130	Spirit			2009
13	0	135	Spirit			2008
13	0	140	Spirit			2003
13	0	145	Spirit	broken 1/12		2007
13	0	150	Spirit		X	2003
13	0	155	Spirit			2007
13	0	160	Spirit		X	2001
13	0	160	Spirit	cut	X	1996
13	0	165	Spirit			2008
13	0	170	Spirit		X	2009
13	0	175	Spirit			2008
13	0	180	Spirit			2008
14	0	130	Spirit		X	1993
14	0	135	Spirit		X	1991
14	0	140	Spirit		X	2001
14	0	145	Spirit			2008
14	0	150	Spirit		X	1997
14	0	155	Spirit			??
14	0	160	Spirit			2004
14	0	165	Spirit			2003
14	0	170	Spirit			2005
14	0	175	Spirit		X	1998
14	0	180	Spirit		X	1998
14	0	185	Spirit			2007

14	7	150	Spirit			2009
14	7	155	Spirit			2009
14	7	160	Spirit			2009
14	7	170	Spirit			2007
15	0	140	Spirit			2001
15	0	145	Spirit			2002
15	0	150	Spirit	left		1999
15	0	150	Spirit			2003
15	0	155	Spirit		from LV	2000
15	0	160	Spirit			2002
15	0	165	Spirit			2002
15	0	170	Spirit			2003
15	0	175	Spirit			2003
15	0	180	Spirit		X	1998
15	0	185	Spirit			2004
15	0	190	Spirit	OU	OU	2003
16	0	165	Spirit		X	1994

Issues with Pole Selection

In the end – all poles work.

As a coach, I find it easier to work with "apples and apples" – that is to have The same brand of poles.

The only variables then are length and width, NOT differences in design and Performance.

Choosing the Right Pole

Questions????

Answers:
Marty Dahlman – mdahlman@watkinstrack.org

www.ohiopolevault.wordpress.com

Thanks

Mark Hannay – Chairman, Northeast USATF Pole Vault Committee
(I borrowed some of his slides)
And learned a LOT from him

Watkins Vaulters – for giving me the experience of their vaults, failures, and successes and most of all their trust!!!!