

The High Jump

curve geometry

arm drive

the jump

speed training

???????

penultimate step

plant angle

weight training

HJ drills

arching the back

knee/hip drive

rotation

plyometric jumps

Newton's 1st law:

“An object in motion will stay in motion unless acted upon by an unbalanced force”

Once an athlete's foot leaves the ground, they can't change their trajectory, so . . .

. . . Focus on the approach!

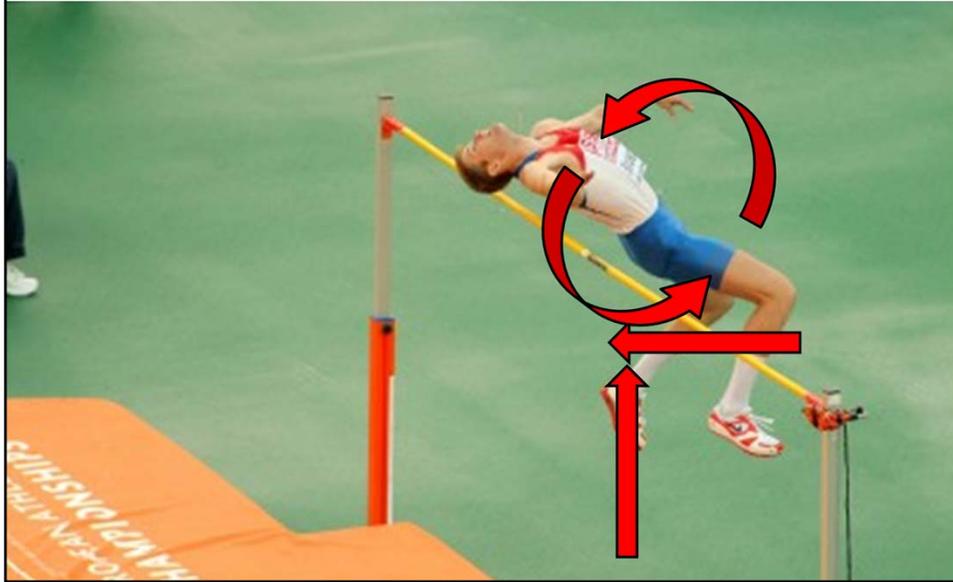


High Jump

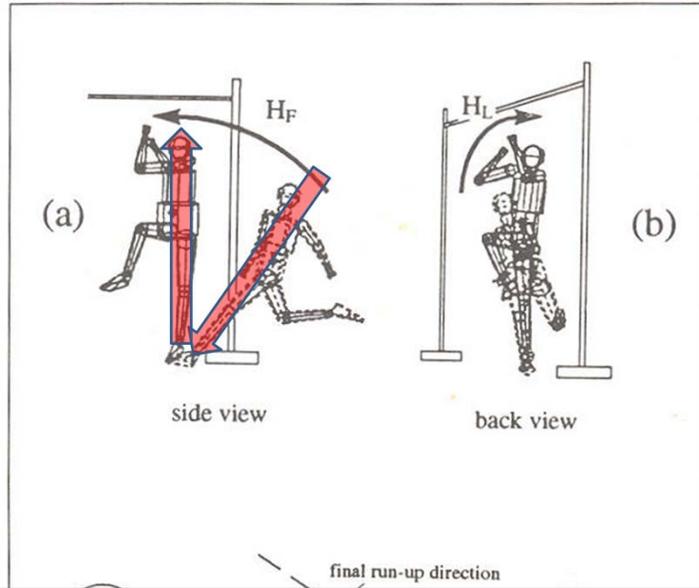
Mastering the Approach

1. Understanding the physics and geometry
2. Teaching, practicing, and analyzing the approach
3. A State Champion's approach; how Ben jumped 7' 1"

Understand the forces



The Fosbury Flip





The perfect curve

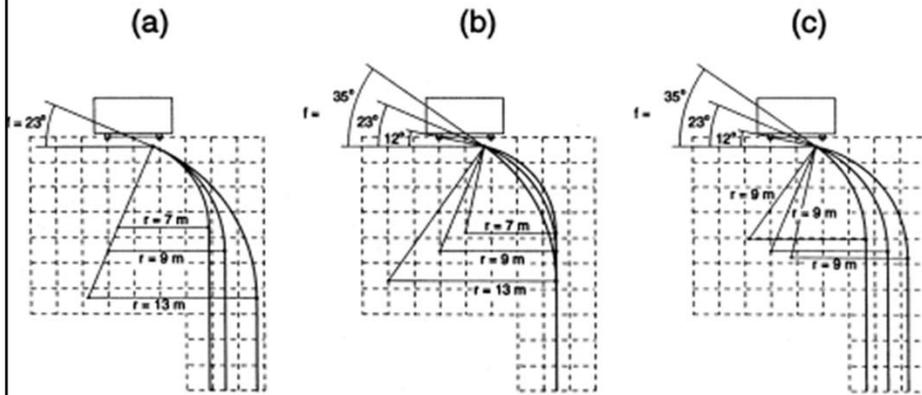
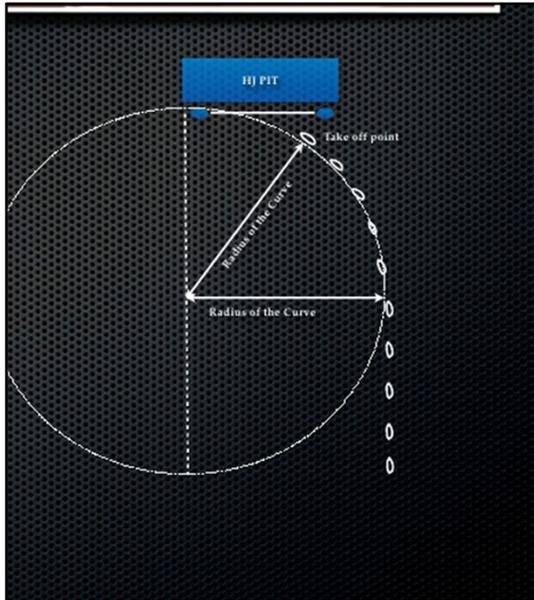


Figure 4



shorter radius =
tighter curve,
greater lean,
less speed

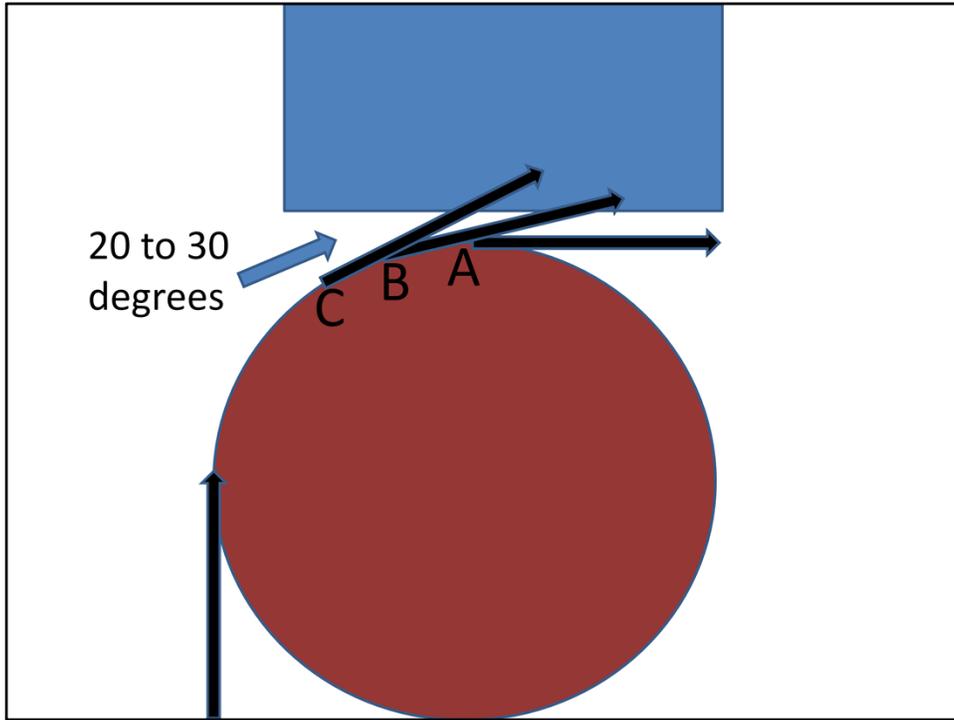
longer radius =
more speed needed
to generate lean

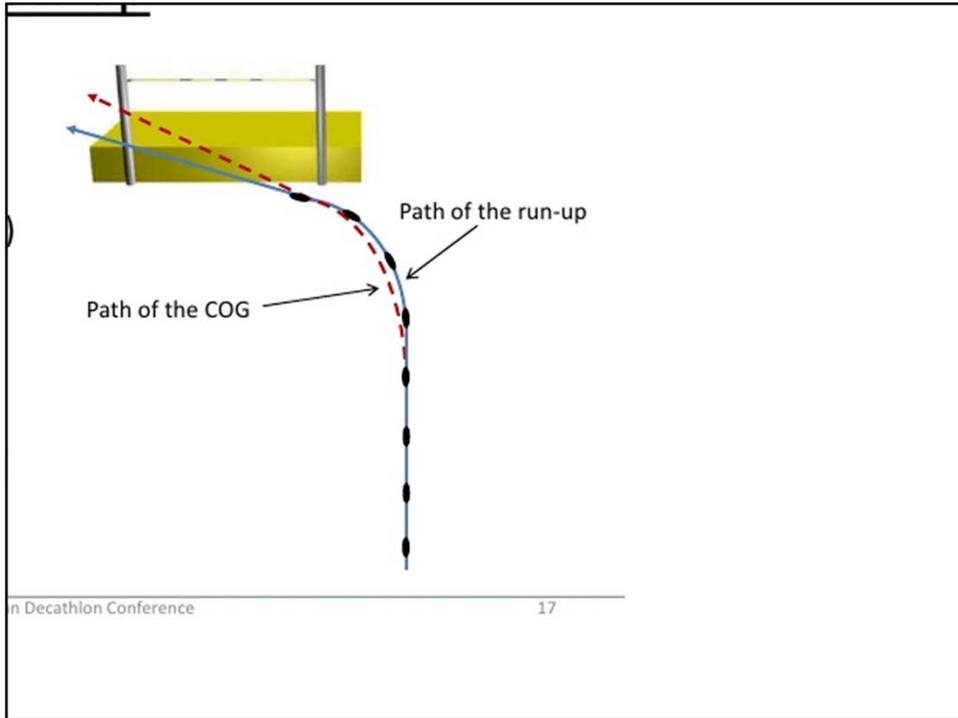
***more speed is good**

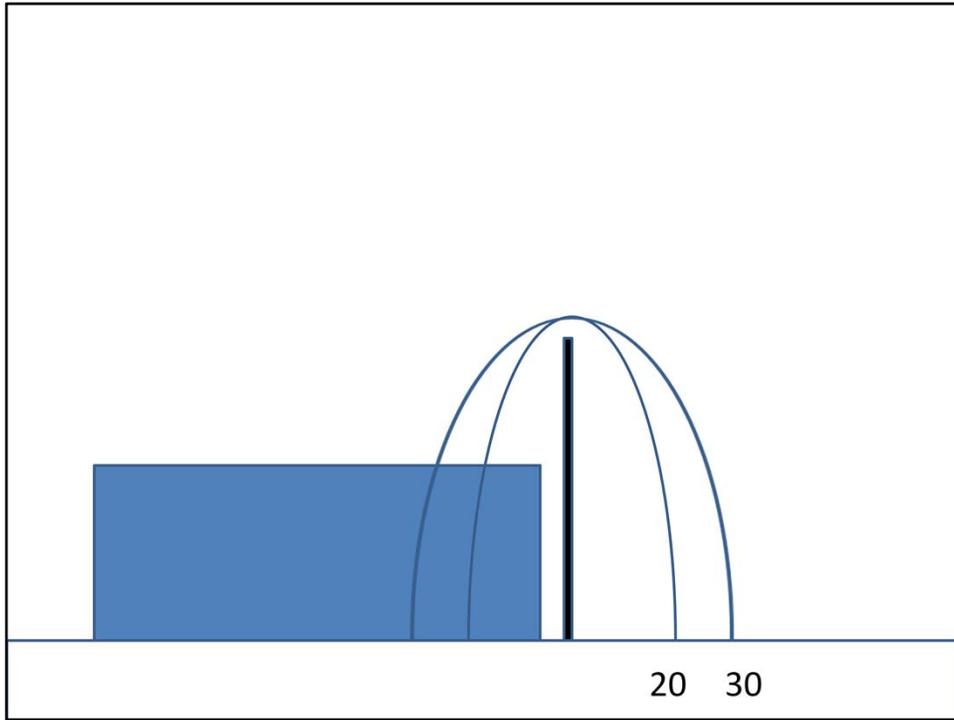


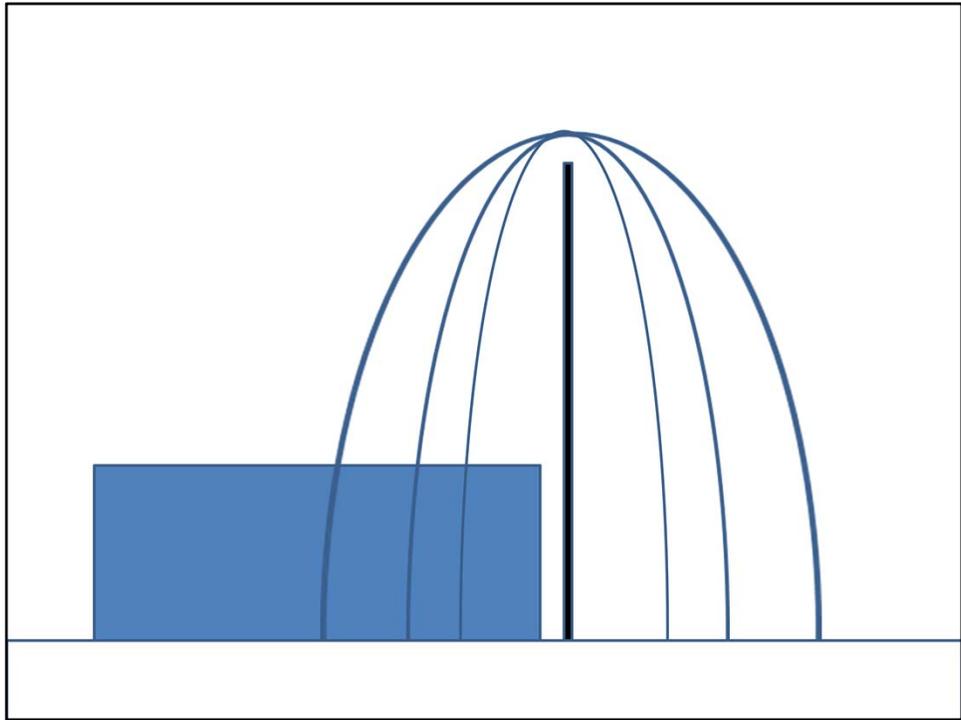
Horizontal momentum comes from the approach,
not from the jump











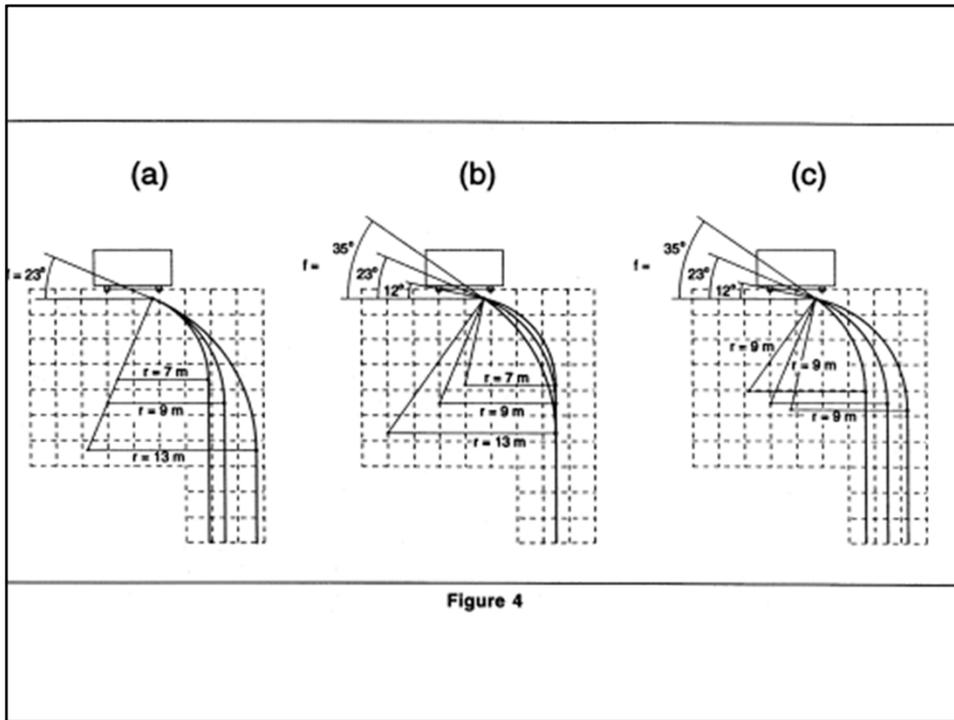
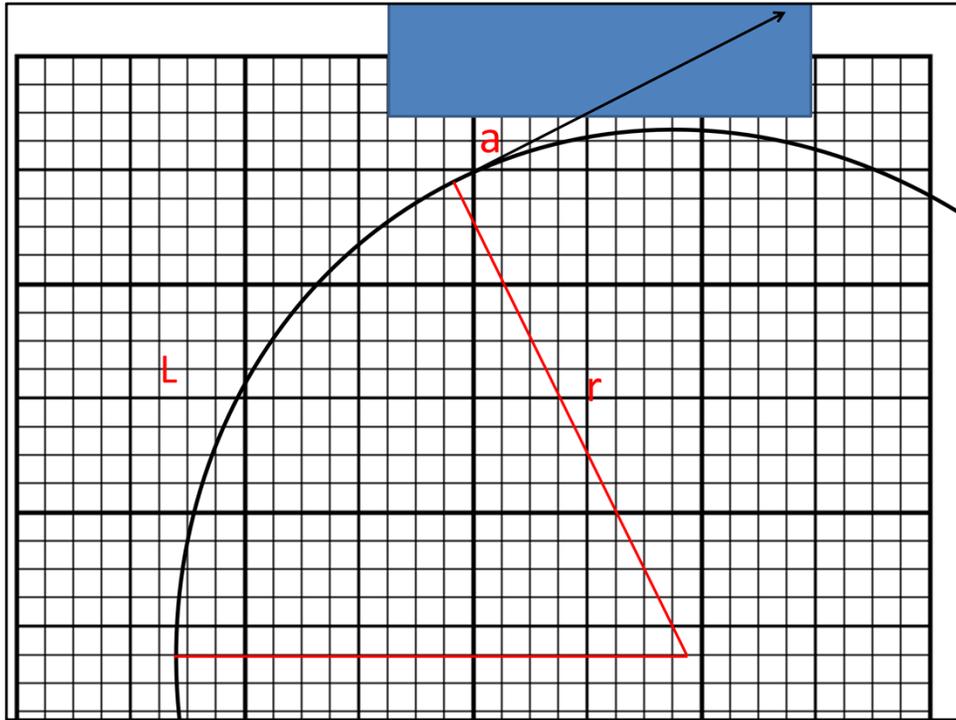


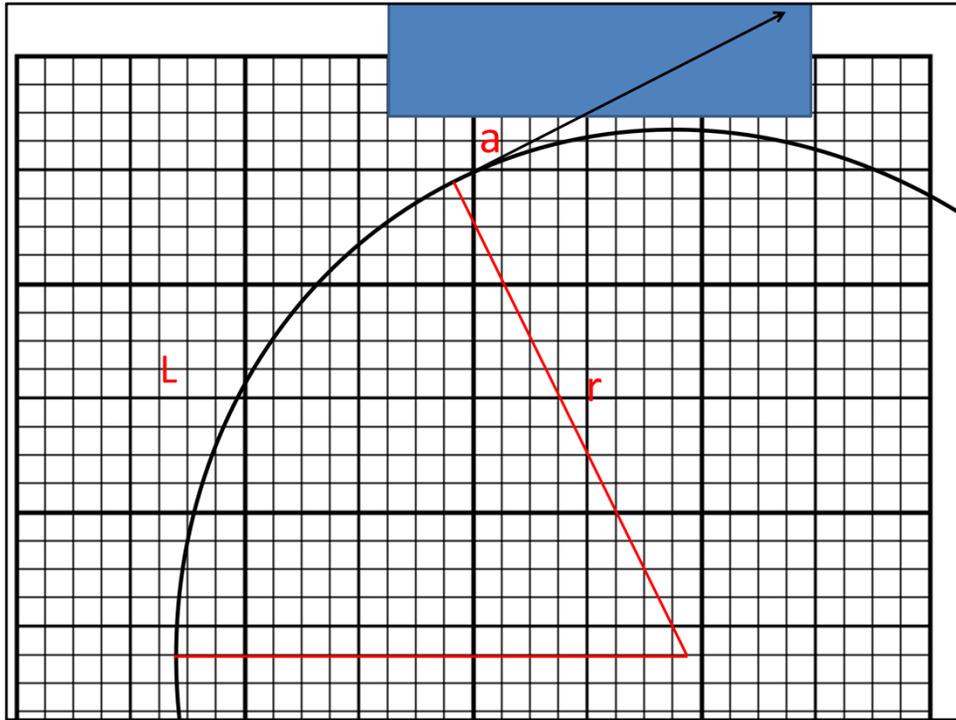
Figure 4



a = angle at jump, r = radius, L = length of curve
 $(90-a) / 360 \times 2\pi r = L$

$$r = 360L / 2\pi(90-a)$$

L = how far the athlete runs in five steps



Teaching progression for the HJ—early season

1. Sit down and watch video, talk through what HJ is all about
2. Drills—heel to toe roll, skips for height, weave running, high knee karaoke, side skips, lunge skips w/arm swing
3. Plyometrics—box jumps (variations), dunks, weighted vest, triple jump
4. 3 step approach—work on attack angle, be aggressive, rhythm, penultimate step, big powerful last step, plant in front of body, hip drive, arms;
not working on flop.
 - Drill: skips for height with extra step
5. 5 step approach—same as 3 step, but can add a curve; attack angle, not running with bar; jump scissors and then flop
 - Drill: backwards pit jumps (feet together, knees out, head back, hips up, kick)
6. Full approach—run pre-measured marked out perfect curves, find one that fits, focus on lean, rhythm; start with run-throughs, then scissors or land on feet
 - first five steps: decisive, powerful, consistent, accelerate
 - tall posture on curve
 - repeat, repeat, repeat!!!
7. Full approach with jump—watch video first, focus, perfect every time; video tape every jump; count jumps and limit; video analysis
 - mostly low bars in practice

Practice plan—mid to late season

1. Video analysis of last meet
 - *athletes self critique and critique each other, become students of the HJ
2. HJ warm up drills
3. Based on video, what do we need to work on?
 - *specific drills—3 step, 5 step, backwards box jump, curve running, etc.
 - *focused on what needs tweaking
4. Full approach run-throughs
 - *curve always measured, marked, and perfect
5. A few actual jumps?
 - *Always video; mental focus, set jump limit in advance
6. Plyometrics
 - *volume depends on proximity to a meet, other workout needs
 - *high volume off season and pre-season; low volume towards peak competition

video analysis

Meet tips

1. Teach the athletes to measure their marks with precision
2. Prior to event, precise run-throughs, fully warmed up
3. VIDEO EVERY SINGLE JUMP!!!
4. Favorite coaching cues: “Be aggressive, attack!, more speed, perfect curve, pop!, jump higher!, you got this!
5. Least useful cues: “Arch your back more, drive your arms more, kick your legs sooner, etc.”
6. Don’t show them video during the meet (usually)
7. Limit jumps? Helps mental focus
8. Consider stopping on a make, esp. a new PR
9. Come in at high heights—3 heights below PR
10. Have rookies come watch veterans in the meet before letting them compete
11. Know each individual’s mental game and coach accordingly

Other random tips

- Make your jumpers tape their goal height around the perimeter of their room; set barely realistic goals
- Video tape every single jump and analyze the heck out of it
- Make your jumpers watch hours and hours of video—their jumps, teammates' jumps, elite jumpers—and critique everything; make them students of the HJ
- Make them get HJ shoes
- Measure and mark approach points consistently and accurately in practice and meets
- Don't let them jump alone
- Go to clinics with your jumpers
- Year round plyometrics; always jumping
- Always be there for them; their development as a person is what matters most



Ben Gucinski

Junior year:

- High volume off season general training
- Heavy weight lifting all year; squat, dead, clean
- High volume of high jumps in practice + meets
- ran sprints, relays, LJ, and HJ
- standing vertical: 30 in.
- HJ PR: 6' 6" (State)

Senior year:

- Back rehab, some general training; rest
- one cycle lifting Jan/Feb; very little in-season lifting
- lots and lots of plyos
- very few high jumps (avg. <4 per meet, almost none in practice)
- standing vertical: 35 in.
- HJ PR: 7' 1" (State)

acknowledgements

Boo Schexnayder (articles, videos)

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WISTCA clinic

FVL coaches Alan Nolte, Jim Dunsirn, Jenny Retzlaff

Andy Bos, Justin Merckx, John O'Connor

All the great WI high jumpers that raised the bar

And many, many more people

Ben Gucinski—a special athlete

- A lifetime of jumping
- Big dreams, high goals, hard work
- Confidence
- Competitor
- Character
- “Let us run with perseverance the race marked out for us”

Questions?



Please contact me if you have questions or comments.

idegner@fvlhs.org

Thank You!