Perfecting the Approach and Plant in Pole Vault

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Coach Newton's Laws of Track and Field

- Second Law
  - Force = mass x acceleration

- Third Law
  - When one body exerts a force on a second body, the second body simultaneously exerts a force equal in magnitude and opposite in direction on the first body – 1687

Approach Run Goals

- Optimal Velocity at Take-off
- Sprint through the Take-off
  - Beat the tip into the box
  - Maximum Velocity at end of run
- Get Vaulter to Optimal Take-off point
- Vertical Impulse at Take-off
  - Jump don't let pole pick you off ground
- Consistency

Approach run Objective

- Increase in approach run velocity (Kinetic Energy) will result in an increase in gravitational potential energy stored in the pole and a corresponding increase in vault height.

- Research shows that an increase in velocity of 1 meter/second results in an increase of approx. 0.5m in vault height

Velocity Required for various Heights in Pole Vault

Bar Clearance Height	Velocity Required
5.80m	9.1 m/s
5.50m	8.7 m/s
5.20m	8.4 m/s
4.90m	8.1 m/s
4.60m	7.8 m/s
4.30m	7.5 m/s
4.00m	7.2 m/s
3.70m	6.9 m/s

Dr. McGinnis (2003)

It all starts with the First Step

- Consistency at the start will lead to consistency at Take-off
  - First 4, Last 4
  - Progressive Acceleration
- Start every approach the same
  - warmup, drills, short approach jumps, full approach
- Stand with Rock Back
  - No hops, skips, etc…

Rhythm of Approach

- Fast to slow
- Smooth Acceleration
- Aktive into the Plant
  - Beat the tip into the box

Phases of the ~~Sprint~~ Approach

- Drive Phase
- Mid-mark to Take-off

Drive Phase

- Use the same mechanics as a sprinter
  - Lift the thigh up and forward
  - Push down and back
- More deliberate Acceleration rate
- First 3-4 strides
- Posture
  - Coach Shakira “Hips don’t lie” (2005)

Mid-Mark to Take-off

- Last 3-6 strides
- Achieve Optimal Velocity
- Maximum Velocity sprint mechanics
- “Beat the tip into the Box”
  - Drop forces an increase in stride frequency
- Pole Considerations
  - Posture
  - Velocity changes and timing of drop

Take-off & Plant

- Last step is slightly shorter than previous step
- Hips are rising from penultimate step to take-off
- Flat Foot (penultimate stride)
- Push-pull-plant
- Quick last stride
- Accelerate through the take-off
- Push the pole to the bar

Thank You

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