HIGH JUMP BASICS

GOALS OF THE HIGH JUMP AND GENERAL TECHNICAL MODEL

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WHAT WE WILL BE COVERING TODAY

• "Fosbury Flop" style high jump technique
• Why run a curved approach & the curves purpose
• 5 phases of the high jump approach
• How to begin developing an approach with athletes
GOALS OF THE HIGH JUMP

• To generate as much speed and lean away from the crossbar around a “J” shaped approach.

• The resulting forces after takeoff create a twisting backwards somersault that allows the athlete to twist their back to the bar while simultaneously rotating the body over it.
WHY RUN A CURVE?

Running a Technically Correct Curve results in:

- Back rotating to the bar
- Fast somersaulting over the bar (fast bar clearance)
- Short time spent over the bar
- Efficient bar clearance
5 PHASES OF THE HIGH JUMP APPROACH

- Acceleration Phase
- Transition to the Curve
- Preparation for Takeoff
- Takeoff
- Flight
ACCELERATION PHASE (PHASE 1)

- **OVERCOMING INERTIA TO DEVELOP HORIZONTAL VELOCITY**

- **GOAL OF THIS PHASE IS TO DEVELOP 90%+ OF THE REQUIRED HORIZONTAL VELOCITY OVER THE FIRST 3-4 STRIDES OF A 10+ STEP APPROACH** – CAN BE ADJUSTED FOR YOUNGER ATHLETES

- **BE UPRIGHT IN POSTURE BY THE TIME THE ATHLETE HITS THEIR MID MARK SIGNALING THE TRANSITION TO THEIR CURVE**
ACCELERATION PHASE
TRANSITION TO THE CURVE

- When we go from the straight portion (acceleration) of the approach to the actual curve (steps 5 and 6 on a 10 step approach).
- This transition should occur smoothly without excessive deceleration, acceleration, cutting, or leaning forward.
- In my opinion one of the most important aspects of the high jump approach which is undercoached if it is coached at all.
- These two steps dictate the entire trajectory of the athlete's center of mass (COM) into the takeoff.
- Will happen on the outside leg.
CURVE RUNNING MECHANICS

- When entering the curve the athlete should be in upright sprint mechanics
- Outward pressure through the foot – Hinging at the ankle
- Foot contacts should turn to progressively greater degrees through the curve
- There should NOT be a noticeable acceleration once the athlete enters the curve – Acceleration mechanics would not put the athlete in a good takeoff position nor would they be able to apply the outward pressure necessary to facilitate lean
PREPARATION FOR TAKEOFF

- Characterized by a lowering of the COM into the 2\textsuperscript{nd} to last step (Penultimate Stride)

- Minimize deceleration over the penultimate stride – This is done by continuing to run the curve correctly

- Most of the lowering can/will occur because of the lowering of the COM that happens naturally while running a curve
TAKEOFF

• CREATE VERTICAL LIFT (Vv) – APPLYING A LARGE FORCE OVER A LARGE RANGE OF MOTION AS QUICKLY AS POSSIBLE

• SHOULD SET UP ROTATIONS THAT WILL OCCUR IN FLIGHT

• TAKEOFF FOOT SHOULD POINT JUST INSIDE OF THE FAR STANDARD

• TAKEOFF DISTANCES VARY ATHLETE TO ATHLETE BUT ARE TYPICALLY ANYWHERE FROM 3-5’ AWAY FROM THE BAR – TAKEOFF DISTANCE IS RELATIVE TO THE LEAN THAT THE ATHLETE HAS
TAKEOFF MECHANICS

• The approach should result in bringing the jumper into a position of inward lean at takeoff

• Body position of the jumper from ground contact to toe off – inward lean to an upright vertical position

• Takeoff stride should land in front of the body’s COM to create lift

• Takeoff is a collision and change of direction (deflection) that the athlete must be strong enough to accept

• Jumper needs to be able to keep the body rigid through the takeoff so force can be applied properly

• Free leg and arms should swing powerfully
FLIGHT

- **After Takeoff** the parabolic flight path has been predetermined.

- The body should follow this flight path with as little deviation as possible.

- The body should rotate around the bar while the shoulders drop and the hips rise creating the “arch” commonly referred to in the high jump.

- To finish the clearance the athlete should roll the chin to the chest – this will drop the hips and clear the legs.

- The athlete should land on the top of their shoulders.
BEGINNING APPROACH WORK

- The two most widely used approach development methods
  - “J” run back
  - Straight line approaches

I don’t use either of these methods – It is my belief that each of these involves too much guess work that lead to inconsistencies in the athletes development

The method I use involves fitting a radius measurement to each athlete based on different variables such as age, gender, strength, and speed.

Regardless of the approach development method you choose to use, it needs to follow certain biomechanical principles – which will be covered in part 2 of this presentation (Training Design)
EXAMPLE OF A FULL APPROACH MAP

- Example of a full approach map for one of my former male athletes
- 3x Big Ten Champion
- 2.23m (7’ 3.75”) PB
- 5’ 11” Height – FAST

QUESTIONS?

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