APPRAOCH

- Speed Through Board
- Optimal Take Off Position
- Accuracy and Precision
Drive Phase: Characterized by Proper Acceleration Mechanics and Shin Angles
Continuation Phase: Characterized by a transition from Acceleration Mechanics to Proper High Speed Mechanics
Transition Phase: Characterized by Speed and ability to get into an Optimal Take Off Position.
Teach Proper Mechanics in everything you do.
Be Specific.
Use Acceleration Ladders to teach patience and Push out back
Practice Full approach Rehearsals Early and OFTEN
DEVELOPING AN APPROACH

- Start off the Runway
- Run their approach: not steering for a board
- Develop a first step, build consistency
- Catch take off foot.
- Inches matter Game of Centimeters
- 3-6 sessions, Consistency Move to Runway
- Develop a Coaches Mark (mid mark) 5 Steps out
- Proper Mechanics help Accuracy
GAME OF CENTIMETERS
SPECIAL CONSIDERATIONS

- **Length of approach**
  - Male long jumpers approaches 40-45 m (18-22 strides)
  - World class female long jumpers approaches 30-35m (17-20 strides)

- **Coaches, check-marks**
  - Fifth stride out from board
    - On average 30-32 feet from board for males
    - Between 28-30 feet from board for females
Penultimate contact patterns include these features

- Step is grounded body’s center of mass, in order to preserve horizontal velocity
- Pre-recruitment should be developed in the leg prior to impact. This includes some preparation in the quadriceps and the ankle stabilized in a dorsiflexed position
- Foot contact should be flat
- Rolling action of the foot should occur
- The ankle should bridge late in the support phase (think hips move over)
Penultimate Step should provide for lowering of the body’s Center of Mass

- Much of the lowering should occur during the support phase of the penultimate step
- Lowering should be accomplished by equal amortization at the hip, knee, and ankle joints
- Horizontal movement should continue during lowering, in a forward and downward direction
TAKE OFF

- Characterized by Conserving horizontal momentum and creating vertical velocity.
- Take off foot should be grounded under or slightly in front of center of mass.
- Drive knee. Drive to parallel and block. Arms and knee block instant before take off.
MECHANICS OF THE LAST 3 STEPS

- Incomplete Push on 3
- Knees together, tall on 2 (Ideally Leg Past)
- Take Off Leg comes thru LOW Cut the Ankle
- Learn what an “active” Take off Looks like
4th Step Out, 2nd Step Out
$\alpha = 22^\circ$

- Dreschler: $18.9^\circ$
- Reese: $21.0^\circ$
- Pedroso: $23.9^\circ$
- Phillips: $22.0^\circ$
Flight techniques used fall under the hang technique, hitchkick technique, combinations

- **Hang**: employs extension of the limbs in flight in order to slow forward rotation
- **Hitchkick**: employs circular movements of the arms and legs in flight to create secondary axes and slow rotation
- **Combination**: employs both techniques
- **Faulty flight techniques decrease ability to slow or control forward rotation (sail, pike)**
- **All proper techniques use proper take-off techniques and differ after initial toe-off and free leg swing**
Flight Mechanics. Have to check rotation.
Doesn’t matter how you do it. Hang, Hitch Kick... Get extended in flight.
Run off board. Let drive knee fall and extend
LET LEG FALL AND EXTEND
Bring arm up over the top and hold.
Must check rotation to get into a efficient landing position.
Clock in their head
LANDING

- Squeeze knees high and extend feet to land. Feet as far away from center of mass the instant of landing. Collapse at knees and hips bringing your butt over the place where your heels entered the sand. CAN ADD FEET TO JUMPS

- Arms are brought down to hip level and swung forward at landing to help bring hips over feet.
LANDING

- Upon hitting the sand
  - Upright torso
  - Absorption by flexion of the hips, knees, and ankles
  - Late extension of the legs, clearing the feet and permitting the hips to land where the feet were
SEE IT
AGAIN
LONG JUMP STRATEGY

- **Flight or Trajectory of CoM**:
- Follows a predetermined path
- Nothing done in the air can contribute to flight path
- Coach the Ground
- Fix Approach and Take off FIRST
TEACHING PROGRESSION

 Skipping for height
 Continuous take offs
   Run-Run-Jump
   Hurdle Take Offs
 Standing Long Jumps, 2 and 3 Jump Landings
 Short Run Jumps start short, 2 steps, 4 steps, 6 Steps etc...
   Box/Ramp Take Offs
SKIPPING FOR HEIGHT
CONTINUOUS TAKE OFFS 2 WAYS
RUN RUN JUMP
Hurdle Take Offs
Stride length (m)
Biomechanical Analysis of the Long Jump Men Final
12th IAAF World Championships in Athletics - Berlin 22. August 2009

<table>
<thead>
<tr>
<th>Name / Attempt</th>
<th>Distance [m]</th>
<th>Stride length [m]</th>
<th>Velocity [m/s]</th>
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### Take-off

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<th>Trunk rotation [°]</th>
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QUESTIONS??

- Nic Petersen
- Email: NICP@GATORS.UFL.EDU