Training the Multiple Event Track & Field Athlete
(Combination Jumper)
Thoughts & Considerations
Jim VanHootegem
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Combinations

- Jumper/ Short Sprints/ 4x100 Relay
- Jumper/ 4x400 Relay
- Jumper/ 100/110 Hurdles
- Sprinter/ Horizontal Jumper
- Long Jump/ Triple Jump
- Long Jump/ Triple Jump/ High Jump
Philosophy
Product of Coaches Education (now Academy)

- Prioritization of Neuromuscular Development
- Integration of Technical Training & Biomotor Training
- Commonalities
Prioritization of Neuromuscular Development

- Nervous system recruitment of muscle tissue to produce force.
- More efficient this operates, then the more efficient display of speed, power and coordination.
- Biggest Factor in performance.
- ~2/3 of training program themed toward this, but don’t forget ~1/3 of training program is dedicated to systems that balance and compliment N/M.
Integration of Technical Teaching & Biomotor Development

• Technical teaching throughout your program (warmups, multi-jumps, weights, etc) aid event specific

• Technical errors throughout your program will negatively affect event specific
Commonalities

• Teach things that events have in common
• Take those skills/features & apply as it relates to specific event
Main thoughts

• Lots of opportunity to address major themes
  • Posture
  • Ammortization
  • Vertical force production
  • Etc.
• How do we take complicated movements and make it simpler to teach
• How can we put body in position to be more efficient in producing positive reflexive movements
• Vince Anderson system
Technical Commonalities (overview)

- GENERAL
  - Cause & Effect
  - Spatial
  - Air Technique
  - “Own Lane”

- SPECIFIC
  - Acceleration
  - Top End Sprinting
  - Sprint Maintenance
  - Jump Mechanics
Cause & Effect

- Mistakes are more often than not effects of an earlier cause.
- Athlete enters a whole new world of correcting/enhancing technique when “backtracking” occurs.
- Examples:
  - Hurdle Trail Leg >>>>>> quality of takeoff
  - “Drive” Leg in LJ/HJ>>>>quality of penultimate step
Spatial

Common things exist here

Example:

High Jump/ Hurdles
“Own Lane”

• Common mistake in sprint/hurdle races to overreact to competitors
• “Run your own race”
• Perhaps enhanced by being a field eventer

Examples:
• Liu Xiang
• Carl Lewis
Air Technique

- Another place where themes can be in common
- Quality of what done on ground
- In the air, athlete should not be overactive, but rather “let things work”

Examples:
- Lead Leg in Hurdle
- Hop Phase of Triple Jump
Commonalities of Acceleration

- Elastic Energy Generation
  - Open run
  - Bounce
  - Relaxation
- Momentum Development
  - Not race to 1st Hurdle or race to 30m, but who has momentum at that point
  - Horizontal jumps extend beyond the board
  - Greatly affect later parts of race in sprints
- Unique Rate of Frequency with EEG & MD in mind
- Ground time/flight time ratio changes
- Postural Stability & Alignment
Acceleration (cont)

Event Specific Distribution

- HJ- 3-4  upright before turn
- Hurdles- +/-4  “dial-in” takeoff distance
- LJ/TJ- ~6  visual tracking/ body position
- 100 ~60 m  least amount of slowing
Commonalities of Top End Speed
Maximal/Optimal

• Qualities of acceleration conserved
• Greater VERTICAL pushing
• Flight time/ground time at ~1.6/1.0
Commonalities of Speed Maintenance/Endurance

- Higher the level, then the smaller the portion of race
- Energy system factors at play, but greater concern are factors in acceleration
  - Momentum Development
  - Posture
  - Elastic Energy
Commonalities of Jumping (overview)

- Approach Management
- Preparation of Takeoff
- Takeoff
- Flight
- Landing/Clearance
Approach Management

- Steering
- Displacement
- Body Positions
Preparation

- Pretension
- Contact
- Lowering
  - When
  - Amortization
  - Horizontal Movement
Takeoff

- Same as preparation
- Complete Firing/Extension
- Swinging Segments
- Blocking
Flight

- Predetermined Path
- Can only position body for landing/clearance
Landing/ Clearance

- LJ/TJ- Feet to land in front of C.of.M
- HJ/PV- Peak of flight over/slightly in front of crossbar
TRAINING (overview)

- Running
- Plyometrics
- Endocrine
- Fascia
- General PPR/Coordination
Run Training (overview)

- 3 Sprint Zones
  - 0-40m
  - 40-70m
  - 70-120m (up to 150-200)
- Lactate
- Approaches
## Sprint Zones

<table>
<thead>
<tr>
<th>Distance</th>
<th>Week 1</th>
<th>Focus Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-40m</td>
<td>1-on</td>
<td>High intensity, Steady diet</td>
</tr>
<tr>
<td>40-70m</td>
<td>1-?</td>
<td>Positions/Mechanics, Max Velocity</td>
</tr>
<tr>
<td>70-120m</td>
<td>1-?</td>
<td>Tempo, Quality of Speed, Endurance</td>
</tr>
</tbody>
</table>
Lactate

- Remember priority is N/M
- Lactate disrupts N/M so placement is key
- Factor in 400, but how much?
  - Momentum
  - EE
  - Posture
  - Christine Ohuruogu
- Think? Training for 400 (~3) or 4x400 (~1)
- More Elite- less true 400/jump combo
- Consider?
  - Accumulation of Training
  - Lactate Values (mml)
    - Acceleration Ladders
    - Olympic Lifting
Consideration for Endurance Training

• Case for Split Runs, Up-Backs, etc
• Quality of Work
  • keep total volume (meters), but shorten distances, add rest
  • Unique Skill of Acceleration- Takes time/Need reps
Up-Backs

• ~1200 m-
  • 2x600
  • 4x300
  • 6x200
  • 8x150
  • 10x120
  • 6x {2x100}
  • 10x {2x60}
  • 8x {3x50}
  • 7x {4x60}

• ~900 m-
  • 3x300
  • 2 x {4x80}
  • 3 x {3x100}
Split Runs

• ~600-700 m
  • 2x250
  • 2x 350
  • 2x {150,80}
  • 2x {200,120}
Approaches

• Hybrid of Acceleration/Top End
• Sprinter/Jumper v High Jumper
Plyometrics (Multi-Jump)

- Jumpers do plyometrics
  - Relates to events especially triple jump

- Sprinting is also plyometric
  - Isometric
  - Eccentric
  - Concentric
Teaching Concepts for Plyometrics

APPLIES to JUMPING & SPRINTING

• Learn to push (not pull)
• Learn proper strike patterns
• Learn contact patterns - dorsiflexion
• Learn ammortization/yield/give
• Learn vertical force > flight
• Learn to relax during recovery
“Flow State Timing” (D. Pfaff)

- Symmetry b/w Front Side/Backside
- Speed gains when this occurs
- Must have necessary flight to occur
- Less Elite Sprinters- on ground longer/less flight
- More Elite Sprinters- on ground less/more flight
- ~1.6/1.0 ratio
- Pushing too long horizontally- common problem for young sprinters (TX Relays)
- Also, overcueing front side can create striking problems
“Quiet Time”

- Big Jumps Cue- “Slow the foot down before contact”
- Also heard referred to as “Quiet Time”
- Time b/w Pretension & Active Firing
- Lauryn Williams (STJ, not 600)
- A&M Sprinters
- Testing for Sprinters, Hurdlers & Jumpers
Endurance Component

- Extended Bounding
- Link b/w Speed/Power Training & Speed Endurance
- Simple MJ exercises over longer distances
  - Example:
    - Skips (Ht), Straight Leg Bounds, etc. x 50 m
- Also, posture maintenance
Note:

• Lots & lots of below knee parallel bounding
• Working on:
  • Pushing
  • Striking Angles
  • Pretension
  • Give
  • Flight
  • Relaxation in Air
Other Training Considerations

- Endocrine System
  - Strength Development
  - Recovery
  - Metabolic Affect
- Fascia
  - Effect on ROM > Posture
- General Coordination/PPR
  - Balance Specific w/ General
  - Hurdle Mobility, Sprint Drills, Hurdle Drills, etc.
  - Therapy Exercises
Sample Training Template

- **Monday**  Acceleration/ Multi-Jump
- **Tuesday**  Technique (Low N/M)
- **Wednesday**  Approach/Speed/Speed Endurance/ Multi-Jump
- **Thursday**  Technique (Low N/M)
- **Friday**  Acceleration or Speed/ MJ
- **Saturday**  Endurance or Competition
- **Sunday**  Off
Monday

- Theme- Longer GC- More Horizontal
- 10-40 Meters
  - 2 pt or 3 pt Starts/ Static or Rollover
  - Block Starts
  - Starts over Hurdles (1-4H)
- Multi-Jump
  - 1-5 Jumps into Sand (SLJ, 3DLB, STJ, DD, 5J)
  - Hurdle Hops over High Hurdles
Tuesday

- Sprint/Hurdle Technique
  - Lower Intensity
  - Mimic Features of Event
- Long Jump/High Jump Technique
  - Short Approach Runs
  - HJ may be full due to lower speed
  - Note: Common Features
Wednesday

- Theme: Short GC- More Vertical
- Exercise which mimics Top End Speed
- Top End Speed
- Speed Endurance
- Approach
- Approach + Speed Endurance
- Multi-Jump
  - Rudimentary Bounding
  - Traditional Bounding
  - Hurdle Hops over Low Hurdles
Thursday

- Sprint/Hurdle Technique
  - Lower Intensity
  - Mimic Features of Event
- Long Jump/High Jump/Triple Jump Technique
  - Note: TJ preference
    - Displacement
    - Synthesis
    - + Last Day Event
Friday

- Acceleration or Top End Speed
- Corresponding MJ
Saturday

- Tempo Runs
- Speed Endurance
- Competition
## Sample - Early Fall

<table>
<thead>
<tr>
<th>Day</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Acc - Rollover Starts&lt;br&gt;MJ into Sand</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Takeoff Series</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Sprint Drills&lt;br&gt;Rudimentary Bounds</td>
</tr>
<tr>
<td>Thursday</td>
<td>General Coordination</td>
</tr>
<tr>
<td>Friday</td>
<td>Acc - Resisted&lt;br&gt;MJ Circuit</td>
</tr>
<tr>
<td>Saturday</td>
<td>Tempo Runs</td>
</tr>
<tr>
<td>Day</td>
<td>Activities</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Monday</td>
<td>Acc- Blocks Starts (over Hurdles)</td>
</tr>
<tr>
<td></td>
<td>MJ into Sand</td>
</tr>
<tr>
<td>Tuesday</td>
<td>HJ/LJ or Sprint/Hurdle Drills</td>
</tr>
<tr>
<td>Wednesday</td>
<td>LJ/TJ Approach</td>
</tr>
<tr>
<td></td>
<td>Extended Bounds</td>
</tr>
<tr>
<td>Thursday</td>
<td>TJ or Sprint/Hurdle Drills</td>
</tr>
<tr>
<td>Friday</td>
<td>Speed Development</td>
</tr>
<tr>
<td></td>
<td>Depth Jumps</td>
</tr>
<tr>
<td>Saturday</td>
<td>Tempo Runs (more intensive)</td>
</tr>
</tbody>
</table>
Sample- Season

Monday-  Acc
          MJ
Tuesday-  HJ/LJ or Sprint/Hurdle Drills
Wednesday- Approach
           Speed Endurance
           MJ
Thursday- TJ or Sprint/Hurdle Drills or Gen C/PPR
Friday-    Acc/MJ
           Note: Experiment (Pocket)
Saturday- Competition
           Note: May be what you didn’t do during week
Relays

• 4x100 Exchange
  • Intense or Light
  • Which Speed Zone?
• Jumper/ 4x400
  • Note: Level of Athlete
  • Prove self?
  • Meet considerations
Other Combos

- 100/110/400 Hurdles
- Jumper/ Javelin
Questions?

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