

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

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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 $\sim 1.6/1.0$



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

0-40m

Week 1-on

High intensity

Steady diet

40-70m

Week 1-?

Positions/Mechanics

40m+-

Max Velocity

70-120m

Week 1-?

Tempo

Quality of Speed

Endurance



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
 - 3 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, overcuing 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

- Monday- Acc- Rollover Starts
MJ into Sand
- Tuesday- Takeoff Series
- Wednesday- Sprint Drills
Rudimentary Bounds
- Thursday- General Coordination
- Friday- Acc- Resisted
MJ Circuit
- Saturday- Tempo Runs



Sample Late Fall

Monday-	Acc- Blocks Starts (over Hurdles) MJ into Sand
Tuesday-	HJ/LJ or Sprint/Hurdle Drills
Wednesday-	LJ/TJ Approach Extended Bounds
Thursday-	TJ or Sprint/Hurdle Drills
Friday-	Speed Development Depth Jumps
Saturday-	Tempo Runs (more intensive)



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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