

Developing Field Event Athletes Sag 2008

- 1) Values
- 2) Progressions
- 3) Using Warm Ups for Skill Development, Core Activation and General Fitness
- 4) Progressions for Skill
- 5) Mechanics
- 6) Progressions of Physical (Biomotor) Abilities – Speed, Endurance, Strength, Power, Strength Endurance, Speed Endurance, Flexibility and Mobility
- 7) Exercises to Build Routines (Complexes)
- 8) Complexes to Build Workouts
- 9) Workouts to Build Weeks (Cycle)
- 10) Cycles to Build Seasonal Training Plans (YTP)

1) Values

Pedagogical Principles of Track and Field Training
(G. Schmolinsky) Track and Field, Sportverlag, Berlin)

The Principle of Health - The goal of training is to produce healthier individuals. All workloads and activities should be chosen with this in mind.

The Principle of Versatility - General versatility lays the groundwork in young athletes for later specialization as an adult. It can be considered as both versatility in several sport areas and also versatility within one sport. Early specialization may lead to good results at an early age, but often do not improve their performances as expected when they become an adult.

The Principle of Utility - Activities should be chosen in order to achieve objectives (long and short term). (Usefulness) - Set objectives and activities that can be evaluated for effectiveness.

The Principle of Conscious Involvement - The education of the athlete in the spirit of conscious discipline, active collaboration, self-reliance, and independent behaviour. " "In the beginning, the coach is the match, in the end, the mirror that reflects the flame." (Frank Dick)(Lecture)

The Principle of Repetition - Through a gradually increasing number of repetitions, movements become automatic. At the same time strength, speed and endurance are improved through a fixed number of repetitions. This governs the training load which cannot be increased arbitrarily, but must consider the frequency of training sessions and the load of training sessions.

After a certain plateau of fitness and technique further improvement is only possible through more repetitions (volume stimulus) or greater intensity (intensity stimulus) or by shorter recovery between repetitions (density).

The Principle of Systematization - Performance targets set can only be reached by adhering to a system. (Periodization)

The Principle of Durability - The stability of acquired skills, conditioning and coordination is ensured through frequent repetition over a long period of time. This consistency allows athlete who interrupt their training to recover their form and improve more rapidly.

The Principle of Gradualness "The total load is increased little by little."

Move from: 1. Simple to complicated 2. Easy to difficult 3. From known to unknown.

The Principle of Age-Dependence - Different training and methods for children than those for adults. Take into consideration the anatomical, physiological and psychological differences at various stages.

Theory of Limited Adaptive Capacity

- Adaptive capacity is limited.
- It varies from individual to individual, increases with maturity, it increases with training.
- It allows us to meet the demands of daily life and adapt to new and unusual strains.
- There is a stimulus threshold which elicits an optimal adaptation.
- Adaptation takes place in the rest phase between bouts or sessions or days of training.
- With adaptation, further adaptation is only possible with increases stimulus.
- "Small Tack, small hammer. Large spike, large hammer."
- We must choose the direction of adaptation. With a limited adaptive capacity, we can only adapt one biomotor ability at a time. (Endurance, Strength, Speed)
- Previous adaptation can be maintained with moderate effort that does not interfere with adaptation in a new direction (Periodization).

Track and Field Rules – Underlying Principles

- C** – Consistency – The sport is the same everywhere.
- O** – Objective – The athlete determines the outcome. There is as little subjective judgement as possible.
- F** – Fairness – The same rules apply fairly to all participants.
- S** - Safety

Basic Track and Field Concepts

- "One kid, one ball" – maximize student learning. (Also one athlete, four discus)
- "Make the hurdle fit the kid, not the kid fit the hurdle." – Adapt equipment, adapt rules, adapt activities.
- Build things one concept (skill) at a time.
- Let students assist in the set-up, take-down. Help make them independent. A diagram or map may make this possible.
- Self-directed practice – Often at beginning of class during set-up. Student work on one skill from choices. (Once athletes understand basic concepts)
- Designated routines and places to assemble.
- Avoid elimination, make it rotation.

- Where teacher and learner agree on outcome, direct teaching is most effective.
- Where teacher and learner do not agree on goals, indirect teaching is most effective.

How skills are learned and mastered. (Suzuki's model)

1. Exposure
2. Interest
3. Experimentation
4. Discovery
5. Reinforcement
6. Refinement
7. Addition

“You can't teach anybody anything, you can only help them to discover it for themselves.” - Galileo

- 2) Progressions – The most important thing is the most important thing.

Dynamic Warm Up for Hurdle Skills

Jog until sweating

Plow position - Giant leg split swings front and back

- Walk toes side to side on floor
- Side scissors (split and then cross leg the split and reverse crossover)

Hurdle Leg Switch – In hurdle stretch position, lean forward and stretch hamstring, then lean head to trail

Leg - Then roll over lead leg to stomach and sit into reversed hurdle position stretch other

way then increasingly fast reverses.

Front lying cross overs – single leg – stretch and hold then other leg then faster

- then double leg crossovers

Back lying crossovers

Sitting in Hurdle Stretch switch to Both Legs extended and hurdle trail with other foot/
several reverses

Squats to heels

Split Squat - with knee touch bounce alternating legs

Skipping arm Flings – side then in sprint action

Skipping A - 10m into run 30m x 2

Skipping B 10m into run 30m x 2

Running A 10m into run 30m x 2

Running B 10m into run 30m x 2

Clawing Drill 10m into run 30m x 2

Side Step Drill - 2 x Left + 2 X Right + 2 X Centre

Karate Kid Drill

Short Hurdle drills – 8 ' spacing – Skip lead 3 x left and right

- 3 x Trail – left + Right
- 3 X Centre

Low Hurdle Drill with 6 m spacing – quickly x 5

3 x 5 step – over 4 hurdles

General Exercises for Early Season Hurdle Preparation

Warmup – Jog - Stretches – Head to Toe

Emphasize – Hurdle Specific Stretches

Hurdle Side Step – (8 Hurdles Bars 4 to 5' apart) – 3 x left, 3 X Right, Three times continuous trail leg

Leg Swings – Side to side facing wall (12) – Front and Back – side to wall

Wall Drill – Hurdle lead leg – 12 (Left and right)

- Trail Drill Hurdle three feet from wall, (12 X left and right)

Ross Drills

Jog with hands together at belly button height and quickly take-off and touch knee to hands, repeat over 30m

Jog and do above drill over low hurdle that is centred on the white line – 5 stride (land and take 5 steps before taking off at next hurdle. Take all steps on white line

Raise hurdle and repeat with hands still fixed at belly button height, be as quick as possible.

Use hands repeat with normal Hurdle arm action.

Hyperspeed Hurdling – Developing High Speed, by using 5 step Rhythm

Place 1st hurdle on normal spacing but add 8 feet to the next hurdle, 16 to the next, 24 to the third, 32 to fourth. Do hurdle drills at 90% (3 X lead leg, 3 X Trail, 3 X Centre).

Hurdles at full height.

- Repeat in next practice going to 9 steps, 18, 27, 35, etc.

Hurdle Rhythm

Warm-up with drill, etc.

Place hurdles at one notch lower than race height. Leave 1st hurdle at normal spacing, but move 2nd hurdle in 1 foot, 3rd hurdle in 2 feet, etc.

Work - # x 1st hurdle then # x 3 hurdle , 3 X 5 hurdle, 3 X 7 hurdles

Hurdling for Rhythm endurance

Place hurdles at one notch lower than race height. Leave 1st hurdle at normal spacing, but move 2nd hurdle in 1 foot, 3rd hurdle in 2 feet, etc.

After 3 runs over 2 hurdles then # X 10 or 11 hurdles

Sample Workout – Main Content -Hurdlers + **C.E.** – 2 x 4 hurdles Skipping rhythm - left + Right – Lead, Trail and Centre

2 x run – Lead and trail then centre with 5 step rhythm – 4 hurdles at plus 10 feet + 20 + 30

- 3 x 1st hurdle, blocks, + 2 X 2 HURDLES then 1 x 4 x 6 hurd. (low +close 1 to 1/22 X 50m from blocks, 1 x 80 m with two intense pushes then Speed endurance - 1 x 120m with running start only 95%_ note Time 100m segment

5)

Mechanics and Technique Analysis Principles –

1. Use every joint possible
2. Use every joint in sequence – big and slow (central first) then fast peripheral
3. Straight and strong – Move from flexion to extension
4. Direction Principle - If the athlete's path is wrong then they are pushing in the wrong direction.
5. Principle of Equal Falling bodies (Action – Reaction)
6. Principles of Rotation – Centre of mass, Axis of Rotation, Reducing moment of inertia, Secondary Axes of Rotation (Cutting)

Ballistics – Distance an object travels in the air is determined by:

1. Velocity (Speed at release)
2. Angle of Release (Initial trajectory)
3. Height at release

One step back rule – When an error is seen it was begun in the preceding stage.

Observe and film from various angles.

- Side View – Verticality at Take-off, Knee drive and Distance from bar
- 90 degrees - Clearance distance and flight path
- 45 degrees behind – Lean away from bar

Progressions of Physical (Biomotor) Abilities – Speed, Endurance, Strength, Power, Strength Endurance, Speed Endurance, Flexibility and Mobility

Speed (Alactic Energy) – Activities at maximal intensity with low resistance for less than 8 seconds or 60m.

Rules of thumb – Start at 200m and progress to max 600m. Done when fresh with adequate recovery between sets. Often divided into Acceleration development (0-40M) and Flying (or Max or Absolute.) Speed. i.e. run in 30m and flying 30m. Speed play or hollow work – 100 (30m hard -0 flow 15- hard 20 – flow 15 – hard 20)

Recovery – 48 hours – complements skill, power and strength work.

Endurance (Aerobic system and Anaerobic+Aerobic system at high intensities – Activities of varying intensity for a sustained duration i.e. 2 minutes to 30 minutes of heart rate in a high working zone.

Recovery – 12 - 24 hours – moderate and low intensities facilitate recovery from speed, power and strength work. Maximum intensities or great duration may interfere with speed, power and strength work. Greatest gains are at highest intensities after base of moderate and low.

Strength – the maximum force that muscles can exert. Periodizes by type. Types: –

- A) Anatomical Adaptation (Light load + high reps i.e. 3 sets of 12) All ages
- B) Hypertrophy (Moderate to High load i.e. 3 X 8 at 12 rep Max.) Can be circuit body weight, etc.
- C) Maximum Lifting (ONLY DONE WITH MATURE ADULTS WITH BACKGROUND OF LIFTING FOR SEVERAL YEARS) (90 to 100% of Maximum load and 1 to 4 Reps)

D) Power Conversion (Light to moderate load and high speed) (3 sets X 8 Reps) or can be done with Special Strength (Overweight implements) and plyometric loading.

E) Endurance Conversion (Light to moderate loads with little or no rest between exercises + stacking sets.)

Recovery 48 hours – pairs well with speed, power.

Speed Endurance (Anaerobic Lactate Power) - Activities at maximal intensity with low resistance for 10 to 15 seconds or 70m to 150m. Minimum 150m to Maximum total 900m for athletes. Recovery – 48 hours (Once per week)

Special Endurance 1 - Activities at maximal intensity with low resistance for 20 to 45 seconds or 180m to 300m. Recovery – 48 to 72 hours (Once per week – replaces Spec End 2)

Special Endurance 2 - Activities at maximal intensity with low resistance for 45 to 120 seconds or 350 m to 600m. Recovery – 48 to 72 hours. (Once per week – replaces Intensive Tempo Running)

Flexibility and Mobility

Key limiting factors in range of motion. Related to high speed and elastic strength. Heavy stretching is best at the end of workouts or following morning or with tempo days. Heavy stretching just before high quality work or competition may lead to a loss of elastic power of up to 5%.

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Discussion and sharing