Elements of Speed Development

Vern Gambetta
Gambetta Sports Training Systems
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Gambetta Sports Training Systems

Do’s & Don’ts with Particular Emphasis On Coaching The Young and Developing Sprinter
Systems cannot be understood simply by understanding the parts - the interactions among the parts and the consequences of these interactions are equally significant.
Achieving Speed
Achieving Speed
Achieving Speed
Achieving Speed
Achieving Speed

How much can you improve?
Accurate Assessment is the Starting Point
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At the end of the journey all physical limitations are eradicated and the athlete is ready technically, tactically, physically and psychologically to compete to win in the competitive arena.
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**World Class 100m Sprinter**

- Thigh Ext Rotation
- Lateral Bridge
- Double Leg Squat
- SL Squat
- Ankle
- Gluteus
- Thomas1
- Thomas2

Accurate Assessment is the Starting Point
Train Fast to Be Fast!
Train Fast to Be Fast!

Train Speed In
Train Fast to Be Fast!

Train Speed In

Optimum Not Maximum
“Feel your eyelids flop”
“Feel your eyelids flop”
Work Capacity Is NOT a Biomotor Quality
Work Capacity Is NOT a Biomotor Quality
Use The Ground
Use The Ground
Use The Ground
Drill With a Purpose
Drill With a Purpose

Be Precise & Exact
Drill With a Purpose

Be Precise & Exact

Prescriptive To Meet Individual Needs
Drill With a Purpose

Be Precise & Exact

Prescriptive To Meet Individual Needs

Focus on need to do, as opposed to nice to do
Rope Skip Run
Rope Skip Run
Rope Skip Run
"B" Drill
Overhead Stick Run
Fast Leg Drill
Technique
W/O Being Overly Technical
Technique
W/O Being Overly Technical
Technique
Technique

Don’t Clone
Similar Is Not The Same
Similar Is Not The Same

Teach them to RUN
Not to drill!
Technique
Technique

Basic Sprint Mechanics
Technique

Basic Sprint Mechanics

Start
Technique

Basic Sprint Mechanics

Start

Acceleration
Technique

Basic Sprint Mechanics

Start

Acceleration

Turn Technique
  Into Turn
  In the turn
  Off the Turn
Speed - Skill (SSK)

Rope Skip Run
OH Stick Run
Mach Drill Series
  A1, A2, B2, A3
Stair Sprints (Every Stair - 20 Steps)
Fast Leg Combinations
Challenge Workout
  How far in ten strides using drive action
  How far in ten strides pulling sled
  How few strides in 30m using drive action
PAL Paradigm™

POSTURE  ARM ACTION  LEG ACTION
Posture is Dynamic
Arm Action
Arm Action

Direction
Arm Action

Direction

Amplitude
Leg Action
Leg
Action
Win the Race
Win the Race

Not the Start
Race Distribution
# Acceleration Dynamics

<table>
<thead>
<tr>
<th>Dynamic</th>
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<tbody>
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# Acceleration Dynamics

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Absolute Speed
Absolute Speed

Highest level of neuromuscular control “Fast Coordination”
Absolute Speed

Highest level of neuromuscular control “Fast Coordination”

Short ground contact time (Reactive) Strength
Absolute Speed

Highest level of neuromuscular control “Fast Coordination”

Short ground contact time (Reactive) Strength

Highest limb speed
Make the Warm-up Appropriate for the Workouts
Make the Warm-up Appropriate for the Workouts

Reinforce Fundamental Movement Skill
Make the Warm-up Appropriate for the Workouts

Reinforce Fundamental Movement Skill

Remediate
Warm-up & Preparation

1) Mini Band Routine (Band above ankles)
   - Sidestep Walk - Forward/Back Carioca Monster Walk

2) Balance & Stability
   - Single Leg Squat (Hold each position five counts)
     - Straight Ahead Side Rotation

3) Basic Core – Walking Forward & Back (3 Kg Med Ball)
   - Wide Rotation x 20  Tight Rotation x 20  Side to Side x 20
   - Chop to Knee x 20  Figure 8 x 20

4) Lunge & Reach Series (2 reps in each plane – Forward/Side/Rotational)
   - Reach Up Reach Out & Down Reach Across

5) Crawls
   - Jack Knife Crawl x 5  Creepy Crawl x 5

5) Active Stretch (No more than two minutes)
   - Calf Hamstrings Psoas Lats Pecs

6) Coordination (All @ 30 meters x 2)
   - Skip Crossover Skip Side Step Carioca
   - Backward Run High Skip High Skip with Rotation

7) Accelerations
   - 4 - 6 x 40 to 60 meters
Use Resistance & Assistance Appropriately
Use Resistance & Assistance Appropriately

Ratios/Combinations
Use Resistance & Assistance Appropriately

Ratios/Combinations

Resistance:Assistance: Normal
Use Resistance & Assistance Appropriately

Ratios/Combinations

Resistance:Assistance: Normal

Assistance: Resistance:Normal
Resistance
Resistance
Harness
Resistance

Harness

Hills

Sled
Resistance

Harness

Hills

Sled

Sand
Resistance

Harness
Hills
Sled
Sand
Stairs
Parachute
Resistance

Harness

Hills

Sled

Sand

Stairs

Contrast

Parachute
Assistance
Assistance

Pulley
Assistance

Pulley

Downhill
Assistance

Pulley

Downhill

Wind
Assistance

Pulley

Downhill

Wind

Towing
Assistance

Pulley

Downhill

Wind

Towing

Release/Free
Speed - Acceleration (SAc)

Rollover Start - 20m, 30m, 40m, 50m, & 60m
Block start - 20m, 30m, 40m, 50m, 60m
Sled
Harness
Contrast
Sled or Harness & release
Fast Leg Routine
Hills - Short (50 to 75 meters)
Hills - Short/Steep (30 meters) to Flat (30 meters)
Speed - Absolute (SAb)

Flying 10m, 20m, 30m, 40m, 50m, 60m
Towing 20m up to 100m
Towing + Release/Free 30 - 40m
Downhill 30 - 50m
Downhill to Flat 30 - 50m
Sprint-”Float”-Sprint - 20,20,20 or 30,30,30
Speed Endurance (SE) - Short

ASSE (Alactate)
Distance: 30 to 60 meters
Volume: 3 - 5 sets of 4 - 5 runs
Recovery: 45 to 90 sec between runs & 3 - 5 minutes between sets
Intensity: 90% to 95% effort sprints
Speed Endurance (SE) - Short

GSSE (Glycolitic)
Distance: 40 to 80 meters
Volume: 3 - 5 sets of 5 runs
Recovery: 30 to 60 sec between runs & 3 minutes between sets
Intensity: 90% to 95% effort sprints
Speed Endurance (SE) - Long

Distance: 100 to 350 meters
Volume: 3 - 5 runs
Recovery: 2 to 3 minutes between sets
Intensity: 95% - 100% effort

6 x 150m
3 x 200 m Cutdowns
200,250m, 200
2 x 200m with 30 sec rest
3 x 300m
Ladders - Up or Down
150m, 300m, 200m
Broken Sprints
Maximum distance runs 20 - 40 sec

Water
Special Endurance - SpEnd
(Race Hardening)

Distance: 150 to 500 meters
Volume: 2 - 3 Runs
Recovery: Full
Intensity: 100% effort runs
Intensive Tempo Endurance - ITE
(Mixed aerobic and anaerobic work)

Distance: 110 to 400 meters
Volume: 6 to 12 runs or 2 - 3 sets of 6
Recovery: 1 to 5 minutes between runs or HR to 120 - 130 bpm
Intensity: 80% to 90% effort runs

Hills
   Repeats
   Continuous
   Combo - Hills & Flat

Sets
**Water**
Extensive Tempo Endurance - ETE
(Aerobic work)

Distance: 80 to 400 meters or continuous runs up to 20 minutes
Volume: 8 to 24 runs total or 2 - 3 sets of 6 to 8 reps
Recovery: 30 sec to 3 min between runs
Intensity: 60% to 80% effort runs

Aerobic Capacity [AC] > 200m
Aerobic energy system <80% of predicted performance
45 sec or less between reps and 2 minutes or less between sets
Diagonals - Continuous for 6-8 minutes
30/30’s
90 sec + 10 second fast
Water

Aerobic Power [AP] > 100m
Aerobic energy system 70-79% of predicted performance. 30-90 sec rest between reps and 2-3 minutes rest between sets.
6 x 100m with 30 sec recovery (2-3 sets)
Diagonals- sets of 6-8 reps (2-3 sets)
200m x 6 on a 2 minute cycle
Water
Strength Training

Coordination training with appropriate resistance to handle bodyweight, project an implement, resist gravity and optimize ground reaction forces.
Bodyweight Before External Resistance
Bodyweight Before
External Resistance
In a Career
In a Year
Training Components

Strength Training - Phases
  Foundational
  Basic Strength
  Power Endurance
  Max Strength
Training Components

Strength Training
Training Components

Strength Training

Total Body
- DB High Pull
- DB Snatch
- Jump Shrug (Db)
- Dumbbell Complex
Training Components

Strength Training

Total Body
- DB High Pull
- DB Snatch
- Jump Shrug (Db)
- Dumbbell Complex

Lower Body
- SLS
- BW Squat
- Lunge
- Step-up
  - Mini Leg Circuit
  - ½ Leg Circuit
  - Full Leg Circuit
Training Components

Strength Training

Upper Body
- Push-ups
- Pull-ups
- Pullovers
- Rows
- Front Pulldowns
High Step-up
Mini Leg Circuit I

Squat x 3
Lunge x 3 each
Leg
Step-up x 3 each
Leg
Jump Squat
I/2 Leg Circuit

Squat x 10
Lunge x 5 each Leg
Step-up x 5 each Leg
Jump Squat x 5
Leg Circuit

Squat x 20
Lunge x 10 each Leg
Step-up x 10 each Leg
Jump Squat x 10
Dumbbell Complex
High Pull x 6
Alt Press x 6 each
Squat x 6
Row x 6 each arm
Training

Components

Power
Training Components

Power

Jumps
  Stiffness Jumps
  Hurdle Jumps
  Hops
  Bounds
Training Components

Power

Jumps
- Stiffness Jumps
- Hurdle Jumps
- Hops
- Bounds

Throws
- OHB
- FTL
- Squat Throw
- Wall Series
Training Components

Flexibility
Dynamic
Static
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