



# SPEED TRAINING

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# SPEED

Reaction time- relatively untrainable (can improve focus and movement patterns)

Running is ballistic in nature (bouncing)

Running is single leg support alternating with a flight phase.

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# SPEED TRAINING - ACCELERATION/SPEED DEVELOPMENT

RUNNING SPEED IS A FUNCTION OF STRIDE FREQUENCY AND STRIDE LENGTH. (EFFECTIVE STRIDE LENGTH IS PROJECTION OF CENTER OF GRAVITY RATHER THAN FOOT TO FOOT TOUCHDOWN DISTANCE.)

ELITE SPRINTERS HAVE GREATER STRIDE LENGTH AND CAN MAINTAIN IT TO 45 M. (NOVICES TO 25 M.)

ELITE SPRINTERS HAVE GREATER STRIDE FREQUENCY AND CAN INCREASE IT UP TO 25M. (NOVICES AT 10-15M.)

ELITE SPRINTERS PRODUCE GREATER INITIAL FORCE AND VELOCITIES, GREATER RATES OF ACCELERATION AND REACH TOP SPEED AT ABOUT 45-55 M. (NOVICES – AT 20-30 M.)

## **Acceleration training -**

Intensity - 95-100%

Distance of run – 20-60 meters (people are less likely to pull hamstrings under 30 Meters)

Number of reps – 3-4

Number of sets – 3-4

Total distance 400-600 meters

Rest – 2-4 minutes

## ACCELERATION- SAMPLE WORKOUTS COMPONENTS

Sprint – float – sprint (sprint hard on the first segment- relax arm drive on second segment – sprint on last segment)

20-20-20 Meters

30-30-30

40-40-40

50-50-50

20, 30 40, 50, 60 M. sprints

# SPEED TRAINING — SPEED ENDURANCE

Intensity - 92-100%

Distance of run — 80-150 meters

Number of reps — 2-5

Number of sets — 2-3

Total distance 300-2250 meters

Rest — 2-5 minutes

Sample workout — 3x100, (5 min. rest) 3x120, (5 min. rest) 3x150

# SPEED TRAINING-SPECIAL ENDURANCE I (LACTATE)

(REPEATING MAXIMAL OR NEAR MAXIMAL EFFORTS)

Intensity - 90-100%

Distance of run – 150-300 meters

Number of reps – 1-5

Number of sets – 1

Total distance 300-1500 meters

Rest 10-20 minutes

Sample workout - 300 all out, after 1 min. do 100 all out. Rest 10-15 minutes  
repeat one or two more times

# SPEED TRAINING-SPECIAL ENDURANCE II — (LACTATE)

Intensity - 90-100%

Distance of run — 300 - 600 meters

Number of reps — 1-4

Number of sets — 1

Total distance 300-2400 meters

Rest 20-30 minutes

Sample workout — 400 or 500 or 600, all-out or nearly all out, rest 20 and repeat

# CONCEPTS FOR TEACHING ACCELERATION & SPEED

Strong Core - Body (pick up by neck) - Can't push a rope, when the waste collapse you lose some of the force that was put into the ground

Legs are more like springs

We don't paw or pull the ground- think "stair machine" we push or drive the foot into the ground

Push a car?

Keep ankle, hips, shoulder, and head in a straight line

Can't collapse at waist

Triple extension- ankle – knee- hip (engine is the hips)

Heal up – knee up- toe up (heel under tail)

Vigorous arm swing/drive



# LEARN BY DOING DRILLS

“Run into wall” (push wall) “wall sprints”

Wall Drive- start low, step up (lean into wall)

Wall Lean- hold each leg at 45, then switch and increase speed then do 3,4,5,6 times fast (use good heel up knee up toe up, return foot to starting point)

Stairs// hill runs

Push your partner- stand straight up and push your partner then lean into them and push

Back Side Mechanics- over active (hold partners shoulders and “kick” then hold partners shoulders and drive

Hips tilted forward- lift knee (wrong posture)

Hips neutral- lift knee (correct position)

Acceleration Position- shoulders below hips, feet separated by about 12-14 inches

Tip – toe (how fast do you move) not applying enough force into ground

Step up onto plyo- box to show and/feel force it takes to move

# DRILLS - SPRINT MECHANICS

Heel up, knee up, toe up

Rhythm- forward & side

Fast leg

Quick feet

# IMPROVING SPEED

## Acceleration-

- Lean forward
- Push- push
- Drive knees up

## Posture- (strong but relaxed)

- Stand tall
- Chest out
- Chin up
- On balls of feet

## Arms-

Vigorous arm swing

Arms mimic opposite leg action

## Legs-

- Heel up under butt
- Knee up at 90%
- Toe up