

## SPEED DEVELOPMENT

A complete picture by Barry Sartz, head track and field coach at Newport High School, Newport Washington.

### OBJECTIVES:

- To share and “paint” a perfect picture to improve speed.
- To show our training environment, working terminology and what works for us.
- To define our plan to prevent injuries, enhance performance and minimize errors.
- To illustrate specific strength patterns to develop BIG FORCE into the ground in a SHORT TIME to enhance SPEED.

How do we improve speed in any race????

### MISSION STATEMENT:

With correct training and education reduce the time spent on the ground or in the air per stride by .01 of a second!

Elite sprinter ground time = .09 Sec. (while running)

$$\frac{\text{air time} = .11 \text{ Sec.}}{.20 \text{ Sec.}}$$

Total strides in 100m race = 50

Total improvement in 100m = .50 Sec.

GOAL #1 TO DESIGN TRAINING routines that address neuromotor patterns for the neuromuscular enhancement of speed and rhythm.

### SPRINTING SKILLS...NEUROMUSCULAR SKILLS!

- Rehearse basic and advanced models for speed and correctly rewire or remodel neuromuscular skills through warm-up patterns.
- Practice is flawed, performance is flawed
- Practice also makes permanent.
- Any change in velocity/rhythm is a change in technique.
- NEED TO PAINT A PICTURE THAT THE BRAIN WILL SEE.

GOAL #2 TO PROVIDE QUALITY FEEDBACK... WHAT DO YOU SEE???

- What recipe works best to develop proper speed technique?
- How do you minimize errors?
- What are the correct teaching cues to enhance speed technique?

GOAL #3 TO DEVELOP STRENGTH FOR BIG FORCES

- One must develop sufficient leg strength to generate necessary velocity changes during shortened ground time.
- You must produce a big force in a short time = impulse!

#### Specific circuit training

- Body circuits
- Flexibility
- Pool Training

#### Specific weight training

- General Strength
- Specific Conditioning
- Maximum Strength
- Plyometrics

### GOAL #4 TO ENHANCE SPEED THRU PROPER PERIODIZATION

- Training must occur at 95% or higher of maximum velocity...or below 70% intensity
- Train and rehearse a perfect race model= workouts=RACING ON AUTO PILOT.

### GOAL #5 TO ENHANCE SPEED USING CONTRAST TRAINING

- RESISTANCE- up hill running weighted sleds.
- ASSISTANCE- down hill running, overspeed cables, bungee cords.

### GOAL #6 TO ENHANCE RECOVERY AND REGENERATION

- TIME- 24-36 hours between sprint workouts. (rest)
- ICE- ice baths (vaso-constrictor) pushes blood away from stressed area. Helps rejuvenate tissue.
- LOW IMPACT ACTIVITIES- pool workouts, grass running-low intensity drills- technique builders-relaxation drills.
- REST- active and passive.

## **SPRINTING TECHNIQUE**

**SPRINTING-** Stride length and stride frequency determine maximum speed.

### POSTURE

- Run tall, head level. Power angle.
- Shoulders down (not hunched).

- Relax the jaw, cue: LET THE JAW BOUNCE.

#### ARMS

- X - factor
- Hands open.
- Elbow “L” 90 degrees. SHORT LEVER IS A FAST LEVER.
- Hands moving forwards and backwards only (not across the body) finger tips at top of shoulder and back of hip.
- Pin in the shoulder.
- Cue: INITIATE LEG MOVEMENTS WITH THE HANDS. RUN LINEAR.

#### LEGS

- High knee lift through full range of motion. (STEP OVER THE PIN)
- Tight and active heel recovery following push off.
- Foot plants under center of mass.
- Active plant with lower leg. Downward and backward. (big force short time)
- Leg action under the body, NO emphasis on reaching for greater stride length.
- Cue: TOE UP, HEEL UP, KNEE UP. TWO LEVER WHEELS MATCH UP

### ENERGY SYSTEMS

#### IS AIR, IN THE FORM OF OXYGEN REQUIRED

- Aerobic if it is.
- Anaerobic if it is not.

#### IS LACTIC ACID PRODUCED

- If it is, the system is lactic.
- If it is not and no air is required, the system is alactic.

#### ANAEROBIC ALACTIC SYSTEM

- The stored start up system which does not require oxygen and does not produce lactic acid. (6-8 sec.)

#### ANAEROBIC LACTIC SYSTEM

- The system which does not require oxygen but produces lactic acid. (8-60 sec.)

#### AEROBIC SYSTEM

- The muscle energy system requires oxygen. (distance)

Two important work times that mark a shift in emphasis from one of the three energy systems to another.

- 6 Seconds After 6 seconds of intense muscular activity the energy system providing the majority of energy shifts from anaerobic alactic to anaerobic lactic.

- 60 Seconds After about one minute of intense activity the shift is away from anaerobic system to the aerobic system.

**NEWPORT PHILOSOPHY: EVERY TIME YOU STEP ON THE TRACK AND YOU DO NOT RUN FULL SPEED, YOU ARE A DISTANCE RUNNER.**

**PLANNING A TRAINING SESSION**

- We have only 12 weeks (I start at the state meet and work backwards)
- Set goals and objectives (how this practice fits into the big picture of the micro cycle)
- Set specific goals and objectives (which skills, energy systems will be developed)
- Keep all active
- Give clear instructions and goals
- Record progress
- Watch pro videos, tape your kids
- Give positive feedback (reward often)
- Encourage enjoyment (would not design a workout I would not do)
- Use maximum resources (weight room, pool, ice, gymnastic room, hills)
- Allow for individual differences (different learning rates, coach to their strengths, I decide when to finish the workout)
- If practice is flawed- your performance will be flawed
- Cool down, stretch

**MICROCYCLE #1 (WEEK 1)**

**Monday**

Warm-up

Speed drills

Reps. Dist. Intensity Rest Rep. Dist. Rest Rest Dist. Rest  
 5X [ 50y @ 75%] [35''R] [ 3 X 30y ] [20''R ] [35''R ] [ 50y ] [3'R ]

>50y\_\_\_\_\_35''R  
 20''R\_\_\_\_\_<30y  
 30y>\_\_\_\_\_20''R  
 35''R\_\_\_\_\_<30y  
 >50y\_\_\_\_\_3'R

Cool down  
 Stretch/guts

**Tuesday**

Warm-up

Speed drills  
8X [50y @ 75% Build- up] [Walk back-R]  
Event work  
Cool down  
Stretch

**Wednesday**

Warm-up  
8X [50y @ 75% Up hill] [Walk back-R]  
Event work  
Cool down  
Stretch

**Thursday**

Warm-up  
Circuit training (weight room)

**Friday**

Warm-up  
Speed drills  
Same as Monday 5X [50 @ 75%] [35''R] [3 X 30] [20''R] [35''R] [3'R]  
Stretch

**WEEK #2**

5X [60 @85%] [40''R] [3X30] [25''R] [40''R] [3'R]  
In-outs (75%-85%)  
8X [60y @ 85% Up hill] [Walk back-R]  
Circuit training

**WEEK #3**

70/40 @95%

**WEEK #4**

80/50 @95%

**WEEK #5**

**60/30 @85%**

**WEEK #6**

70/40 @95%

**WEEK #8**

90/50 @95%

**WEEK #9**

80/50 @95%

**WEEK #10**

70/40 @95%

**WEEK #11**

60/30 @95%

**WEEK #7**

80/50 @95%

Down hill

Barry Sartz

Newport HS

sartz@newport.wednet.edu

**WEEK #12**

50/30 @95%