Keys to Developing the Combo
400/800m Runner

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BE BILINGUAL (tri-lingual)

• Speak “sprint coach”

• Speak “distance coach”

• Speak in a creative mixed dialect
My Mentors

• Speed- Loren Seagrave “Speed Dynamics”
  – Neuromuscular coordination and power development are key
  – Maximum Velocity development

• Endurance- Tom Schwartz
  – Moderation and Consistency are key
  – Critical Velocity development (CV)
  – www.therunzone.com
  – www.runningprs.com
400/800m runner characteristics

• **FAST & ATHLETIC**
  – 4 x 4 fast, but perhaps not 4 x 1 fast?
  – Excel in tempo/special endurance workouts with sprinters; especially at the end of longer reps or sessions

• May not enjoy:
  – Distance runs
  – Longer reps, such as 1ks or mile reps
  – Jog-recoveries, which is the common practice of distance runners.

• May not understand:
  – Pace/effort control well
Aerobic/Aerobic Contributions

• 400m
  – Male- 41% aerobic; 59% anaerobic
  – Female- 45% aerobic; 55% anaerobic

• 800m
  – Male- 60% aerobic; 40% anaerobic
  – Female- 70% aerobic; 30% anaerobic

• Univ. of Western Australia, 2005.
ENERGY SYSTEM CONTINUUM
% of VO2 Max Pace

- **Anaerobic Alactic**
- 90-100% of best effort

- **Speed Endurance**
  - SE I
  - SE II

- **Intensive Tempo**
  - 80-90% of best effort

- **Extensive Tempo**
  - 70-80% of best effort

- **Anaerobic Glycolytic**
- **Aerobic Power**
- **Continuous Running**

- **Lactate Threshold**
  - 20-40’

- **Aerobic Threshold**
  - 40 to 90’
  - Up to 2hr

- **Marathon**
  - 85, 80, 75, 70, 65%

- **Half Marathon**
  - 85, 80, 75, 70, 65%

- **VO2 MAX**
  - 100%, 98%, 95%, 90%

- **Combined Zone**
  - 12%, 88%, 10%

- **Continuous Running**
  - Up to 2hr

- **Anaerobic**
  - 34%, 66%, 84%

- **Aerobic**
  - 65%
Pace Continuum

1. EZ Runs
2. Tempo Paces (Sub-LT to LT)
   - Continuous (Sub-LT)
   - Reps (LT)
3. 10k pace reps - CV
4. 5k pace Reps
5. 3200/3k pace Reps - VO2
6. 1600/1500/mile pace
7. 800 pace
8. 400m pace
9. 200m pace
10. Acceleration & Maximum Velocity

Date Pace vs. Goal Pace
Pace Continuum

(EZ runs)
- LT Tempo runs/reps
- 10k pace LT Reps
- MVO2 3k/5k pace XT reps
- 1500m pace IT pace reps
- 800 pace reps IT pace reps

General
- ACC/Max V
- 100 pace reps ASSE

Specific
- 200 pace reps Spd End & GSSE
- 100 pace reps ASSE
- 200 pace reps SpecE1 SpecE2
- 800 pace reps SpecE1 SpecE2

(Speed Technique)
• General and Absolute Strength
• Mobility/Flexibility
• Coordination
  – Running, jumping, throwing, hurdle walks, skipping, sprint mechanics

• “Exercises for Sports Performance Training”
  – With Boo Schexnayder
**MAXIMUM VELOCITY WARM UP**

**JOINT MOBILITY**
head circles, hip circle, trunk circle, ankle and wrist circle

**MOVEMENT EXERCISES**
fwd skip with arm circles, backward skip w/arms, side slide & switch, carioca & switch, carioca step over & switch, alt low skip and scoop, groucho walks, backward run

**DYNAMIC FLEXIBILITY**
supine SL raises, iron cross, scorpions, groiners, inverted splits and scissors, rockers into hurdle seat stretch, hurdle seat change, lateral & linear leg swings

**COORDINATION & SPECIFIC MOBILITY**
A Skips
Ankle pops
straight leg shuffle into a straight leg bound
double alternate fast leg into technical buildup
Dribbles into technical buildup

**ELASTIC STRENGTH & SPECIFIC COORDINATION** (increase intensity of run, slow walk back)
10 prisoner squats + 50 meters
10 jumping Jacks + 50 meters
10 pogos + 50 meters
5 star jumps + 50 meters
3 rockets + 50 meters
Pace Continuum

(EZ runs)

LT
Tempo runs/reps

10k pace
LT Reps

MVO2
3k/5k pace
XT reps

1500m pace
IT pace reps

100 pace reps
ASSE

200 pace reps
Spd End
& GSSE

400 pace reps
SpecE1
SpecE2

800 pace reps
IT pace reps

Specific

General
Wicket Drill
## Speed Training Guidelines

95-100% intensity

<table>
<thead>
<tr>
<th>Category</th>
<th>Rest</th>
<th>Session Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acceleration</strong>- 1-4s</td>
<td>rest 1 min. per 10 m</td>
<td>300m</td>
</tr>
<tr>
<td></td>
<td>Ex. Crouch 10m, 20m, 30m</td>
<td></td>
</tr>
<tr>
<td><strong>Maximum Velocity</strong>- 4-6s</td>
<td>rest 1 min. per 10 m</td>
<td>300m-600m</td>
</tr>
<tr>
<td></td>
<td>Ex. Fly 10m, 20m, 30m (25m acc. Zone, 30m max)</td>
<td></td>
</tr>
</tbody>
</table>
TRACK TEMPOS

• Pace stronger than regular run, not race pace
• Teach even splits and effort distribution
• I can observe their work and their fatigue
• Translates directly into stronger EZ runs
• “Enlightening” to the 800m runner
  – 15 min; 5k +1:15; find pace per 200/400/800
  – 10 min; subtract 2 sec per 400 from 15 min.
  – 20 min; add 2 sec. per 400 from 15 min.
## 15 minute Track Tempo Paces

<table>
<thead>
<tr>
<th>800m Time</th>
<th>15 min Track Tempo Pace per 800m</th>
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<tbody>
<tr>
<td>1:50</td>
<td>2:37</td>
</tr>
<tr>
<td>1:55</td>
<td>2:44</td>
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<tr>
<td>2:00</td>
<td>2:51</td>
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<td>2:05</td>
<td>2:59</td>
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<td>2:10</td>
<td>3:06</td>
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<td>2:15</td>
<td>3:13</td>
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<tr>
<td>2:20</td>
<td>3:20</td>
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<td>2:25</td>
<td>3:27</td>
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<tr>
<td>2:30</td>
<td>3:34</td>
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</table>
Critical Velocity (~10k pace)

• ~91% of VO2 Max velocity.
• Trains type IIA (fast oxidative) fibers to improve endurance, which is required for faster running
  • Employs the mechanics of faster distance running
• Metabolic benefits of CV:
  • Pace that best improves both MVO2 & lactate clearance without being too “harsh.”
Calculating CV and other paces

• Time trial that lasts about 7 minutes
  – 1600m to 2400m distances will work well, depending upon the fitness of your athletes.
    • To predict CV, 5k, 3k, 1600 and other paces

• CV Rules of Thumb: Run 24-28 seconds per slower than 400m race pace. OR 28-36 seconds slower than 800m pace.
CV pace from 400m time

<table>
<thead>
<tr>
<th>400m Time</th>
<th>CV per 400m</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>1:06.5</td>
</tr>
<tr>
<td>47.5</td>
<td>1:10.5</td>
</tr>
<tr>
<td>50</td>
<td>1:14</td>
</tr>
<tr>
<td>52.5</td>
<td>1:18</td>
</tr>
<tr>
<td>55</td>
<td>1:21.5</td>
</tr>
<tr>
<td>57.5</td>
<td>1:25</td>
</tr>
<tr>
<td>60</td>
<td>1:29</td>
</tr>
<tr>
<td>62.5</td>
<td>1:32.5</td>
</tr>
<tr>
<td>65</td>
<td>1:36</td>
</tr>
<tr>
<td>67.5</td>
<td>1:40</td>
</tr>
<tr>
<td>70</td>
<td>1:43.5</td>
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</table>
CV pace from 800m time

<table>
<thead>
<tr>
<th>800m Time</th>
<th>CV per 800m</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:50</td>
<td>2:17.5</td>
</tr>
<tr>
<td>1:55</td>
<td>2:24</td>
</tr>
<tr>
<td>2:00</td>
<td>2:30</td>
</tr>
<tr>
<td>2:05</td>
<td>2:36.5</td>
</tr>
<tr>
<td>2:10</td>
<td>2:42.5</td>
</tr>
<tr>
<td>2:15</td>
<td>2:49</td>
</tr>
<tr>
<td>2:20</td>
<td>2:55</td>
</tr>
<tr>
<td>2:25</td>
<td>3:01.5</td>
</tr>
<tr>
<td>2:30</td>
<td>3:07.5</td>
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</table>
Critical Velocity Parameters

- Repetition distances should be 1 minute to 4 minutes in duration.
- Use walking recoveries at first, but move to jogging recoveries later.
- Recoveries should be ~25-30% of the rep-duration.
- Start with a volume of 1600m (excluding recoveries) and move up to 4800m of volume over 9 weeks. (Add one 400m per week.)
- Start with shorter reps, so that 400/800m runners mentally accept the method!
- Once peak workout volume is reached, lengthen the repetition distances.
- Example progression: Week #1: Run 4 x 400m (Add 1 rep per week.) After 9 weeks, the new volume is 12 x 400m. Then, move to a mix of 400m and 600m reps. After a few weeks, do a mix of 600m and 800m reps. After a few more weeks, do a mix of 800m and 1000m reps.
- Athletes should not look as if they are straining, while running!
  - "Just because you CAN go faster, doesn’t mean you SHOULD go faster" (train don’t strain)
Pace Continuum

(EZ runs)

LT
Tempo runs/reps

10k pace
LT Reps

MVO2
3k/5k pace
XT reps

1500m pace
IT pace reps

800 pace reps
IT pace reps

400 pace reps
SpecE1
SpecE2

General

Specific

ACC/Max V

100 pace reps
ASSE

200 pace reps
Spd End
& GSSE
# Anaerobic Speed Endurance Training Volume Guidelines

90-100% intensity

<table>
<thead>
<tr>
<th>Category</th>
<th>Rest</th>
<th>Session Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short Speed Endurance- 6-10s</strong></td>
<td>ASSE 3-10 min. GSSE 1-3min.</td>
<td>300m-800m</td>
</tr>
<tr>
<td>Ex. ASSE</td>
<td>6 x 80m w/ 8’ rest</td>
<td></td>
</tr>
<tr>
<td>Ex. GSSE</td>
<td>3 x 4 x 50m w/ 1:30 on reps, 5 min. on sets</td>
<td></td>
</tr>
<tr>
<td><strong>Speed Endurance- 10-20s</strong></td>
<td>5-10 min.</td>
<td>500m-1000m</td>
</tr>
<tr>
<td>Ex.</td>
<td>5 x 150m w/ 10 min. rest</td>
<td></td>
</tr>
</tbody>
</table>
Verheul Method

• Aerobic Development through moderate reps with ample recovery.

• (6)12-15x200 @3k pace w/ 200m jog
  • 3-3.75 miles

• (4)8-10x400 @5k pace w/ 400m jog
  • 4-5 miles
### Sprint Tempo Training Guidelines

<table>
<thead>
<tr>
<th>Category</th>
<th>Rest</th>
<th>Session Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Extensive Tempo</strong></td>
<td>30 to 90 seconds</td>
<td>1200-3000m</td>
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<tr>
<td></td>
<td>70%-80% of 200/400 pace OR 5k to 3k pace</td>
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</tr>
<tr>
<td></td>
<td>Ex. (2 x) 10 x 150 @ 75% of 200m pace, w/ 50m walk in 1 minute &amp; 5 min. between sets</td>
<td></td>
</tr>
<tr>
<td><strong>Intensive Tempo</strong></td>
<td>2-5 min.</td>
<td>800-2000m</td>
</tr>
<tr>
<td></td>
<td>80%-90% of 200/400 pace OR mile to 800m pace</td>
<td></td>
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<tr>
<td></td>
<td>Ex. 6-7 x 250 @ 85% of 400m goal pace w/ 5 min rest</td>
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<tr>
<td></td>
<td>60 sec. girl = 17.6/35.2/44.0</td>
<td></td>
</tr>
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</table>
Tempo Sessions prescribed w/ pace per 100 meter for effort distribution/pace awareness. We want “Mature and intelligent training efforts.”

<table>
<thead>
<tr>
<th>Pace Per 100 meter training chart</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>400 goal avg. mps 70% 75% 80% 85%</td>
<td>90%</td>
<td>95%</td>
<td>100%</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>60 6.67</td>
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<td>20.0</td>
<td>18.8</td>
<td>17.6</td>
<td>16.7</td>
<td>15.8</td>
<td>15.0</td>
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<tr>
<td>59 6.78</td>
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<td>19.7</td>
<td>18.4</td>
<td>17.4</td>
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<tr>
<td>58 6.90</td>
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<td>19.3</td>
<td>18.1</td>
<td>17.1</td>
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<tr>
<td>57 7.02</td>
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<td>17.8</td>
<td>16.8</td>
<td>15.8</td>
<td>15.0</td>
<td>14.3</td>
<td></td>
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<tr>
<td>56 7.14</td>
<td>20.0</td>
<td>18.7</td>
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<td>16.5</td>
<td>15.6</td>
<td>14.7</td>
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<tr>
<td>55 7.27</td>
<td>19.6</td>
<td>18.3</td>
<td>17.2</td>
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<td>13.8</td>
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<tr>
<td>54 7.41</td>
<td>19.3</td>
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<td>16.9</td>
<td>15.9</td>
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<tr>
<td>53 7.55</td>
<td>18.9</td>
<td>17.7</td>
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<tr>
<td>50 8.00</td>
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<tr>
<td>49 8.16</td>
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<td>48 8.33</td>
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<td>12.6</td>
<td>12.0</td>
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<tr>
<td>47 8.51</td>
<td>16.8</td>
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<td>12.4</td>
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<tr>
<td>46 8.70</td>
<td>16.4</td>
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<td>12.8</td>
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<tr>
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<td>13.2</td>
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<td>44 9.09</td>
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<td>14.7</td>
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<td>12.2</td>
<td>11.6</td>
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</tbody>
</table>
**Anaerobic Speed Endurance Training Volume Guidelines**

**90-100% intensity**

<table>
<thead>
<tr>
<th>Category</th>
<th>Rest</th>
<th>Session Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Endurance I- 20-40s</td>
<td>10-15 min.</td>
<td>600m-1200m</td>
</tr>
<tr>
<td>Ex. 3 x 290m w/ 12 min. rest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special End II- 40s-2:00</td>
<td>15-20 min.</td>
<td>350m-1500m</td>
</tr>
<tr>
<td>Ex. 2 x 50 sec. boys/60sec. girls w/ 20 min. rest</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
800 meter specific workouts

• 6 x 300 w/ 2’ rest @ 800 pace

• 2 x 5 x 200 w/ 90 sec & 5 min rest @ 800 pace and faster (cut down)

• 500 w/ 4’, 400 w/ 3’, 300 w/ 2’, 200 w/ 1’, 100 @ 800 p
Hybrid 400/800 Training

• Sessions that don’t fit neatly into the definitions previously given

• Combination of paces, systems

• Manipulation of rest intervals to illicit specific demands
DYNAMIC RUNS

• Structured Fartlek; on a field with a whistle
  – 2m:30s:10s (x5= 13:20)
  – 3m:1m:10s (x4 = 16:40)

• Change in speed = change in technique

• Note the distance travelled per session
Jump Run Circuits

• 10-20 seconds of jump (50-40 sec. rest)
• 4 x 15 sec. on/off of DRILL
• 1 minute run (2 minute rest); REPEAT

• JUMP RUN A:
  – Rocket jump/high knees
  – Tuck jump/A skip
  – Lunge jump/dbl. alternate fast leg
  – Star jump/carioca
3 Tier Mixed-Rep Workouts

• CV pace, then pace A, and then pace B

• Ex. “800m theme” for an 400/800m runner
  – 3 x 800 @ CV w/ 200m jog
  – 3 x 300m @ 800m pace w/ 300m jog
  – 3 x 150 @ 400m pace w/200m jog, 50m walk

• Session total = 6000m (3.75miles) of running and jogging not including warm up and cool down
Critical Zone

- 3 x 160 @ 400m intensity w/ 30 sec rest; 10m flying start
- Add 160+160+ first 80 for 400m time
- Up to 3 sets w/ 15’-30’ rest
“Blender” Workout

• 5 x 30m from standing start w/ 90 sec rest
  – simulates start position & start
  – Works acceleration, top speed, GSSE
• 5 x 150 w/ 90 sec rest. 1st 100@ 800p, last 50 faster
  – Engrains 800 race pace
  – Works “changing gears”
• 8 min rest; then 1 x 300 MAX
  – Mentally simulates finish
  – Trains special endurance
  – Improvements here show overall “fitness” gains