

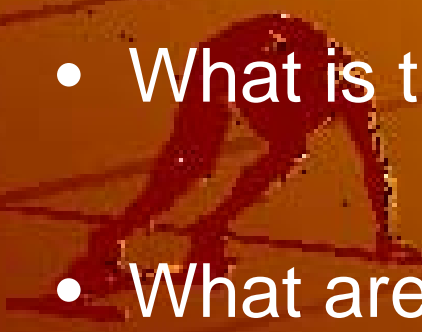
A photograph of a runner in a starting crouch on a track, overlaid with a semi-transparent orange filter. The runner is positioned in the lower-left quadrant of the frame, leaning forward with hands on the ground and feet in starting blocks. The track lanes are visible as parallel lines receding into the distance.

Why You Need a Running Coach: Training With a Purpose

FURMAN INSTITUTE OF RUNNING & SCIENTIFIC TRAINING

FIRST

Establishing Your Goals (How a coach might help)

- What is your current fitness level?
 - What are the climatic conditions?
 - What is the course difficulty?
 - What are your non-running obligations and responsibilities?
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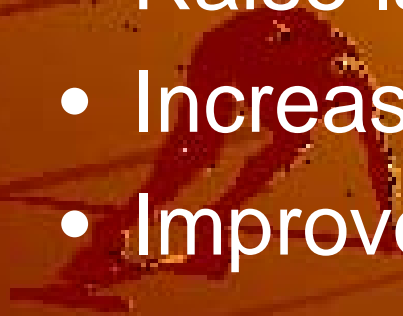
Run Less and Run Faster

- Each workout should have a purpose
- As the total amount of training increases, the risk of overtraining and injury increases



Adaptations Needed for Optimal Performance

- Increase aerobic capacity
 - Improve ability to transport oxygen
 - Improve ability to use oxygen
- Raise lactate threshold
- Increase running speed
- Improve running economy



Maximal Oxygen Consumption

- $\dot{V}O_{2\text{MAX}}$ is a measure of the ability to produce energy aerobically.



Lactate Threshold

- Lactate Threshold is a measure of metabolic fitness. Lactate is an organic by-product of anaerobic metabolism. The level of lactate accumulation in the blood is used to evaluate the intensity that a runner can maintain for extended periods of time.



Running Economy

- Running economy is measured by the amount of oxygen being consumed relative to the runner's body weight and the speed at which the runner is traveling.



The Role of Training Intensity

- Most important factor for improvement
- Specific exercise intensities will stimulate adaptation



FIRST Training Philosophy

By adhering to training paces and distances determined by current running fitness, runners can improve one or more of the primary variables of running performance – maximal oxygen consumption, lactate threshold, running economy, and running velocity at peak VO_2

FIRST Training Approach

- Interval Training
- Tempo Run
- Long Run



Essential Training Elements

- INTERVAL-PACE (I) RUNS:
 - To optimize max $\dot{V}O_2$, improve economy and speed
 - 5K pace to ~6 seconds faster per 400M than 5K pace
- THRESHOLD-PACE (T) RUNS:
 - Raise lactate threshold
 - 90% of max. HR or 5K pace – 25 to 30 seconds
- EASY (E) AND LONG (L) RUNS:
 - Improve ability to rely more on fat as fuel
 - 75% max.HR and 75% $\dot{V}O_2$

Interval Training

- Warm-up (2 to 3 miles)
- Strides (4-6 x 100)
- Longer intervals
 - 6-8 x 800, 3-4 x 1600, 5 x 1K, 3 x 2000
- 5K to 10K pace
- Cool down (1 to 2 miles)

Basic Tips On Interval Training

1. DO NOT Turn Intervals into Races

a. Consistent Pacing is Critical

b. Run Intervals by Yourself if Need Be

2. Five Minute Intervals are Very Useful

3. Rest Intervals should be 1:1 For Longer Runs

a. Shorter Bouts Require Briefer Rest

1: 0.5 in some Cases

Basic Tips On Interval Training

5. This is Fast but Controlled Running Pace

6. Form is Critical

a. A Complete Recovery Between Work Intervals Permits Good Form to Be Maintained

b. If Form is Becoming Sloppy, Quit

7. Concentrate on Relaxed Running

a. Learn How Relaxed Running Feels

Aim for this Feeling in Your Races

8. You should cut back on repetitions prior to races; For major races, possibly stop repetitions altogether.

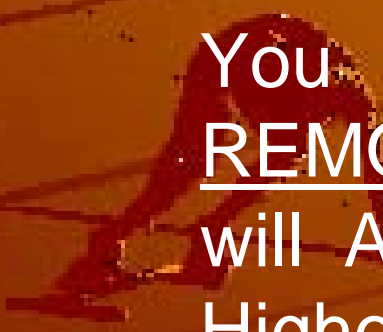
Mid-week Tempo Run

- 5-10 mile run
- 10K to marathon pace
 - 3 mile segment at 10K pace
 - 5 to 6 mile run at 10K plus 20 second pace
 - 10 miles at marathon pace
- Alternate from week to week

Training To Improve Lactate Threshold

Goal is to Maintain Maximal Steady State
Lactate Concentration in Blood

Going harder only hurts you!



You are Training the LACTATE
REMOVAL SYSTEM of the Body which
will Allow You to Remove Lactate at a
Higher Rate thus Improving Your
Maximal Steady State Lactate

Training Strategies For Tempo Runs/Cruise Intervals

1. Tempo Runs Should be 20-25 Minutes in Duration
2. The Intensity is Your Running Velocity at Lactate Threshold
3. Lower Limit of Threshold is 2-3 Miles
4. Upper Limit of Threshold Running is 8-10 miles



Long Runs

- The most important workout
- Rest the day before
- Rest or cross-train the day after
- Pace is goal MP plus 30-60 seconds
- Practice drinking
- As race nears, run at the same time of day as race
- Be disciplined and follow a schedule, but some flexibility is wise in case of illness, injury or chronic fatigue

Benefits of Long Duration Running ~ 70% VO₂MAX

Central Adaptations

1. Increase in Cardiac Output
2. Redistribution of Blood Flow
3. Increase in Blood Volume

Peripheral Adaptations

1. Increase Mitochondrial Volume
 - a. Increase in Oxidative Metabolic Capacity
 - b. Tighter Oxidative/Phosphorylization Coupling
2. Increase in Muscle Fiber Capillary Density
3. Increased Sensitivity to Respiratory Control
4. Increase in Muscle Cell level of Stored Glycogen
5. Increase in Muscle Cell Level of Lipid
6. Increase in Fat Utilization at Higher Intensities of Exercise
7. Conservation of Muscle Glycogen Stores

Typical Training Week

- Monday: Easy or X-Training
- Tuesday: Key Run #1 Interval workout
- Wednesday: Easy or X-Training
- Thursday: Key Run #2 Tempo
- Friday: Rest
- Saturday: Key Run #3 Long Run
- Sunday: Off or X-Training


Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
Cross train or easy run	Key Run #1	Cross train or easy run	Key Run #2	Off or swim	Key Run #3	Off or swim

CROSS TRAINING

- Minimize injury
- Add variety
- Running equivalence (same amount of time as running workout)
- Bike, stairsteppers, cross trainers, swimming



Training Guidelines

- Increase training volume by no more than 10% weekly
 - Alternate hard and easy weeks
 - Listen to your body
 - How much quality training is necessary?
 - Periodization
- 



FIRST

Discussion ?

Comments ?

Q & A

Thank You