



# Simplifying Threshold Training

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- ◉ Holistic approach to running
- ◉ Science behind threshold
- ◉ Practical explanations
- ◉ Practical training
- ◉ Practical implementation
- ◉ Examples

# How I trained vs How I coach



# Threshold is a feeling, not a pace

- The goal of training a distance runner is to get them to run their "fastest" for "longer"
- Train smarter, not harder
- Train the brain to "feel" threshold
- Understand the purpose of each day
- Give athletes the power to understand

# Give running a purpose

- More than just the arbitrary act of putting one foot in front of the other
- Enable athletes to witness & understand their improvements
- Gain valuable life tools; patience, belief, self-confidence, work ethic & humility

# Natural distance runner beliefs

"Running hard everyday  
makes sense"

- The harder you run; the better you get
- I could have gotten more out of today
- There has to be a "secret" shortcut
- I must train like the best to run like the best

# The 3 Systems

- Neuromuscular System
- Cardio-Respiratory System
- Energy system



# The Energy System

- Gives the muscles the ability to move
- ATP (Adenosine triphosphate) produced to make muscle contractions
- Substrate (fuel sources)

# The Energy System, cont.

- Two types
- Anaerobic (Alactic & Glycolytic, creatine phosphate & glucose substrate, 7-90 seconds)
- Aerobic (uses glucose and glycogen as substrate for an extended period)

**Dude...wait....**



**What???**

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# The Energy System, simplified

- Become the most efficient running machine as possible (steps taken)
- Stimulate all 3 systems, by focusing on just one (plus biomechanics)
- Two energy systems = two thresholds

# The Two Thresholds

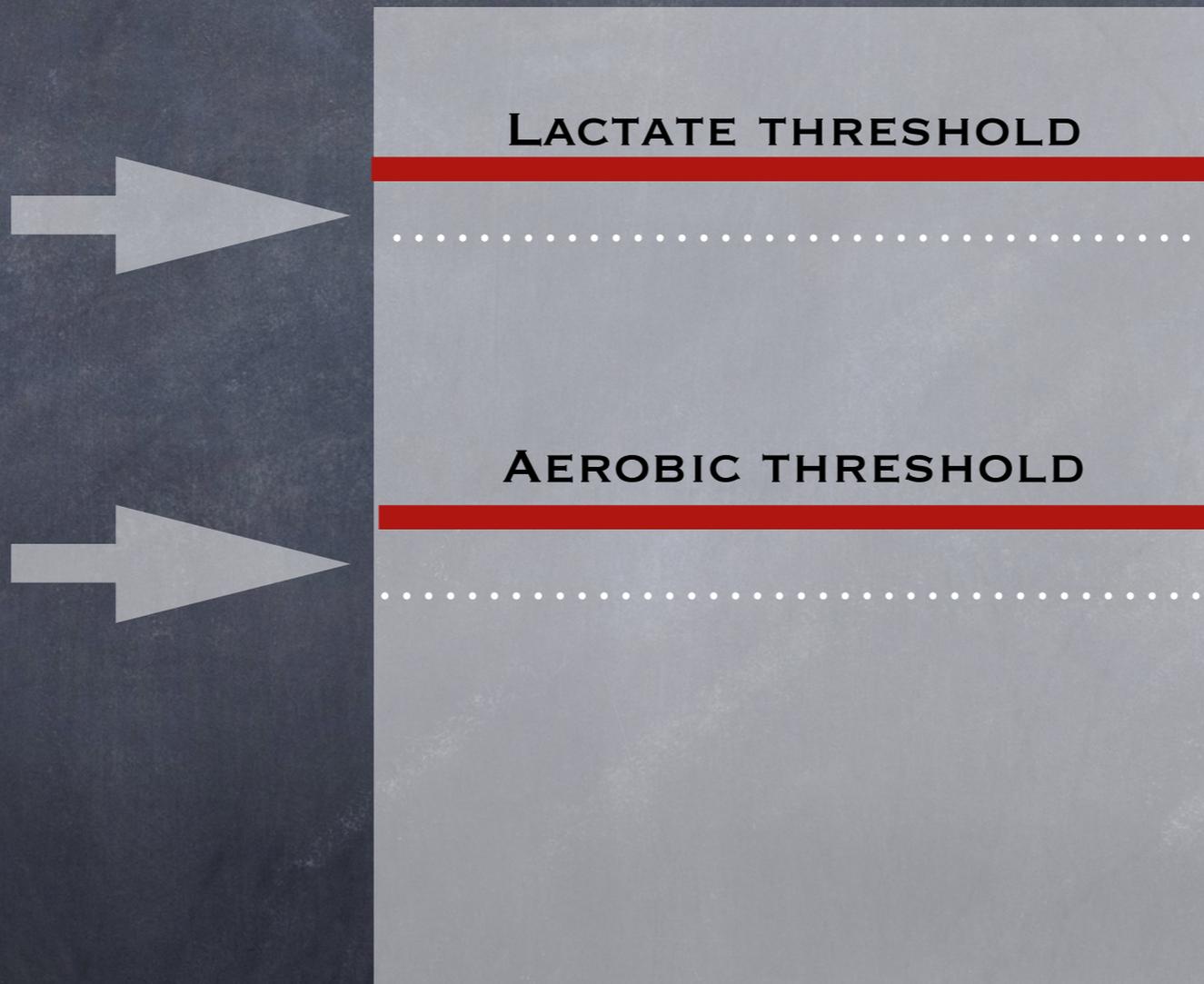
- Lactate Threshold or LTV: The body's ability to handle lactate buildup when working anaerobic systems
- Aerobic Threshold: The body's use of oxygen while producing ATP as demanded by activity level

# Rule of Thumb.



- ◉ Workout is tough because of the pace  
an athlete is running = Anaerobic
- ◉ Workout is tough because of how long  
an athlete has been running = Aerobic

# Training below thresholds increase them



# Teaching runners about their "red lines"

- Use specific workouts to help runners self-identify
- Stop runners who do the workouts incorrectly
- Rule of repeats: just because you could, doesn't mean you should

"A runner is a miser, spending the pennies of his energy with great stinginess, constantly wanting to know how much he has spent and how much longer he will be expected to pay. He wants to be broke at precisely the moment he no longer needs his coin."

-Once a Runner

# Workouts to teach aerobic threshold "red line"

- Continuous runs, with tasks to accomplish (off & ons, hilly loops, progression tempos)
- Slow, longer repeats with minimal rest (Daniel's "Threshold" or McMillan's "cruise")
- Steady state runs, long runs, out & backs
- Make the stove too hot to touch

# Workouts to teach lactate threshold "red line"

- ◉ Paced repeats with ample rest (Daniel's "Interval" or McMillan's "speed")
- ◉ Progression runs ending on track
- ◉ Hills
- ◉ Blends
- ◉ Finish fast



# Body reacts/adapts to stimuli and stress

- The magic of working the "red line"
- "Tickle it"
- Don't put foot on the brake, just take it off the gas
- Work gets easier, when done right

# Benefits of knowing "red lines"

- ◎ Smarter runner
- ◎ Smarter racer
- ◎ Better teammate



# RECOVERY: Key to stimulating threshold improvement

- Recover fully to reap benefits from the work just done
- Recover fully to get most from work yet to be done
- Adequate recovery takes 24-72 hours

# Easy running, explained

- Purpose of easy runs need to be understood and heeded
- It is supposed to feel easy, that's why it's called an "easy run"
- Feel really good? Run more, not faster
- Know why/what you're running

# Junk mileage myth

- Slow running  $\neq$  junk miles
- Junk miles = runs at a pace too slow to stimulate threshold, but too fast to fully recover from previously done work
- Aerobic/biomechanical benefits come from RUNNING, regardless of the pace.  
No wasted runs.

# How to train injury free

- To maximize threshold work, it will take a lot of running
- Workouts need to be done below thresholds to avoid injuries
- Recovery days need to allow for recovery
- Body will most likely not allow an athlete to train incorrectly: it will break

# 4 types of workouts for threshold

- Continuous threshold
- Aerobic threshold repeats
- Anaerobic threshold repeats
- Anaerobic repeats



# Ways to manipulate thresholds in workouts

- Distance
- Pace
- Recovery



# Beware of diminishing returns

- After 3-6 weeks of one consistent stimuli, the returns from work plateau
- Stimulate threshold improvements by mixing the types & amounts of work over the course of a season



# Using threshold training

- ⦿ Make it AEROBIC heavy!
- ⦿ Make the work your athletes do permanent, NOT temporary
- ⦿ Aerobic work is cumulative
- ⦿ Never train goal paces



# Traditional Model vs Holistic Approach

- Long term development



# Supplementals

- ◉ Ticklers
- ◉ Progression strides
- ◉ Kettle bells
- ◉ Abs, abs & abs



# Keys to emphasize with athletes

- Use same simple cues
- Teach fundamentals before supplementals
- Talk in time, not distance
- Emphasize effort!!!
- Love the watch, hate the watch

# Thank you!

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