

BEHOLD THRESHOLD

AeT, LT, AT, OBLA, MLSS, FTP, PST
OMG

“the point that must be exceeded to begin producing a given effect, result or to elicit a response”



Max vs. Threshold

- **MHR is a genetic limit, suggesting a ceiling that cannot be exceeded**
 - Predicts training zones, but does not determine them
 - MHR is not the trainable component to fitness
- **Max Power is highest workload possible, which is only a few seconds**
 - Percentages do not reflect training zones or energy systems
 - Max power is not the trainable component to fitness
- **Threshold**
 - Reflects maximal EFFICIENT effort (endurance performance)
 - Can be exceeded to prompt a training response; very responsive to training
 - Dynamic and unique to each individual
 - Has specific response characteristics (RPE, HR)
 - Safely achievable by most populations
 - Determines training zones and energy systems

Threshold IS the trainable component to fitness

Threshold Determines

- How well muscles match energy supply to energy demand, which in turn determines fuel “mix” muscles use and how they fatigue
- Low-to-high intensity that carbohydrates contribute more than 50% of total energy need and fuel mix switches (crosses over) from predominantly fat to predominantly carbohydrate
- Highest point between lactate appearance and clearance both being equal to the lactate turnover (Maximal Lactate Steady State **MLSS**)
- The highest blood lactate concentration and work load that can be maintained without a continual blood lactate accumulation (Onset of Blood Lactate Accumulation **OBLA**)



" the point that must be exceeded to begin producing a given effect, result or to elicit a response"

Aerobic Threshold

- Point aerobic energy pathways begin to produce an effect of aerobic conditioning (aerobic base marker)
- AeT must be exceeded to gain aerobic fitness

Anaerobic Threshold

- Point anaerobic energy pathways begin to produce an effect of anaerobic conditioning
- AT must be exceeded to gain anaerobic fitness

Lactate Threshold

- Point at which the concentration of blood lactate produces a breaking point on the lactate curve
- LT must be exceeded to elicit a training response

Use RIGHT For Circumstances

- Science based test of work threshold
- Baseline marker of the intensity you need to train to achieve fitness goals
- Test for all and easy to learn
- Controlled and repeatable
- Graded Exercise Ramp Test
 - Change workload in regular timed stages
 - 2:00 estimates maximal aerobic power
 - Below 2:00 suggests anaerobic component
 - 2:00+ suggests aerobic component
 - At 2:00 has similar traits of VT, LT, AT, FTP, OBLA, MLSS

RAMP Test

- Warm up
- Begin at RPE 1-2, sustaining resistance, cadence, seated
- Start interval (reset computer, leaderboard)
- Hold for two minutes
 - Note avg. power (heart rate) and RPE
- Increase resistance to RPE 2-3 while maintaining cadence and position
- Start interval (reset computer)
- Hold for two minutes
 - Note avg. power (heart rate) and RPE
- Repeat until rider can no longer sustain **full stage**

Threshold Functional Test

- **Advanced** option for very experienced riders at the highest level of fitness and performance capabilities
 - Realize athletes goal is to perform, whereas students goal is to get fit
- All-out, race-day effort for 20 solid minutes
- Warm up
- Perform an all-out sustainable effort for 20 minutes.
- The effort should continuously feel like a 7–8 RPE
- Record 95% of the avg. watts

RPE	% of Threshold	% of Max HR	Purpose	Work Duration	Work : Rest
0 Rest 1 Extremely Easy 2 Easy	<60%	50-65% Similar to REZ	Active Recovery	n/a	n/a
3 Moderate 4 Moderately Hard 5 Hard	60-85%	65-75% Similar to EEZ	Aerobic Training	10:00+	3:1
6 7 Very Hard 8	85-105%	75-85% Similar to SEZ	Threshold Training	3:00+	1:1
9 Extremely Hard	105-120%	85-92% Similar to RD	Anaerobic Training	:30 – 3:00	1:2
10 Maximal Performance	120% - MAX	92%-95%	VO2max	:05 - :20	Recover 2:00 – 5:00 per effort



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