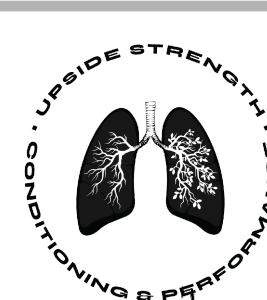
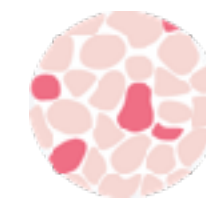


Endurance Physiology Cheat Sheet

The Intensity Spectrum (Speed/Power)



Intensity Domains The domains are separated by thresholds.	Moderate Domain Commonly Called "Low Intensity" <small>Threshold #1 (T1)</small>		Heavy Domain Commonly Called "Medium Intensity" <small>Threshold #2 (T2)</small>		Severe Domain Commonly Called "High Intensity"	Extreme Domain Commonly Called "Very High Intensity"		
Internal State (Metabolic)	Cellular/Muscular Steady State Oxygen Delivery >> Utilisation		Systemic Steady State Oxygen Delivery = Utilisation		Loss of Internal Homeostasis Oxygen Delivery < Utilisation		Rapid Loss of Internal Homeostasis Oxygen Delivery << Utilisation	
Oxygen Consumption (VO2)	Stable VO2 after the first 2-3 minutes of effort		VO2 stabilized after a latency period 5-6' ("VO2 slow component")		Non stable VO2 that trends towards VO2max		Task Failure occurs before VO2 reaches its maximum (peripheral fatigue)	
Blood Lactate (BLa)	Stable Lactate close to resting values BLa: 0.4-1.5 mmol/L		Elevated but stable Lactate over time Endurant: 1.5-4 mmol/L Powerful: 1.5-6 mmol/L		Rapidly rising Lactate Endurant: 4-12 mmol/L Powerful: 6-19 mmol/L		Very Rapidly rising Lactate Endurant: >10 mmol/L Powerful: >15 mmol/L	
Respiratory Frequency (RF)	Ease of Breathing Nasal breathing & easy conversation RF: 8-20		Sustained Breathing Shorter sentences to a few words at a time RF: 20-35		Hyperventilation Very hard to speak because of large strain on breathing RF: >35		Hyperventilation Very hard to speak because of large strain on breathing Delayed Ventilation On very short efforts	
Thresholds Common Names & Acronyms	Lactate Threshold 1 (LT1) Ventilatory Threshold 1 (VT1) Gas Exchange Threshold (GET)		Lactate Threshold 2 (LT2) Ventilatory Threshold 2 (VT2) Maximum Lactate Steady State (MLSS)		Critical Speed (CS) Critical Power (CP) Respiratory Compensation Point (RCP)		NA Max Velocity/Speed (Vmax) Max Power (Pmax)	
Muscle Fibre Recruitment	Slow-twitch fibres (Type I)		Fast-twitch fibres (Type IIa)		Fast-twitch Fibres (Type IIx)			
Energetic Contribution Fats/Sugars	Fats: + Sugars: + Fats: ++ Sugars: +		Fats: + Sugars: ++ Fats: - Sugars: ++		Fats: - Sugars: +++		Fats: - Sugars: ++++	
Sustainable Time According to Level	Novice: 1h Elite: >4h		Novice: 30' Elite: >1h15		Novice: 3' Elite: 1:30*		* VO2 onset kinetics for elite endurance athletes is higher thus VO2max is reached sooner Max: 1-10"	
Threshold & VO2max Relationship According to Profile (Endurant VS Powerful)	T1 Endurant (E): 70-85% of VO2max T1 Powerful (P): 50-70% of VO2max		T2 E: 85-95% of VO2max T2 P: 50-70% of VO2max T1 E: 65-80% of Threshold #2 T1 P: 50-65% of Threshold #2		5' Power E: 115-140% of T2 5' Power: 130-150% of T2		Bike Running Pmax E: 2.8-3.5x T2 Pmax P: 5-6.5x T2 Vmax E: 1.6-2x T2 Vmax P: 2.5-3.8x T2	
Training Zones Based on Domains, defined with RPE, Lactate & VO2	Zone 1 "Active Recovery"	Zone 2 "Base Endurance"	Zone 3 "Tempo" ou "Active Endurance" <small>"Sweetspot"</small>	Zone 4 "Threshold"	Zone 5 "VO2max"		Zone 6 "Long Sprints"	Zone 7 "Short Sprints" or "Wingate"
RPE (1-10) Perceived Difficulty	1	2-3	4-6	6-7	8-10		8-10	10 Or % of Max Effort for Short Sprints