METABOLIC PERFORMANCE & THRESHOLD TESTS
RUNNING

Category	Power Performance Decoders (Home Based - Self Administered)	VO2 Max Test	Lactate Threshold Performance Profile	Advanced Metabolic Performance Blue Print
How It's Done	Athlete completes structured running performance tests (e.g., time trials or maximal efforts) using pace + HR data, ideally with GPS or track validation.	Progressive ramp test with breath-by-breath gas analysis to measure VO_2 response.	INSCYD Lactate Threshold incremental treadmill protocol with lactate sampling after each stage.	Full INSCYD metabolic protocol: breath-by-breath gas exchange + lactate sampling + performance stages analysed through the INSCYD Engine.
Environment	Remote, athlete's own equipment GPS, HR Monitor, Power (Stryd) Optional .	Controlled lab environment using metabolic cart.	Controlled lab environment. Option to do this as a field test on the track	Fully controlled lab environment with metabolic cart.
Data Quality	Good (model-based).	High (direct gas-exchange).	High (measured thresholds & lactate kinetics).	Highest (direct metabolic + lactate + performance).
Metabolic Performance Measures	• Estimated VO_2max • Critical Speed (CS) • FatMax (modelled) • Carbohydrate vs fat use (estimated) • Anaerobic contribution (estimated)	• Direct VO_2max • Aerobic capacity • Ventilatory thresholds (VT1 / VT2) • Aerobic efficiency • Work economy	• LT1 / LT2 • VLamax • Lactate accumulation/clearance • Metabolic crossover • Aerobic vs anaerobic profiling	• Direct VO_2max • Running Economy • LT1 / LT2 • VLamax • Measured FatMax • Substrate oxidation at every intensity • Efficiency & economy
Body Composition Measures	Not measured	Not Measured Add – 3D Body Composition Add – DEXA Body Composition	3D Infrared Body Scan (More accurate than home / gym Bioimpedance for Body Fat%, Lean Mass % DEXA Body Composition (Optional Upgrade) • Clinical Gold Standard Accuracy for Fat%, Lean Mass, Appendicular Skeletal Muscle, Whole Bone Mineral Density • DEXA helps identify trends in bone and muscle health that can be influenced by chronic low energy availability i.e. RED-S. **Upgrade to DEXA Body Composition (£125 – Regular Price £179)**	
Client Outputs	• Model-based training zones • Speed pacing guidance • Sustainable vs unsustainable intensities Insight on aerobic power potential	• VO_2-based training zones • Aerobic capacity insight • Breathing/efficiency limiter insight • Pacing for steady aerobic work	• Accurate threshold training zones • True sustainable race pace • Fatigue & fuelling pressure points Pacing for tempo/threshold efforts	• Most accurate zones across all intensities • Personalised fuelling needs for training & racing (CHO & Fat) • Precise race pacing targets Peak sustainable output & duration
VO_2max Accuracy	Estimated.	Ventilatory Threshold Only (VT1/VT2) – not as precise as Lactate Thresholds	Not measured.	Direct (breath-by-breath).
Threshold Accuracy	Modelled.	Moderate (respiratory exchange ratio).	Measured.	Measured + validated with ventilatory thresholds.
FatMax / Flexibility	Predictive.	Estimated (RER-based).	Good (lactate-based).	Best (validated with direct gas exchange).
Fuel Requirements	Estimated.	Estimated (RER-based).	Calculated.	Fully precise (validated from substrate oxidation).
Price	**£120**	**£149**	£175 (£300 with DEXA Upgrade)	**£225** (£350 with DEXA Upgrade)