METABOLIC PERFORMANCE & THRESHOLD TESTS
CYCLING

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 power-duration efforts remotely using power meter/smart trainer.	Progressive ramp test with breath-by-breath gas analysis to measure VO_2 response.	INSCYD threshold protocol with progressive in-lab step test with lactate sampling.	Full INSCYD metabolic protocol: breath-by-breath gas exchange + lactate sampling + performance stages.
Environment	Remote, athlete's own equipment.	Controlled lab environment using metabolic cart; option to bring your own bike.	Controlled lab environment. Option to bring your own bike.	Fully controlled lab environment with metabolic cart. Option to bring your own bike
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 Power (CP) • FatMax (modelled) • Carbohydrate vs fat use (estimated) • Anaerobic contribution (estimated)	• Direct VO_2max • Aerobic capacity • Ventilatory thresholds (VT1 / VT2) • Aerobic efficiency • Work economy	• Lactate Thresholds LT1 / LT2, MLSS • VLamax • Lactate accumulation/clearance • Metabolic crossover • Aerobic vs anaerobic profiling	• Direct VO_2max • Lactate Thresholds LT1 / LT2, MLSS • 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 (£1254 Regular Price £179)**	
Client Outputs	• Model-based training zones • Power 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.	Direct (breath-by-breath)	Not measured.	Direct (breath-by-breath).
Threshold Accuracy	Modelled.	Ventilatory Threshold Only (VT1/VT2) – not as precise as Lactate Thresholds	Measured.	Measured + validated with ventilatory thresholds.
FatMax / Flexibility	Predictive.	Moderate (respiratory exchange ratio).	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)