



Data Driven

Locus FME Roadshow 2025

Winning Well – Sustainable Olympic and Paralympic Medals



Introduction.

Cycling New Zealand, Who are we, what do we do.

Three key areas of data collection.

1. The Athlete.
2. CdA.
3. What it takes to win.

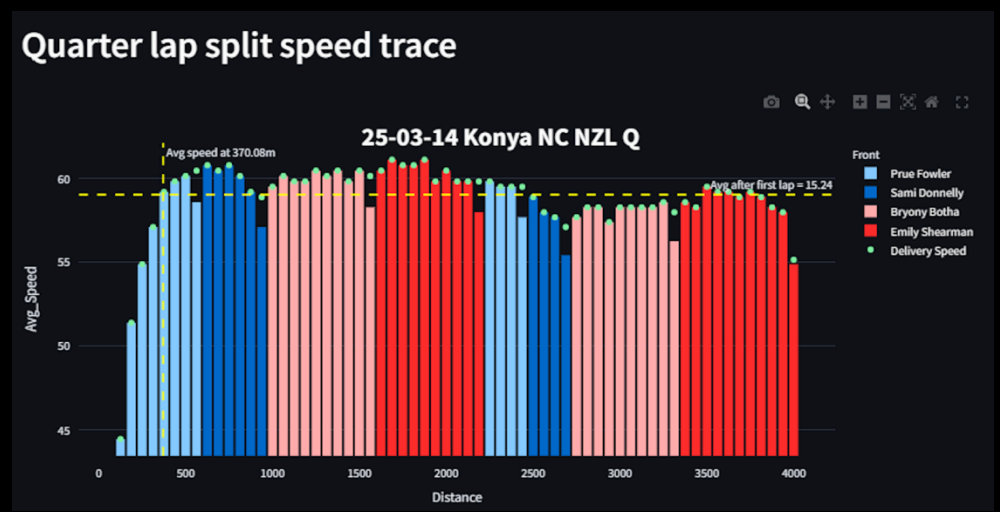
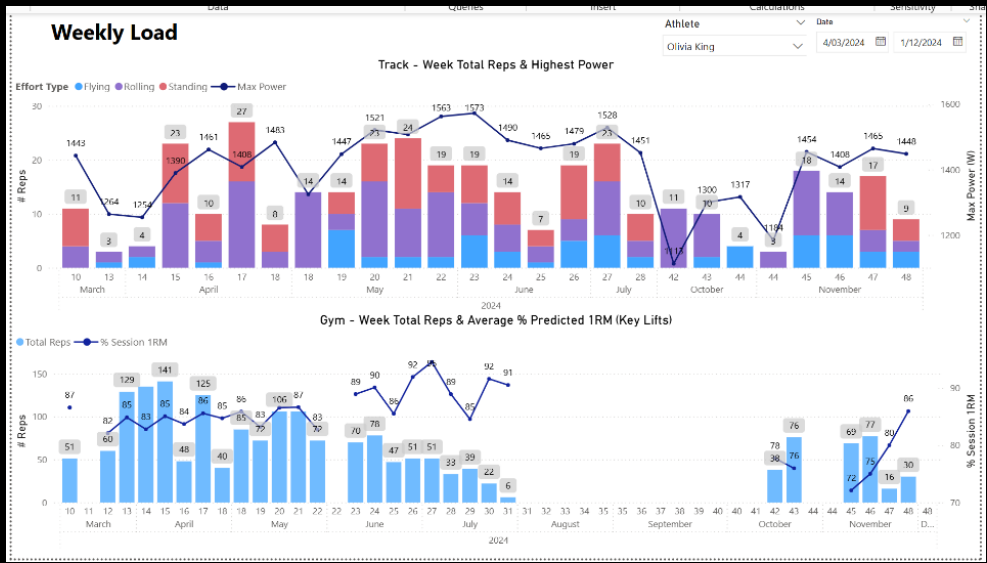




The Athlete.

What data do we collect.

- **On Bike.**
 - Track training data.
 - Road training data.
 - Competitions data.
- **Gym.**
 - Training loads.
 - Movement speeds.
 - Force plates.



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CdA

(Coefficient of aerodynamic drag)

What data do we collect.

- Wind tunnel testing.
- Computer modeling.
- On track testing.
- Environmental conditions.

What impacts CdA.

- Athlete position on the bike.
- Athletes' ability to hold position on bike.
- Equipment - Bike, Helmet, Race suit. The full system.
- Environmental conditions.



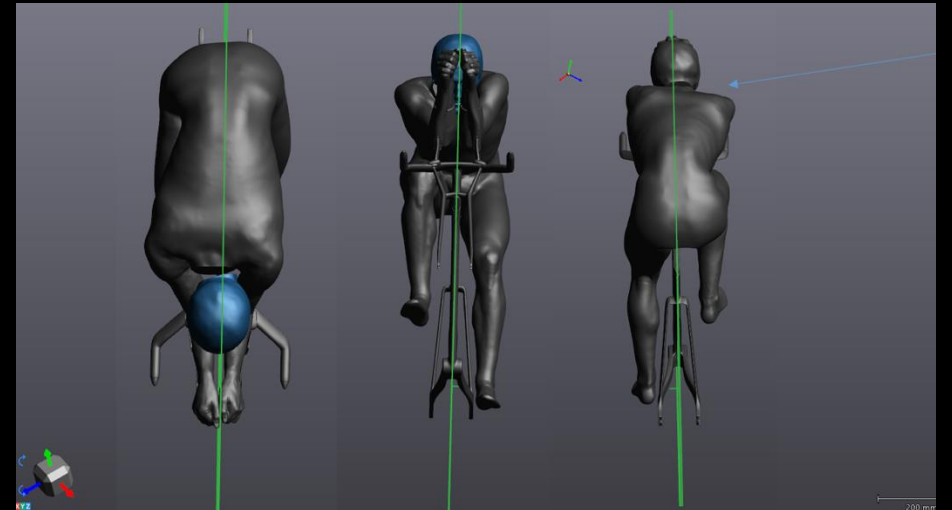
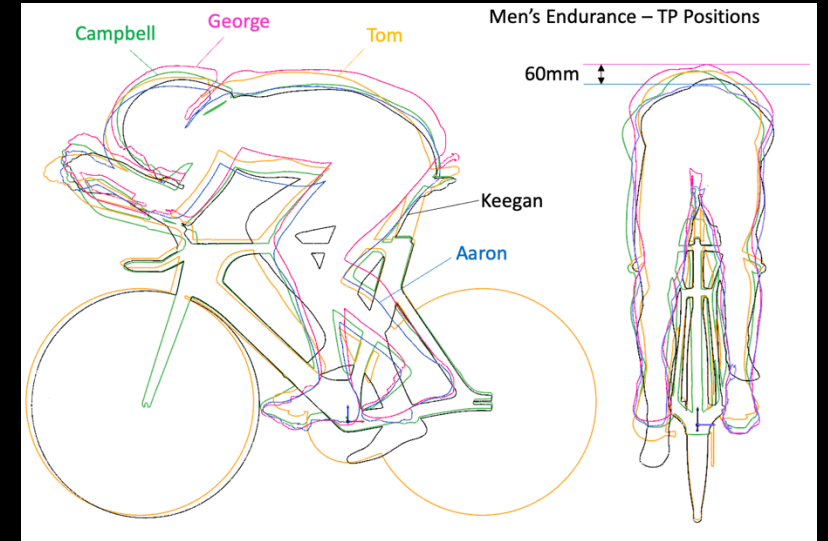
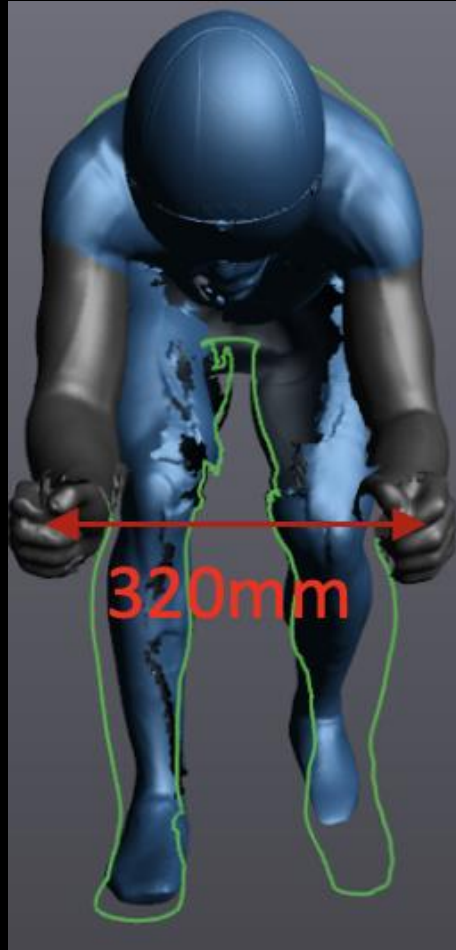
Mannequin



Athlete



Scans and Computer Modeling



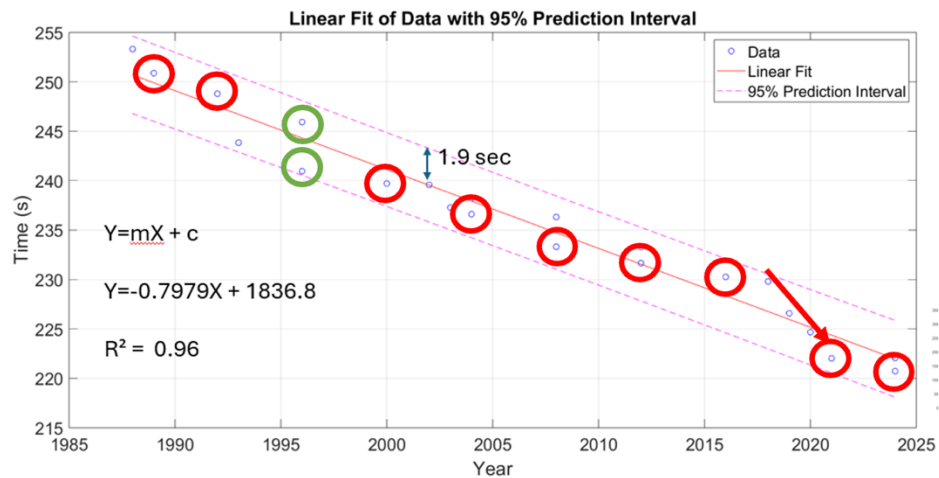
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What it takes to win.

- **Event performance analysis.**
 - Events statistics and trends.
 - Technical and tactical trends.
- **Event prediction.**
 - Event molding.
 - Time prediction.
 - WITTW model for each event.



 *1996 Olympics outdoor track, world record broken on indoor track



Paris Olympics 2024 - WITTW

	NZL PB	NZL tPB	Bronze	Gap to Bronze	Gold	Gap to Gold
Lap 1	18.84	18.84	18.80	0.04s (0.2%)	18.80	0.04s (0.2%)
Lap 2	13.89	13.89	13.60	0.28s (2.1%)	13.20	0.68s (4.9%)
Lap 3	14.16	13.98	13.70	0.28s (2.0%)	13.40	0.58s (4.2%)
Overall Time	46.88	46.70	46.10	0.6s (1.3%)	45.40	1.30s (2.8%)

- Times based on somewhat arbitrary Olympic lift (~1% or 0.5s), but also factoring where the gains might be made in current top 4.
- Biggest gap and gains to come from P2, with flow on effects for P3.
- tPB = theoretical personal best from individual best performances.



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How do we use this data.

Data drives our decision making.

- 4 & 8 year strategic planning.
- Ensure we are on track to meet KPI's.
- Prioritisation of events and athletes.
- Selection policy's & processes
- Daily training requirements.
- Equipment / Innovation projects.
- Race strategy & delivery.
- Campaign planning.



The goosebump moment.

