

VO₂MAX TEST REPORT · 2024

VO₂max *Test*

Your peak aerobic capacity measured under laboratory conditions, with personalised heart-rate training zones drawn from your maximum heart rate.

ATHLETE	SPORT / DISCIPLINE	TEST DATE	TEST PROTOCOL
Billy Bob	Road Cycling	12 June 2024	Incremental VO ₂ Max + Lactate

SUMMARY

Headline results

VO ₂ Max MAXIMAL OXYGEN UPTAKE	RELATIVE 55.4 mL/kg/min	ABSOLUTE 4.02 L/min	CATEGORY Excellent Trained male, age 20–29
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MAX HEART RATE 192 bpm Highest HR recorded during the test. Used to derive the heart-rate training zones in §2.	PEAK WORKLOAD 325 W 4.48 W·kg⁻¹ at the final completed stage.	RER AT PEAK — A respiratory exchange ratio above 1.10 indicates the test was carried to a true maximal effort.
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01 **VO₂ Max: 55.4 mL/kg/min (Excellent band).**
Reference comparison drawn from ACSM 11th ed / FRIEND registry male norms, 20–29 age band.

02 **LT2: 263 W (180 bpm).**
LT2 occurred at 83% of VO₂ Max. Within typical trained-population values.

03 **Training zones — HR max 192 bpm, peak 325 W.**
Z1 115–144 bpm · 195–244 W
Z2 144–167 bpm · 244–283 W
Z3 167–182 bpm · 283–309 W
Z4 182–192 bpm · 309–325 W
Watts bands mirror HR-max fractions onto peak power; aerobic base in Z1.

04 **Recommended re-test interval: 10–12 weeks.**
A follow-up incremental test in this window allows the change in LT1/LT2 power and VO₂ Max to be quantified.

SECTION 01

Your $\dot{V}O_2$ max Result

$\dot{V}O_2$ max is the maximum rate at which your body can take in, transport and use oxygen during exercise. It is the gold-standard measure of aerobic fitness and a strong predictor of endurance performance. The value here is drawn from the highest sustained effort you reached.

LAB	ERGOMETER	PROTOCOL
TRB 2.32 – Cycle Ergometry Suite	Lode Excalibur Sport	Step ramp · 3 min · stages to volitional exhaustion

1.1 Your Results

$\dot{V}O_2$ MAX (ML/KG/MIN)	$\dot{V}O_2$ MAX (L/MIN)	MAX HR (BPM)	PEAK WORKLOAD	RER AT PEAK	BODY MASS
55.4	4.02	192	325 W	–	72.5 kg

Your relative $\dot{V}O_2$ Max of **55.4 mL/kg/min** places you in the **Excellent** category for the 20–29 age band. Between the 75th and 95th percentile on ACSM/FRIEND norms.

1.2 How You Compare

The table below shows $\dot{V}O_2$ Max categories (mL/kg/min) by age band. Your score is highlighted on the relevant row.

AGE	VERY POOR	POOR	FAIR	GOOD	EXCELLENT	SUPERIOR
13–19	<29.0	29.0–40.1	40.1–48.0	48.0–55.2	55.2–66.3	>66.3
20–29	<29.0	29.0–40.1	40.1–48.0	48.0–55.2	55.2–66.3	>66.3 YOU · 55.4
30–39	<27.2	27.2–35.9	35.9–42.4	42.4–49.2	49.2–59.8	>59.8
40–49	<24.2	24.2–31.9	31.9–37.8	37.8–45.0	45.0–55.6	>55.6
50–59	<20.9	20.9–27.1	27.1–32.6	32.6–39.7	39.7–50.7	>50.7
60+	<17.4	17.4–23.7	23.7–28.2	28.2–34.5	34.5–43.0	>43.0

SECTION 02

Heart-Rate Training Zones

Your zones are derived from your maximum heart rate of **192 bpm**. They give you four clear intensity bands for everyday training, recovery and harder sessions.

Z1 — Aerobic (Low)	60–75%	115–144 bpm	<i>30 min – 3 hours</i>
Z2 — Aerobic (High)	75–87%	144–167 bpm	<i>8 – 60 minutes</i>
Z3 — Aerobic Maximum	87–95%	167–182 bpm	<i>30 sec – 3 minutes</i>
Z4 — Anaerobic	95–100%	182–192 bpm	<i>10 – 60 seconds</i>

2.1 How to use these zones

For the bulk of your weekly training, prioritise time spent in Zone 1. This is the foundation of aerobic fitness. Zone 2 is for steady, sustained efforts. Zones 3 and 4 are for shorter, higher-intensity sessions a few times a week — never every day, and always with full recovery on either side.

Re-test guidance.

A follow-up incremental test in **21 August – 4 September 2024** will let us see how your $\dot{V}O_2\text{max}$ and zones have shifted with training.

2.2 Putting it into practice

- Most days** · Zone 1 — easy aerobic running, riding or rowing. You should be able to hold a conversation.
- One or two days a week** · Zone 2 — steady sustained efforts of 20–60 minutes.
- One day a week** · Zone 3 — threshold work, e.g. 2 × 20-minute efforts with a short recovery.
- One day a week (max)** · Zone 4 — short, sharp intervals of 30–90 seconds with full recovery.

CLOSING

Thank you for visiting our laboratory.

Please get in touch if you have any questions about your data, would like a more detailed walk-through of any section, or would like to book a follow-up test later in the year. We're glad to chat.

J. A. Donaldson

Dr J. A. Donaldson

Lead Sport Scientist · Performance Testing

Test confirmed clean and within QA bounds.

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DOCUMENT

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CONFIDENTIALITY

This report contains personal
performance data. Please do
not share without the named
athlete's consent.

RE-TEST

Recommended re-test window: **21
August – 4 September 2024**. Book
at testing@ljmu.ac.uk.