Aerobic Metabolism Diagnostic Report

Fatmax · MFO · RER Crossover Assessment

SUBJECT SUMMARY

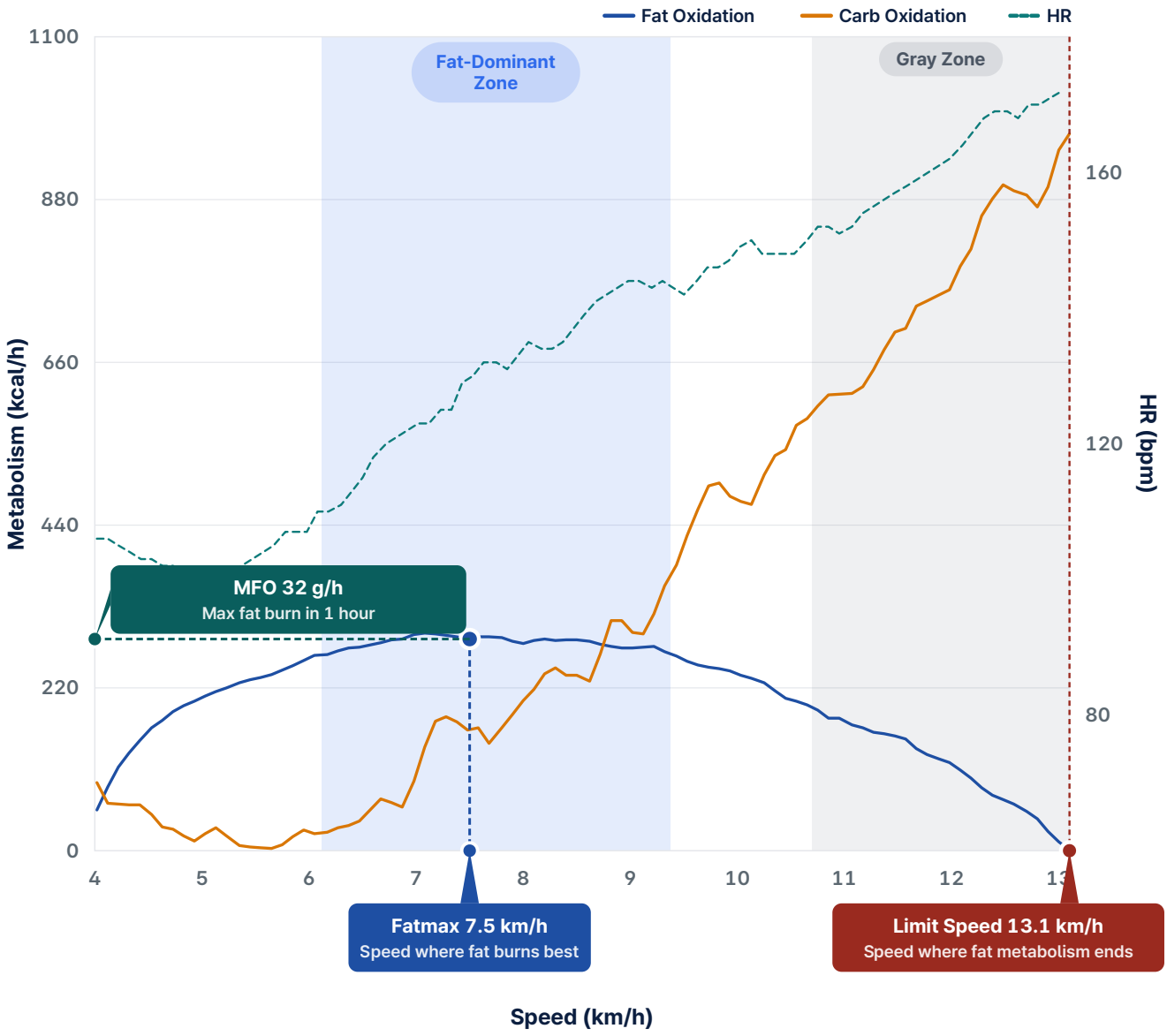
NAME	AGE	SEX
Test User	33	Male

HEIGHT	WEIGHT	BMI
175 cm	83 kg	27.1

Test No. **NMF-2026-0414-1511** · Test Date **2026.04.14 15:11**

Metabolic Curve

Fat and carb oxidation rates and heart rate across speeds. **7.5 km/h**is where fat metabolism peaks, **13.1 km/h**and above shifts the body to carb-dominant metabolism.



터치하여 확대

How to Read This Curve

01 Fuel mix changes with intensity

The fuel your body burns shifts sharply with exercise intensity.

02 Fat metabolism drops after its peak

Fat oxidation rises up to Fatmax speed, then falls sharply at higher intensities.

✓ **Fat-Dominant Zone → fitness & fat loss**

Training at fat-dominant intensity builds aerobic fitness and reduces body fat simultaneously.

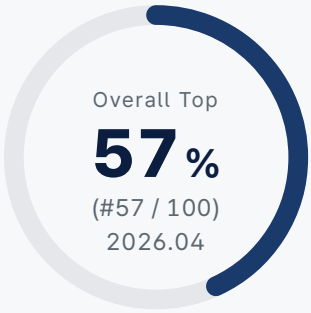
! **Gray Zone → depletion & fatigue**

Little training stimulus while glycogen depletes fast, causing fatigue and a "bonking" sensation.

Overview

Test User's Aerobic Metabolic Profile

30s Male baseline



↗ 2-Month Forecast **Top 49%**

Summary

A step-by-step approach starting from low-intensity aerobics produces the fastest change. Building from the foundation will visibly establish an aerobic physiology.

PRESCRIPTION

Start by walking and build to 3–4 sessions a week. Do not push too hard — that is the core principle. Once walking feels easy, mix in light jogging; once jogging feels easy, extend the duration gradually. The most important thing is to keep the intensity at a level that does not stress your joints.

Expected Outcome Your aerobic foundation is built from scratch. Right now, even small amounts of exercise translate directly into large changes. Stay consistent for two months and your physiology will shift noticeably.

3 Key Metabolic Indicators

Peak Fat-Burning Pace

FATMAX

7.5 km/h

Top 69.1%

The pace at which fat oxidation is highest

- The "golden pace" where fat oxidation peaks
- Consistent training at this pace improves fat utilization

+ As it improves, you can run faster while staying comfortable

↗ **With 2 months of recommended training**
8.0 – 8.5 km/h achievable

Max Fat-Burn Rate

MFO

31.8 g/h

Top 74.6%

The maximum amount of fat burned per hour

- Peak hourly fat metabolism measured at Fatmax speed
- Higher MFO indicates a more efficient fat-burning body

+ As it improves, body fat decreases faster

↗ **With 2 months of recommended training**
34–37 g/h achievable

Fat Metabolism Limit

RER = 1.0

13.1 km/h

Top 39.5%

The pace where fat metabolism ends

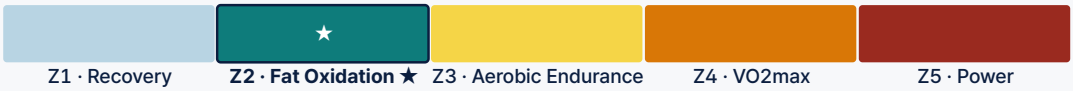
- Above this pace, only carbs are used — fatigue rises sharply
- Practical upper pace limit for long-distance running

+ As it improves, 5K/10K times shorten

↗ **With 2 months of recommended training**
14.0 – 14.5 km/h achievable

Heart Rate Zones

Five training zones derived from measured metabolic transitions. Zone 2 maximizes fat oxidation and is the primary target of this report.



ZONE	EFFECT	HR RANGE
Z1 · Recovery	Fatigue clearance, blood flow promotion	~130 bpm
Z2 · Fat Oxidation ★	**Peak fat oxidation, mitochondrial development**	**131 ~ 147 bpm**
Z3 · Aerobic Endurance	Cardio improvement, lactate threshold	148 ~ 168 bpm
Z4 · VO2max	Maximum oxygen uptake (VO2max) increase	169 ~ 183 bpm
Z5 · Power	Anaerobic power, sprint capacity	184+ bpm

Recommended Training Intensity

1 Recovery Jog

→ Restores daily recovery

- Low-intensity blood flow maintains recovery
- Ideal the day after training or early in weight loss

SPEED (PACE)	HR	REC. DURATION
4.7 ~ 7.1 km/h (12'50" /km ~ 8'30" /km)	**114 ~ 130** bpm	**43 ~ 53** min

2 Slow Jog

→ Builds a fat-burning body

- Sustains Fatmax pace, strengthening fat oxidation pathways
- Next retest: Fatmax speed and MFO both rise

SPEED (PACE)	HR	REC. DURATION
7.1 ~ 9.5 km/h (8'30" /km ~ 6'20" /km)	**131 ~ 147** bpm	**35 ~ 45** min

3 Interval Run

→ Builds high-pace stamina

- Pushes above the Gray Zone for clear stimulus and adaptation
- Next retest: fat metabolism limit speed rises

ZONE	SPEED (PACE)	HR	REC. DURATION
Low	**≤ 6.7 km/h** km/h (9'00" /km)	**≤ 121 bpm** bpm	**3 min**
High	**≥ 13.1 km/h** km/h (4'30" /km)	**≥ 175 bpm** bpm	**4 min**

1 set: Low 3 min → High 4 min
× 4–6 sets · 28–42 min total

After 6–8 weeks of recommended training, schedule a retest every 2 months to track progress.

Weekly Training Plan

Recovery

BEGINNER

3×/week

Slow ×2, Interval ×1

MON	TUE	WED	THU	FRI	SAT	SUN
Slow Run	·	Slow Run	·	Interval	·	·

STRUCTURED

5×/week

Slow ×3, Interval ×2

MON	TUE	WED	THU	FRI	SAT	SUN
Slow Run	Interval	·	Slow Run	Interval	·	Slow Run

Fat Loss

BEGINNER

3×/week

Slow ×3

MON	TUE	WED	THU	FRI	SAT	SUN
Slow Run	·	Slow Run	·	Slow Run	·	·

ACTIVE LOSS

5×/week

Slow ×5

MON	TUE	WED	THU	FRI	SAT	SUN
Slow Run	Slow Run	·	Slow Run	Slow Run	Slow Run	·

Performance

STRUCTURED

4×/week

Slow ×1, Interval ×2, Recovery ×1

MON	TUE	WED	THU	FRI	SAT	SUN
Slow Run	Interval	·	Interval	Recovery	·	·

INTENSIVE

6×/week

Slow ×3, Interval ×2, Recovery ×1

MON	TUE	WED	THU	FRI	SAT	SUN
Slow Run	Interval	Recovery	Slow Run	Interval	Slow Run	·

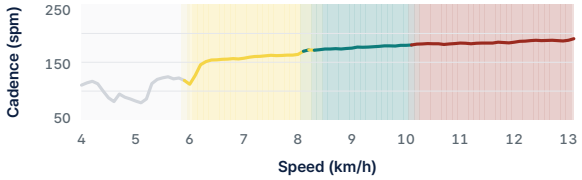
Running Form Analysis

Walk · Below Avg · Average · Above Avg

Individual differences matter

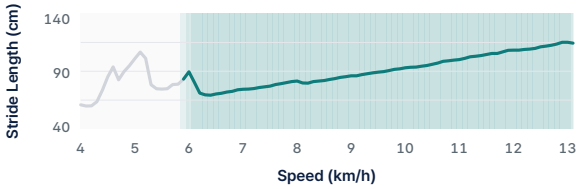
Each runner's body structure is unique, so running form naturally varies.
Readings outside the average don't always indicate injury risk. Use the notes below as reference.

Cadence · Steps per minute



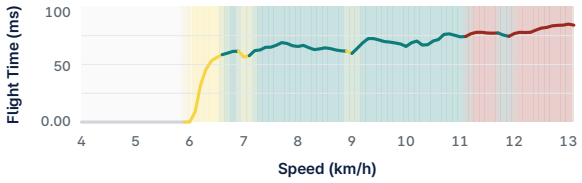
- **Above avg:** Quick steps disrupt your breathing rhythm. Slow your step rate to breathe more steadily.
- **Below avg:** Low cadence often means landing ahead of your body. Try a slightly faster step rate.

Stride Length · Stride length (cm)



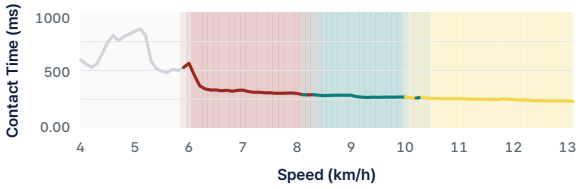
- **Above avg:** Long strides build up impact on the knees. Take shorter steps.
- **Below avg:** Short strides overload ankles and calves. Engage your hip muscles too.

Flight Time · Airborne time (ms)



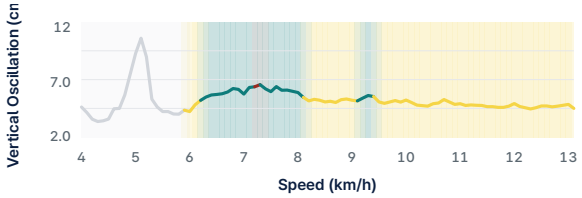
- **Above avg:** Lots of airtime means harder landings on the knees. Run a little lower.
- **Below avg:** Short airtime can make landings inconsistent. Lift enough to keep landings even.

Contact Time · Ground contact (ms)



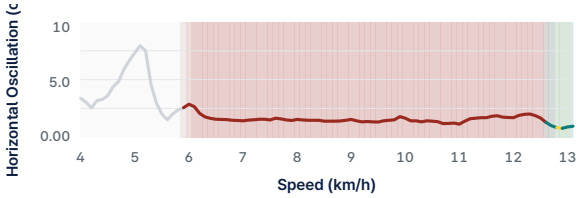
- **Above avg:** Long contact often means landing ahead of your body. Shorten stride, land closer to your center.
- **Below avg:** Short contact is efficient form. Muscle load can be high — recover enough between runs.

Vertical Oscillation · Vertical bounce (cm)



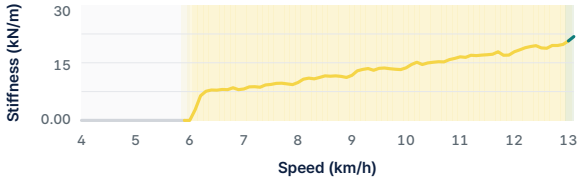
- **Above avg:** Bouncing up and down stresses knees and ankles. Take shorter, softer steps.
- **Below avg:** Too little vertical lift can make landings inconsistent. Lift enough to keep landings even.

Horizontal Oscillation · Lateral sway (cm)



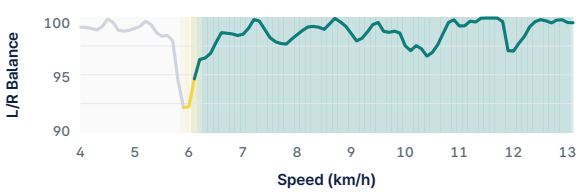
- **Above avg:** Side-to-side sway loads hips and knees. Gently engage your abs.
- **Below avg:** Stable side-to-side motion — low injury risk. Keep running with this form.

Stiffness · Landing stiffness (kN/m)



- **Above avg:** Hard landings can stress your knees. Add mobility work and try cushioned shoes.
- **Below avg:** Soft landings ease joint load. Muscle fatigue can be higher — rest well between runs.

L/R Balance · L/R contact symmetry (closer to 100 = better balance)



- **Above avg:** Even L/R balance — no one-sided strain. Low injury risk for both legs.
- **Below avg:** Lopsided L/R balance stresses knees and ankles first. Run with an even left/right rhythm.