

ISHP

# BIO-PERFORMX

*Endurance*

JOHN DOE  
MORAN

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# Overview

## Metabolic

| Resting Metabolic Rate | Active Metabolic Rate               |
|------------------------|-------------------------------------|
| Fat/Carbohydrate Ratio | Metabolic Efficiency Low Intensity  |
| Metabolism             | Metabolic Efficiency High Intensity |
| Breathing Frequency    |                                     |
| Breath Volume          |                                     |
| Heart Rate             |                                     |

## Respiratory

| Lung Function             |
|---------------------------|
| Lung Capacity             |
| Lung Capability           |
| Breathing Frequency Zones |

## Cardiovascular

| Active Metabolic Rate            |
|----------------------------------|
| Aerobic Health (VO2 Max)         |
| Training Zones                   |
| Metabolic Efficiency (VO2 Pulse) |

## Strength

| Strength - High Intensity |
|---------------------------|
| CO2/O2 (RER)              |
| Heart Rate                |
| Breath Frequency          |
| Muscle Efficiency         |

## Recovery

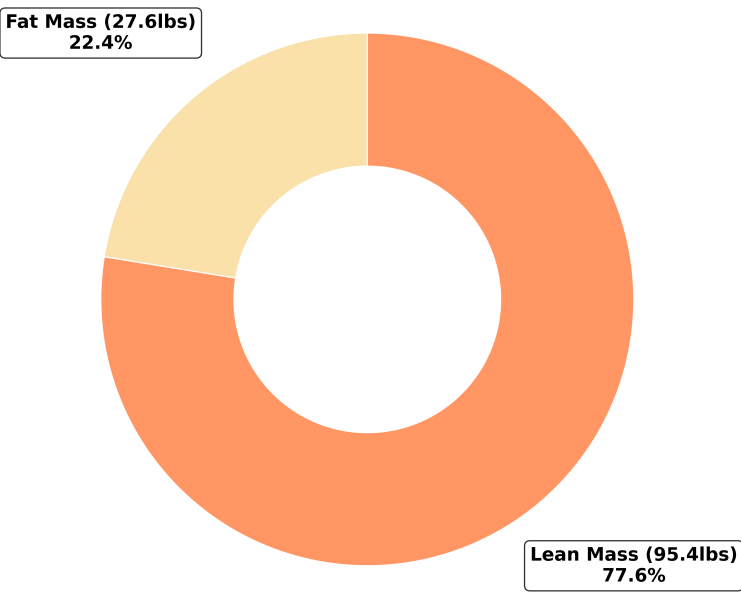
| Active Metabolic Rate |    |
|-----------------------|----|
| Heart Rate            | 44 |
| Metabolic (CO2)       |    |
| Muscle Oxygen         |    |
| Breath Frequency      |    |

# Nutrition Guidelines

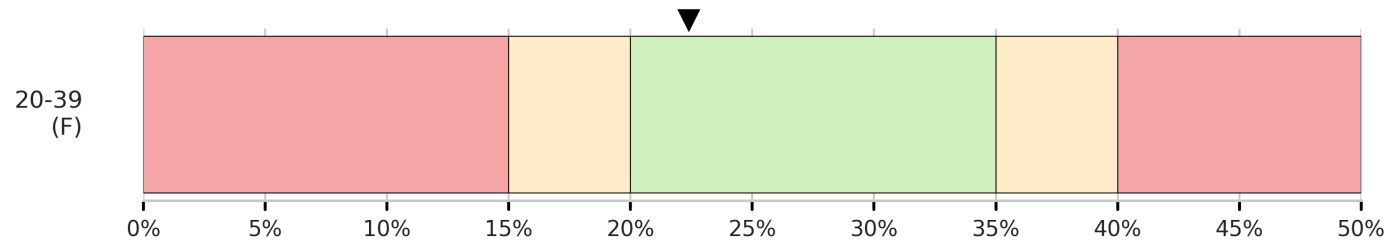
## Ultrasound & Body Composition Assessment

Designed to track and optimize exercise and diet. Its proven technology can accurately measure tissue structure and body composition.

### Body Composition



### Body Fat Percentage - %



# Nutrition Guidelines

## Resting Metabolic Rate Assessment

The resting metabolic rate assessment determines the number of calories that you burn at rest, and metabolic health. It is also an indicator of overall health and well-being.

 Slow vs Fast Metabolism Chart

 Fuel Source Chart

## Caloric Intake

1540kCals  
Resting  
Metabolic

+

310kCals  
NEAT

-

1725kCals  
to lose 1lb/weeklbs  
per week

=

~3575kCals

# Weekly Meal Plan Breakdown

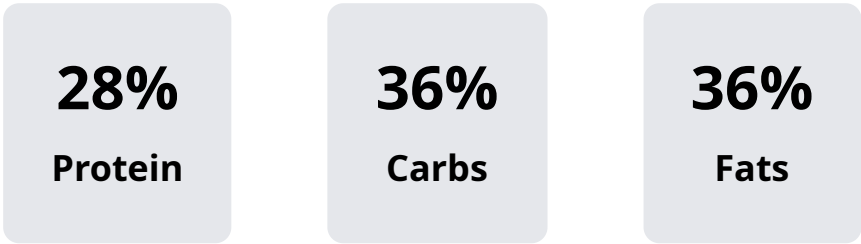
## Caloric Deficit Example

| Monday       | Tuesday      | Wednesday    | Thursday     | Friday       | Saturday     | Sunday       |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1725KCals    | 1725KCals    | 1725KCals    | 1725KCals    | 1725KCals    | 1725KCals    | 1725KCals    |
| 120g Protein | 120g Protein | 120g Protein | 120g Protein | 120g Protein | 120g Protein | 120g Protein |
| 155g Carbs   | 155g Carbs   | 155g Carbs   | 155g Carbs   | 155g Carbs   | 155g Carbs   | 155g Carbs   |
| 69g Fat      | 69g Fat      | 69g Fat      | 69g Fat      | 69g Fat      | 69g Fat      | 69g Fat      |
| 25g Fibre    | 25g Fibre    | 25g Fibre    | 25g Fibre    | 25g Fibre    | 25g Fibre    | 25g Fibre    |

## Caloric Deficit with Maintenance/Refeed Example

| Monday       | Tuesday      | Wednesday    | Thursday     | Friday       | Saturday     | Sunday       |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1615KCals    | 1615KCals    | 1615KCals    | 1615KCals    | 1615KCals    | 2000KCals    | 2000KCals    |
| 120g Protein | 120g Protein | 120g Protein | 120g Protein | 120g Protein | 120g Protein | 120g Protein |
| 142g Carbs   | 142g Carbs   | 142g Carbs   | 142g Carbs   | 142g Carbs   | 190g Carbs   | 190g Carbs   |
| 63g Fat      | 63g Fat      | 63g Fat      | 63g Fat      | 63g Fat      | 84g Fat      | 84g Fat      |
| 24g Fibre    | 24g Fibre    | 24g Fibre    | 24g Fibre    | 24g Fibre    | 30g Fibre    | 30g Fibre    |

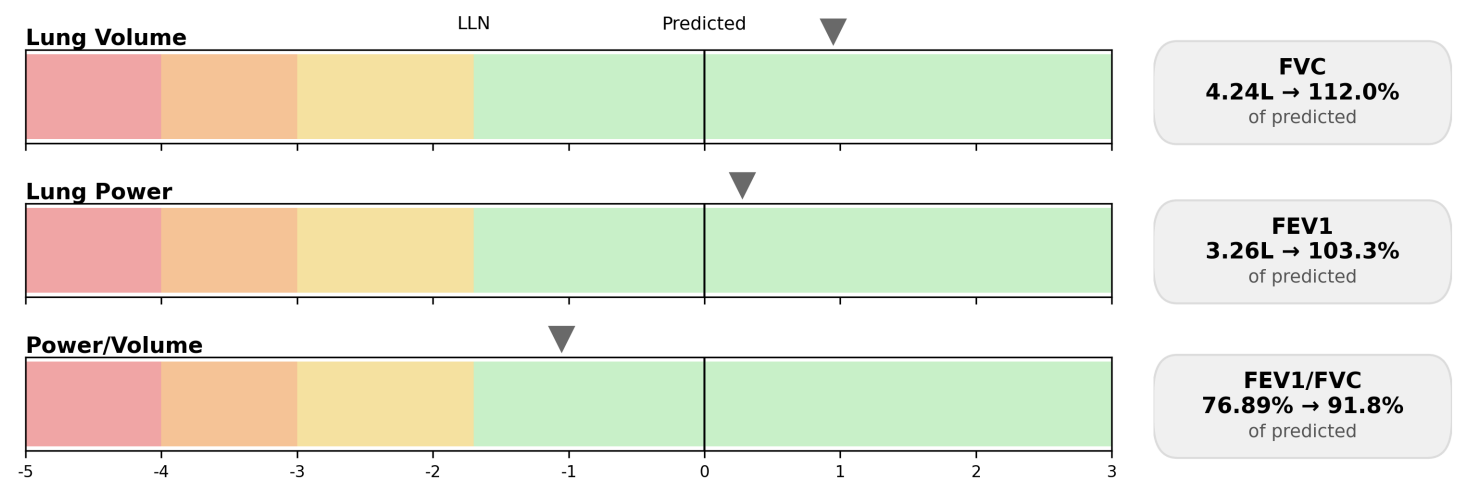
## Macronutrients Recommendations



# Lung Analysis

## Spirometry Assessment

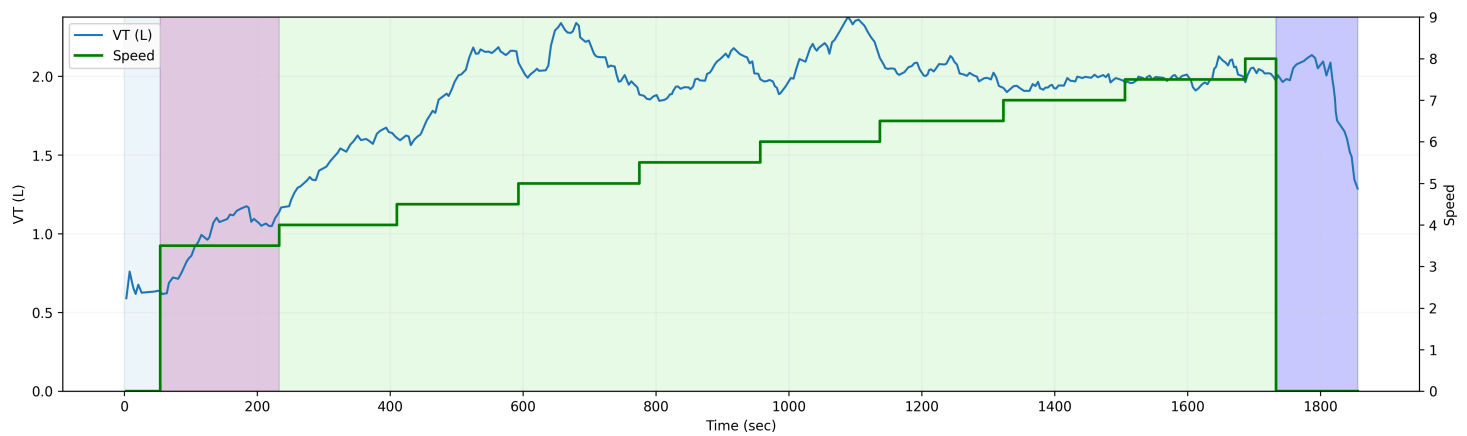
Spirometry is a diagnostic device that assesses how well a person breathes and how their lungs are functioning. Lung function is crucial for oxygen delivery during physical activity. Comparing results to expected/normal values can highlight potential limitations that would require additional lung training to improve overall physical activity.



Indications

No Respiratory Capacity Limitation

### Respiratory



Peak VT

3.2 L/Breath which occurs at 198 bpm (Zone 3)

85% of FEV1

# Cardio Metrics

## Active Metabolic Rate Assessment

The active metabolic rate assessment is a key measure of aerobic fitness. It helps determine your specific heart rate zones and how well your body uses carbohydrates and fats as fuel while you exercise. It is also an indicator of overall health and wellbeing.

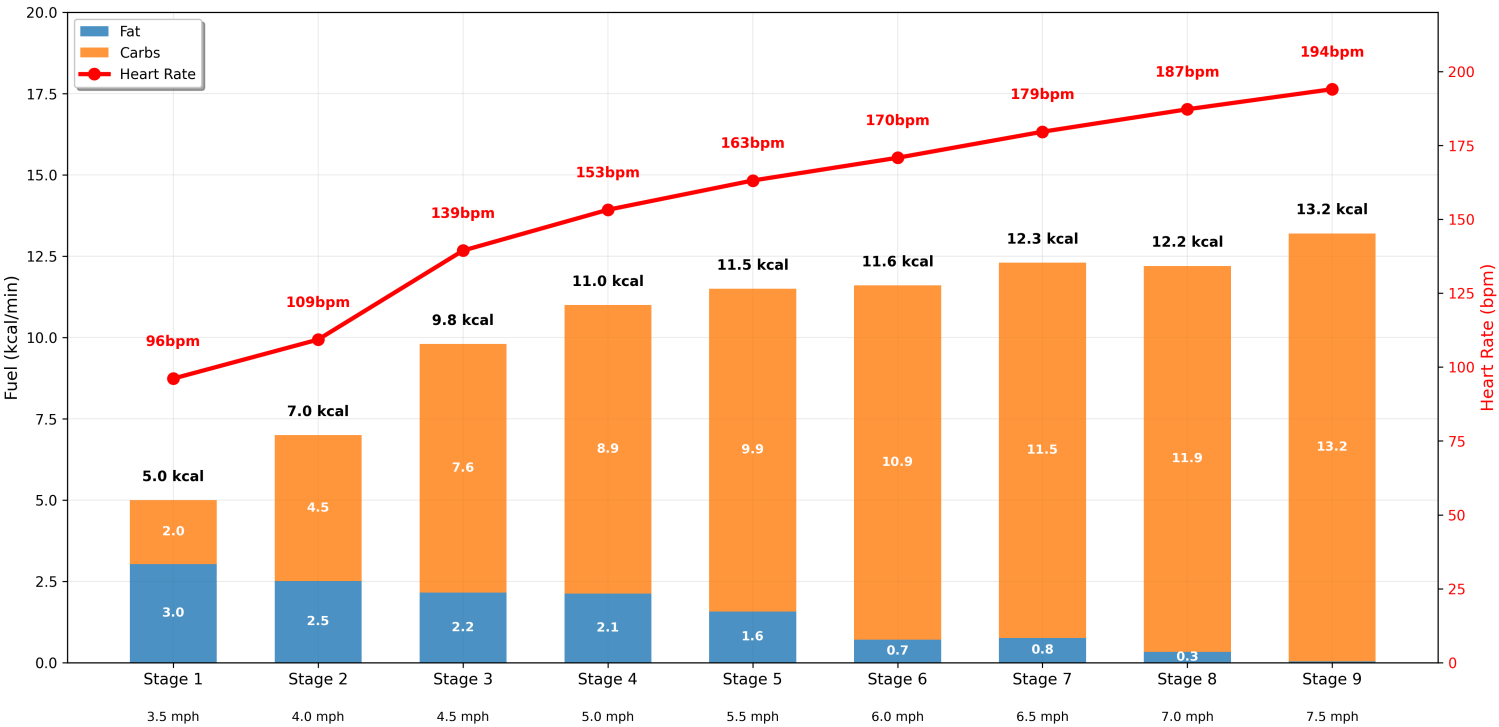
VO2 Max - 49.5 (100th percentile)

| Age (F) | Very Poor | Poor      | Fair      | Good      | Excellent | Superior |
|---------|-----------|-----------|-----------|-----------|-----------|----------|
| 30-39   | 19.0-24.1 | 24.1-28.2 | 28.2-32.2 | 32.2-35.7 | 35.7-45.8 | 45.8+    |

## Personalized Heart Rate Zones

| Zone 1  | Zone 2  | Zone 3  | Zone 4  | Zone 5                                      |
|---|---|---|---|---|
| Improves health and recovery capacity         | Improves endurance and fat burning            | Improves Aerobic fitness                      | Improves maximum performance capacity         | Develops maximum performance and speed      |
| 55-65% of Max Heart Rate                      | 65-75% of Max Heart Rate                      | 80-85% of Max Heart Rate                      | 85-88% of Max Heart Rate                      | 90% of Max Heart Rate                       |
| 81-96bpm                                      | 96-100bpm                                     | 100-178bpm                                    | 178-188bpm                                    | 188-198bpm                                  |
| 3.5mph<br>2% Incline                          | 3.5-4.0mph<br>2% Incline                      | 4.0-6.5mph<br>2% Incline                      | 6.5-7.0mph<br>2% Incline                      | 7.0-8.0mph<br>2% Incline                    |
| 10:39min/km<br>Pace                           | 10:39-9:19min/km<br>Pace                      | 9:19-5:44min/km<br>Pace                       | 5:44-5:20min/km<br>Pace                       | 5:20-4:40min/km<br>Pace                     |
| Avg:<br>4.4kcal/minute                        | Avg:<br>5.9kcal/minute                        | Avg:<br>9.4kcal/minute                        | Avg:<br>12.5kcal/minute                       | Avg:<br>12.8kcal/minute                     |
| Avg: 0.4g/min<br>Carb Utilization             | Avg: 0.6g/min<br>Carb Utilization             | Avg: 1.9g/min<br>Carb Utilization             | Avg: 2.9g/min Carb<br>Utilization             | Avg: 3.1g/min Carb<br>Utilization           |
| Avg: 27 breaths<br>Ideal Range: 15-20 breaths | Avg: 28 breaths<br>Ideal Range: 20-25 breaths | Avg: 31 breaths<br>Ideal Range: 25-30 breaths | Avg: 42 breaths<br>Ideal Range: 30-35 breaths | Avg: 51 breaths<br>Ideal Range: 40+ breaths |

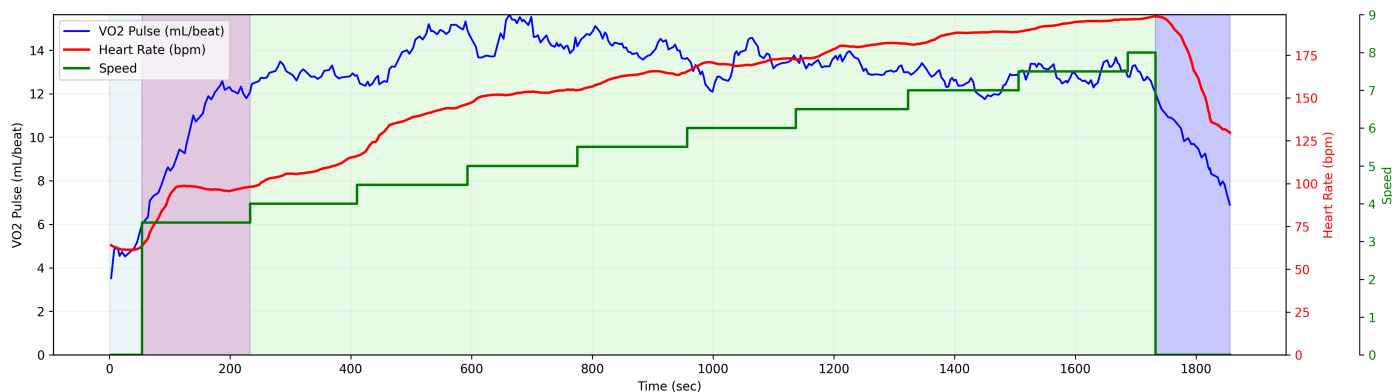




Client: Keirstyn Moran | Assessment Date: July 29 2025

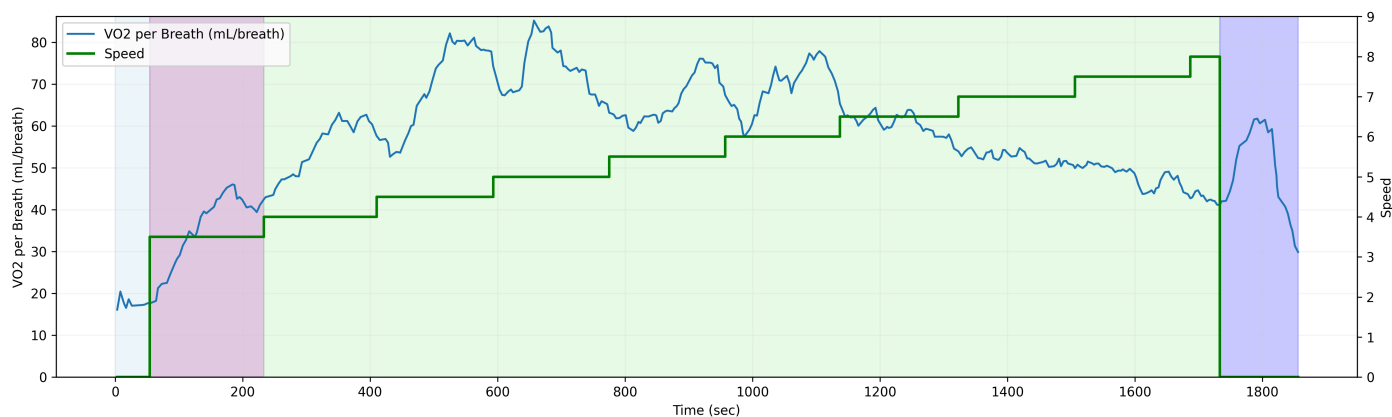
## VO2 Pulse

Begins to drop at 180 bpm (Zone 4)



## VO2 Breath

Begins to drop at 173 bpm (Zone 3)



## Fat Metabolism

### Fat Max

*\*Optimal 10-12Kcals/minute*

**3.8Kcals/min**

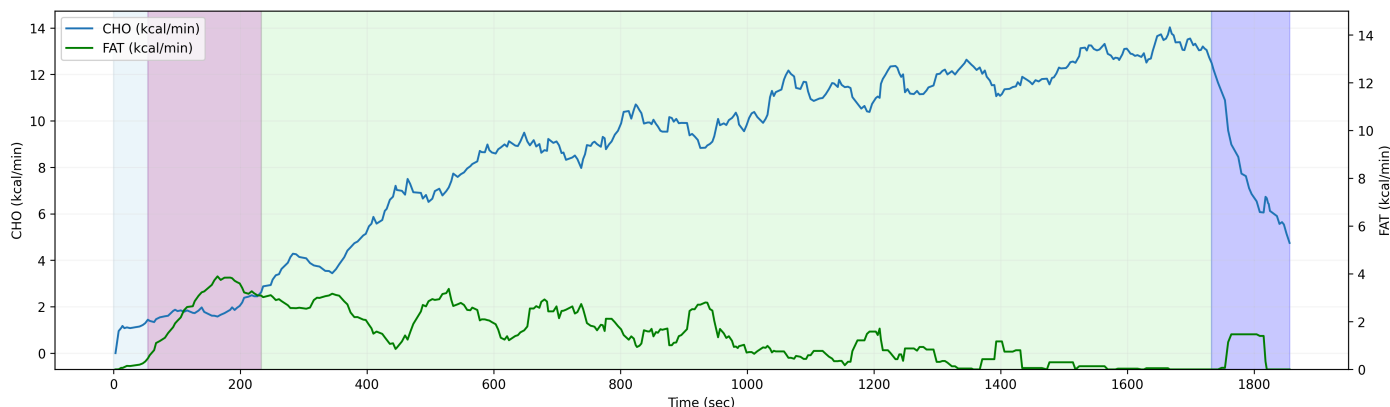
49% of Max Heart Rate  
97 bpm

### Carbs and Fat Crossover

**100bpm**

51% of Max Heart Rate

100bpm at a speed of 4.0mph and incline of 2%



## Recovery

### Cardiac Recovery

(1 minute)

**33%**

### Metabolic (CO2) Recovery

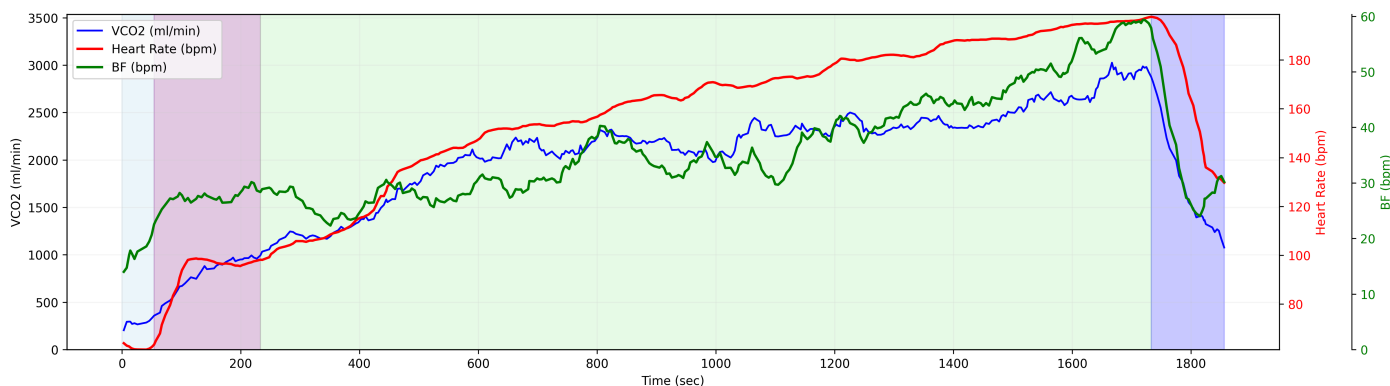
(2 minute)

**65%**

### Breath Frequency Recovery

(2.5 minute)

**76%**



## Resting Heart Rate - 53bpm


| Age (F) | Poor    | Below Average | Average  | Above Average | Good     | Excellent | Athlete  |
|---------|---------|---------------|----------|---------------|----------|-----------|----------|
| 26-35   | 82bpm + | 75-81bpm      | 71-74bpm | 66-70bpm      | 62-65bpm | 55-61bpm  | 44-54bpm |

# Local Muscle Activity

## Muscle Oxygenation Assessment

SMO2 testing (Skeletal Muscle Oxygen Saturation) is an analysis of how effectively oxygen is being used at a particular muscle. It helps determine limitations on if the muscle is effectively using oxygen when exercising.

### Indications - Right Leg

Right Leg SMO2 Chart

**Surplus**  
Supply > Demand at a heart rate and speed of:  
**n/a**

**Supply Threshold**  
Demand outstrips supply at a heart rate of:  
**154bpm @ 5.0mph**

**Recovery**  
"Optimal >100%"  
**n/a**

### Indications - Left Leg

Left Leg SMO2 Chart

**Surplus**  
Supply > Demand at a heart rate and speed of:  
**n/a**

**Supply Threshold**  
Demand outstrips supply at a heart rate of:  
**165 bpm @ 5.5mph**

**Recovery**  
"Optimal >100%"  
**n/a**

# Training Recommendations

## Zone 2 3-4x/week:

- 40+ minutes of Steady State Cardio (HR 96-110bpm bpm)
- 3.5-4.0mph at 2% Incline

## Zone 3 1-2x/week:

- 10-20 minutes in zone 3 (HR 100-178bpm)
- 4.0-6.5mph + at 2% Incline
- Slow down cadence until HR reaches 140bpm
- 3.5mph at 2% Incline
- Maintain HR in zone 1 (81-96bpm) for 4-8 minutes
- Repeat 2-3 times

| Type   | Sets | Effort Duration | Zone | RPE | Recovery Duration |
|--------|------|-----------------|------|-----|-------------------|
| Short  | 8-10 | 10-30 seconds   | 5    | 10  | 20-60 seconds     |
| Medium | 6-8  | 30-90 seconds   | 4    | 8-9 | 30-90 seconds     |
| Long   | 4-6  | 5-10 minutes    | 3/4  | 7-8 | 2.5-5 minutes     |
| Tempo  | 2-3  | 10-20 minutes   | 3    | 6-7 | 4-8 minutes       |
| Cardio | 1    | >40 minutes     | 2    | 4-5 | N/A               |

# Training Week Example with Progression

## Monday

Zone 2  
45 mins

## Tuesday

Zone 2  
45 mins

## Wednesday

Zone 3  
10mins  
On  
8mins  
Rest  
x2

## Thursday

## Friday

Zone 2  
45 mins

## Saturday

## Sunday

## Monday

Zone 2  
50 mins

## Tuesday

Zone 2  
50 mins

## Wednesday

Zone 3  
10mins  
On  
6mins  
Rest  
x2

## Thursday

## Friday

Zone 2  
50 mins

## Saturday

## Sunday

# Training Week

*(To be filled out by your trainer)*

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

## Training Week Guidelines

### Zone 1

- Zone 1 training is low intensity, for active recovery.
- It can be done daily or even consecutively, depending on fitness, volume, and health.

### Zone 2

- Zone 2 training can be done on consecutive or daily basis with moderate sessions.
- Can be steady state or interval sessions.

### Zone 3

- Zone 3 training can be done 1-5 times per week.
- Wait 24 to 48 hours between sessions for adequate recovery.

### Zone 4

- Zone 4 training: 1-4 times per week.
- Wait 24 to 48 hours between intense sessions for recovery.

### Zone 5

- Zone 5 training: 1-2 times per week.
- Wait 48 hours between sessions for recovery.
- Zone 5 increases VO2 max and endurance at VO2 max.

***Zone 3, 4, 5 can be combined with Zone 1 or 2 - the higher zone should be done first!***

# Next Steps:

## Calorie Tracking

- Download and create an account with My Fitness Pal (or preferred nutrition tracker)
- Fill out the "My Profile" section with your goals (ie: height, weight, target weight)
  - Input your Macros
  - Click the three dots on the bottom right corner
  - Click "Goals"
  - Click "Calorie, Carbs, Protein and Fat Goals" under the Nutrition Goals
  - Set the Calories, Carbs, Protein, and Fat to the recommended macro outlined above.
- Once completed fill out your food intake from each meal on the main page

***It's highly recommended to purchase a weight and food scale for more accurate results.***

## Daily Tasks

- Weigh yourself in the morning, after your first bowel movement, and naked
- Log your weight into your my fitness pal app
- Track calories in grams - FOLLOW YOUR PERSONAL RECOMMENDATIONS.
- Log in a diary:
  - Log any additional prescribed recommendation (i.e breath work)
  - Complete the prescribed training recommendations (i.e Zone 2 Training)
  - Log additional physical activity (i.e Monday - Strength Training 1 hour)

## Two weeks after Appointment

- Should you find the macronutrient breakdown difficult to follow, reach out to us to discuss a change within your caloric parameters

**Should you have any questions or concerns please contact us!**

**Recommended Next Testing Date: October 2025**

# Glossary

## Body Fat Percentage:

The percentage of your overall body weight that is composed of fat cells. Body fat percentage can be reduced by either losing weight from fat mass, while maintaining lean mass, or maintaining fat mass while increasing lean mass.

## Metabolic Rate:

Metabolic Rate measures the number of calories your body burns for basic functions and movement, based on factors like weight, age, gender, and height. A higher metabolic rate helps prevent weight gain and supports weight loss by ensuring you burn enough calories. Tracking metabolic rate is key for managing weight and preventing conditions linked to metabolic dysfunction. Positive influences include resistance exercise, proper sleep, and adequate protein, while negative factors include extreme dieting, yo-yo dieting, and excessive cardio. Improving it involves resistance training and optimal nutrition.

## Fuel Source:

Fat-burning efficiency measures your cells' ability to use fat as fuel, reflecting mitochondrial and cellular health. It indicates how well your body balances fat and carbohydrate usage to support energy needs, assessed by analyzing oxygen and carbon dioxide in your breath. High fat-burning efficiency suggests strong metabolic and mitochondrial function, linked to better weight management and longevity.

To improve fat-burning efficiency, focus on Zone 2 endurance training and potentially intermittent fasting to enhance oxygen absorption and cellular function. Zone 5 interval training will also help improve fat burning mitochondrial density and capillarization. Factors that reduce fat burning ability include diets high in processed foods, alcohol, and large meals before bed. Conditions related to metabolic stress also hinder fat burning abilities.

## NEAT (Non-Exercise Activity Thermogenesis)

refers to the energy expended for all activities that are not deliberate exercise or structured physical activity. This includes daily movements such as walking, fidgeting, standing, cleaning, typing, and even simple tasks like cooking or shopping. NEAT contributes significantly to the total caloric expenditure and plays a key role in maintaining body weight and overall energy balance. It varies widely among individuals, depending on lifestyle, occupation, and habits.

## Spirometry:

Spirometry is a diagnostic device used to provide objective measurements of lung volumes and capacities. Lung function is crucial for oxygen delivery during physical activity, and comparing spirometry results to expected values can highlight any potential limitations to performance.

"From a Performance standpoint, it is essential in making informed training recommendations related to respiratory health to optimize endurance performance and metabolic health."

- **FEV1:** Forced Expiratory Volume - the total amount of air expelled in the first second.
- **FVC:** Forced Vital Capacity - the maximum amount of air exhaled in one breath after a maximum inhalation
- **FEV1/FVC:** Calculated ratio used in the diagnosis of obstructive & restrictive lung disease.

By comparing these measurements to expected values based on age, gender, height and ethnicity, healthcare professionals can diagnose a range of lung conditions such as asthma, COPD, restrictive lung diseases, and more.

## VO2 max:

VO2 Max, or maximal oxygen consumption serves as a valuable indicator of overall fitness, cardiovascular health, and endurance capacity. VO2 max reflects the efficiency of your heart lung system in pumping oxygen-rich blood to working muscles. A higher VO2 max indicates a stronger cardiovascular system, which is associated with a reduced risk of heart disease and other cardiovascular issues.

Understanding and training to increase your VO2 max can contribute to enhanced physical performance, longevity and well-being.



## Glossary

### Peak VT:

Peak Volume of air moved throughout the test.

Respiratory Capability Limitations that can be found include:

- **Endurance:** Normal capacity, but cannot maintain their VT over time.
- **Strength/Power:** Normal capacity, but peak VT is not 75-85% of their FEV1 despite FEV1 being normal
- **Coordination (Hyper/Hypo-Ventilation):** Normal capacity, but uses low volumes +/- high BF's at lower intensities. A breathing coordination limitation can also be identified by the loss of volume at higher intensities, which are then recovered upon recovery/stop of activity.

### VO2 Pulse:

VO2 Pulse refers to the relationship between oxygen consumption (VO2) and heart rate (HR) during exercise. This measure gives insight into how efficiently the body is using oxygen in relation to the heart's output. A higher VO2 Pulse suggests that an individual is able to deliver oxygen more efficiently to the muscles with each heartbeat.

### VO2 Breath:

VO2 Breath refers to the amount of oxygen consumed per breath during exercise, which indicates how effectively the body delivers oxygen to the bloodstream through the lungs with each breath. A more efficient VO2 Breath means the body requires less effort to obtain the same amount of oxygen, indicating better respiratory efficiency and oxygen utilization.

### Carb & Fat Crossover:

The point during exercise at which the body shifts its predominant fuel source from fats to carbohydrates. This transition typically occurs as exercise intensity increases, and marks the transition from Zone 2 into Zone 3. As exercise intensity increases, the body starts to rely more on carbohydrates because they provide faster energy. Endurance training (e.g., long, steady-state cardio within Zones 1 & 2) increases the body's ability to burn fat efficiently at higher intensities, shifting the crossover point to a faster speed, or higher heart rate/intensity. Because fat stores are much larger and can provide a steady stream of energy for prolonged periods, a higher CHO/FAT crossover can help delay fatigue, which is especially beneficial in longer-duration events, where carbohydrate depletion can lead to a significant drop in performance.

### Cardiovascular Recovery:

The percentage your heart rate drops within the first minute of the inactive recovery phase in relation to the lowest heart rate recorded prior to the start of the test.

### Metabolic (CO2) Recovery:

The percentage that your VCO2 levels (amount of CO2 you are exhaling) drop within the first 1.5 minutes of the inactive recovery phase in relation to the lowest VCO2 recorded prior to the start of the test.

refers to the rate at which the body clears carbon dioxide (CO2) after exercise, reflecting the efficiency of the cardiovascular and respiratory systems in returning CO2 levels to baseline. A faster VCO2 recovery indicates effective management of metabolic byproducts, signaling a healthier metabolic system and lower risk of metabolic disorders.

### Breath Frequency Recovery:

Refers to the speed at which the body returns to a normal breathing rate after physical exertion. Faster breath frequency recovery indicates a well-conditioned cardiovascular and respiratory system, allowing the body to efficiently regulate oxygen and CO2 levels. It supports better endurance, faster recovery between intervals, and the ability to sustain higher performance during repeated efforts or prolonged activity. Additionally, a quick return to baseline signals that the autonomic nervous system is functioning well, reducing stress on the body and promoting more efficient recovery. This also reflects a healthier metabolic system, better management of metabolic byproducts like CO2, and a lower risk of chronic conditions.

# Glossary

## Local Muscle Activity/SMO2:

SmO2 testing is a valuable tool for understanding how muscles respond to various physiological stressors and how to fine-tune training, nutrition and hydration accordingly. Monitoring changes in tissue oxygen saturation and utilization helps identify an individual's optimal intensity to work at, as well as how well they recover between bouts of intensity. This can help optimize training to improve performance, prevent overtraining, and tailor strategies for better results.

During competitions, athletes can also use SmO2 data to pace themselves effectively. Adjusting intensity based on muscle oxygenation can help prevent premature fatigue and optimize race outcomes

## Body Fat Percent Master Chart



# Glossary

## Resting Heart Rate

| Age (M) | Poor    | Below Average | Average  | Above Average | Good     | Excellent | Athlete  |
|---------|---------|---------------|----------|---------------|----------|-----------|----------|
| 18-25   | 85bpm + | 76-84bpm      | 74-78bpm | 70-73bpm      | 66-69bpm | 61-65bpm  | 60-60bpm |
| 26-35   | 83bpm + | 77-82bpm      | 73-76bpm | 69-72bpm      | 65-68bpm | 60-64bpm  | 55-59bpm |
| 36-45   | 85bpm + | 79-84bpm      | 74-78bpm | 70-73bpm      | 65-69bpm | 60-64bpm  | 55-59bpm |
| 46-55   | 84bpm + | 76-83bpm      | 73-77bpm | 70-72bpm      | 66-69bpm | 61-65bpm  | 56-60bpm |
| 56-65   | 85bpm + | 78-84bpm      | 74-77bpm | 70-73bpm      | 65-69bpm | 60-64bpm  | 50-59bpm |
| 65+     | 84bpm + | 77-83bpm      | 73-76bpm | 70-73bpm      | 65-69bpm | 60-64bpm  | 55-59bpm |

| Age (F) | Poor    | Below Average | Average  | Above Average | Good     | Excellent | Athlete  |
|---------|---------|---------------|----------|---------------|----------|-----------|----------|
| 18-25   | 81bpm + | 74-81bpm      | 73-78bpm | 66-69bpm      | 62-65bpm | 56-61bpm  | 50-55bpm |
| 26-35   | 82bpm + | 75-81bpm      | 71-74bpm | 66-70bpm      | 62-65bpm | 55-61bpm  | 54-54bpm |
| 36-45   | 83bpm + | 76-82bpm      | 71-75bpm | 67-70bpm      | 63-66bpm | 57-62bpm  | 47-56bpm |
| 46-55   | 84bpm + | 77-83bpm      | 72-76bpm | 68-71bpm      | 64-67bpm | 58-63bpm  | 49-57bpm |
| 56-65   | 82bpm + | 76-81bpm      | 72-75bpm | 68-71bpm      | 62-67bpm | 57-61bpm  | 51-56bpm |
| 65+     | 80bpm + | 74-79bpm      | 70-73bpm | 66-69bpm      | 62-65bpm | 56-61bpm  | 52-55bpm |

## VO2 Master Chart

| Age (M) | Very Poor | Poor      | Fair      | Good      | Excellent | Superior |
|---------|-----------|-----------|-----------|-----------|-----------|----------|
| 20-29   | 29.0-38.1 | 38.1-44.9 | 44.9-50.2 | 50.2-61.8 | 57.1-66.3 | 66.3+    |
| 30-39   | 27.2-34.1 | 34.1-39.6 | 39.6-45.2 | 45.2-51.6 | 51.6-59.8 | 59.8+    |
| 40-49   | 24.2-30.5 | 30.5-35.7 | 35.7-40.3 | 40.3-46.7 | 46.7-55.6 | 55.6+    |
| 50-59   | 20.9-26.1 | 26.1-30.7 | 30.7-35.1 | 35.1-41.2 | 41.2-50.7 | 50.7+    |
| 60-69   | 17.4-22.4 | 22.4-26.6 | 26.6-30.5 | 30.5-36.1 | 36.1-43.0 | 43.0+    |

| Age (F) | Very Poor | Poor      | Fair      | Good      | Excellent | Superior |
|---------|-----------|-----------|-----------|-----------|-----------|----------|
| 20-29   | 21.7-28.6 | 28.6-34.6 | 34.6-40.6 | 40.6-46.5 | 46.5-56.0 | 56.0+    |
| 30-39   | 19.0-24.1 | 24.1-28.2 | 28.2-32.2 | 32.2-35.7 | 35.7-45.8 | 45.8+    |
| 40-49   | 17.0-21.3 | 21.3-24.9 | 24.9-28.7 | 28.7-34.0 | 34.0-41.7 | 41.7+    |
| 50-59   | 16.0-19.1 | 19.1-24.4 | 21.8-27.6 | 25.2-28.6 | 28.6-35.9 | 35.9+    |
| 60-69   | 13.4-16.5 | 16.5-18.9 | 18.9-21.2 | 21.2-24.6 | 24.6-29.4 | 29.4+    |