OVAL

Police Department - Florida

Twelve-Week Status & Final Progress Report

Goal of the OVAL Program

Main Goal : To improve overall metabolic health of participants.

Provide personalized movement program

Maintain normal blood pressure

Reduce waist circumference

Preserve or increase skeletal muscle mass

Achieve weight loss

Reduce visceral fat, body fat mass, and overall body fat percentage

Increase the MetFlex Index

Maintain healthy body mass index

OVAL Program Timeline and Process

Testing (Test 1)

Week 1

- SMART Test performed
- Individualized movement program provided
- InBody composition analysis completed

Participants exercise per their movement program

Weeks 2 to 5

- Minimum requirements are 90 minutes of SMART Zone training and at least 1 interval MIIT/HIIT per week

Re-testing (Test 2)

(Check-in point to assess body adjustments)

Week 6

- Re-testing completed (both SMART Test and InBody Test)
- Results discussed with participants
- Movement program updated
- FreeRange training added
- Nutrition sessions

Participants exercise per their movement program

Weeks 7 to 11

- Minimum requirements are the same
- Participants use FreeRange training during self exercise and monitoring

Final re-testing and results (Test 3)

Week 12

- Re-testing completed (both SMART Test and InBody Test)
- Results discussed with participants

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Results vs. Adherence to Movement Program

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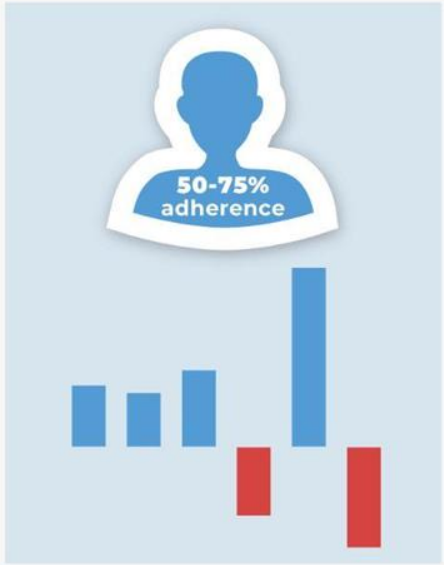
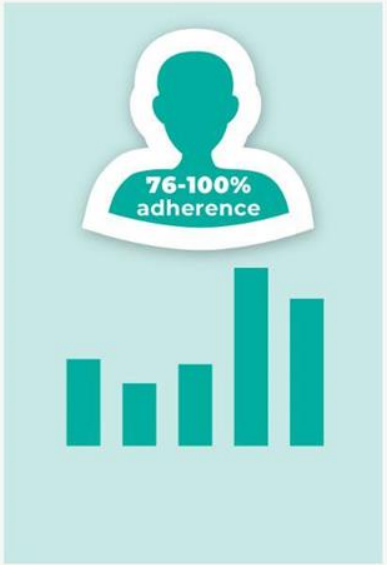
Adherence to Movement Program vs. MetFlex Index Changes

Greater adherence to their movement program led to greater improvements in the average MetFlex Index (MFI).

- **100%** of participants that adhered **>76%** to the movement program increased their MI.
- **82%** of participants that adhered **>50%** to the movement program increased their MI.





Minimum requirements for adherence

At least **90** minutes of SMART Zone training per week

At least **1** interval (MIIT/HIIT) training per week

Adherence to Movement Program vs. Weight Changes

Higher adherence to the movement program led to 7.2% weight loss while lower adherence led to a 5.3% weight gain.

High Adherence to Movement Program

Average weight loss of 7.2%

Low Adherence to Movement Program

Average weight gain of 5.3%

Adherence to Movement Program vs. Visceral Fat Changes

Higher adherence to the movement program led to reduction in visceral fat area which is an important variable for determining metabolic syndrome.

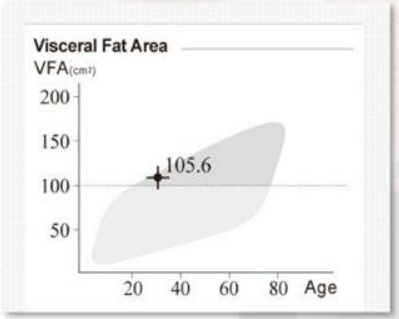
The higher adhering participants saw a **9% reduction in visceral fat area** while the lower adhering participants saw **an increase in the visceral fat area by 12%**.

Higher adherence group

9% reduction in visceral fat area

Lower adherence group

12% gained in visceral fat area



Visceral fat is fat that wraps around the abdominal organs deep inside the body. Because visceral fat is in the abdominal cavity, it is close to many vital organs, such as the pancreas, liver, and intestines.

Visceral fat is more likely to raise the risk for serious medical issues. Heart disease, Alzheimer's, type 2 diabetes, stroke, and high cholesterol are some of the conditions that are strongly linked to high visceral fat.

Minimum requirements for adherence

At least **90** minutes of SMART Zone training per week

At least **1** interval (MIIT/HIIT) training per week

Adherence to Movement Program vs. Waist Circumference

Higher adherence to the movement program led to reduction in waist circumference, which is another important variable for determining metabolic syndrome.

The higher adherence group **reduced waist circumference by 5%**, while those those participants with a lower percent exercise adherence **increased their waist circumference by 5%**.

Higher adherence group

Lost 5% in waist circumference

Lower adherence group

Gained 5% in waist circumference

Waist circumference is a good measure of fat around the middle of the body. This type of fat builds up around the internal organs, and is linked to high blood fat levels, high blood pressure and diabetes.

A larger waist usually also means there is excess fat inside your organs.

Minimum requirements for adherence

At least **90** minutes of SMART Zone training per week

At least **1** interval (MIIT/HIIT) training per week

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Overall Findings

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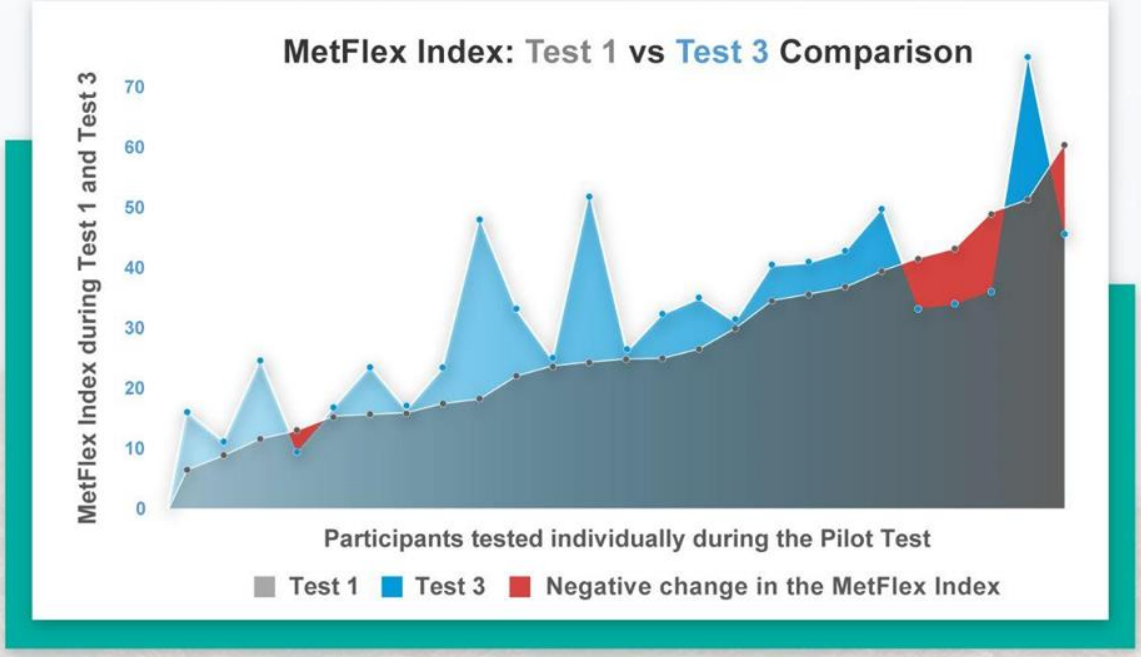
Overall Findings : MetFlex Index Comparison

75% of the participants demonstrated improvement in their MetFlex Index between Test 1 and 3.



MetFlex Index (MI)

The MetFlex Index is an indicator of systemic metabolic health (as measured from 0-100+ where 0 is poor and 100+ is exceptional).

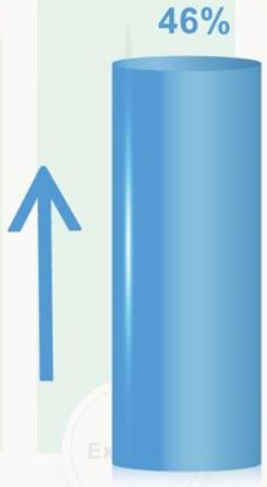
The lower the MetFlex Index, the lower the metabolic flexibility at the cellular level leading to higher risk for developing or worsening metabolic and cardiovascular health.

Overall Findings : MetFlex Index

18% The average MetFlex Index of the participants increased by 18% between Test 1 and Test 3.

(Average percentage increase was taken into account for only those participants who participated in both Test 1 and Test 3.)

46% 46% average percentage increase in MetFlex Index of the participants with MetFlex Index **less than 30**.



Those with a MetFlex Index **less than 30** at Test 1 increased their Index **46%** on average while those with a MetFlex Index greater than 30 increased their Index by **10%** on average.

Overall Findings : MetFlex Index (continued)

40%

Only **40%** of the participants had MetFlex Index **less than 30** in Test 3, compared to the 64% in Test 1. This demonstrates a significant improvement in the group's overall metabolic health.

Test 1

64%

64% have MetFlex Index **less than 30**

36%

36% have MetFlex Index **higher than 30**

Test 3

40%

40% have MetFlex Index **less than 30**

60%

60% have MetFlex Index **higher than 30**

MetFlex Index 1-30

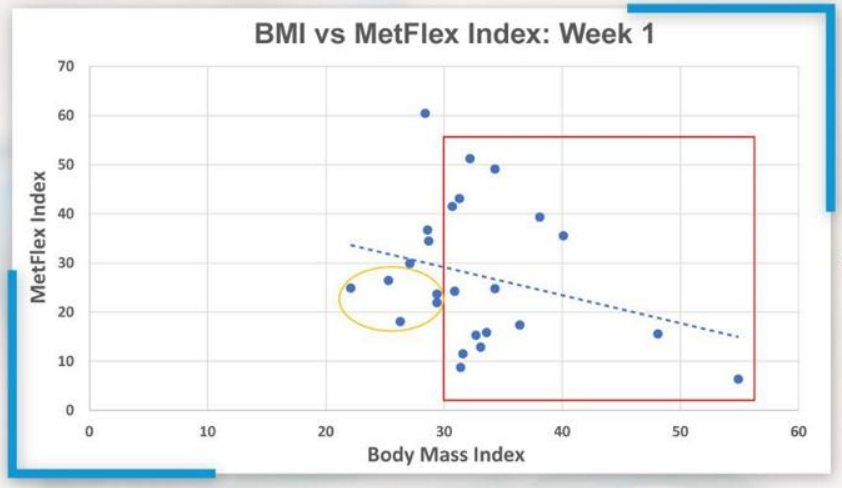
(Indicates reduced metabolic flexibility, a higher reliance on carbs, instead of fats, a low workloads, and poor lactate clearance capacity)

MetFlex Index 30-100

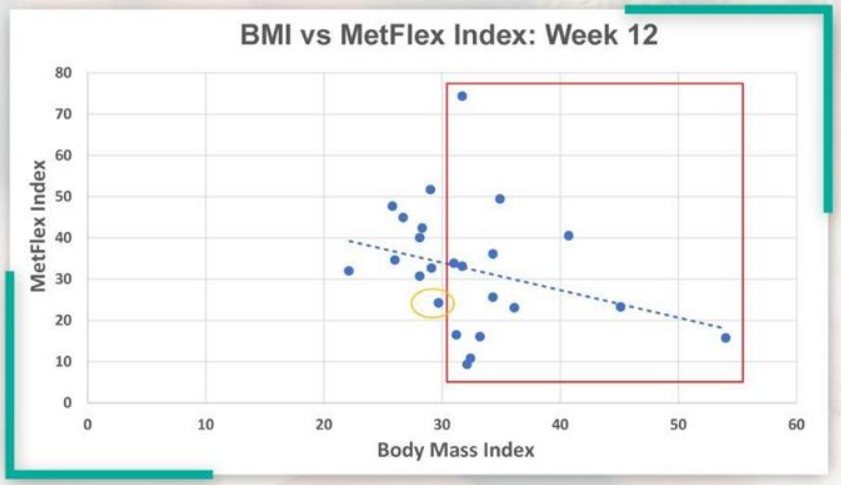
(Indicates greater physical capacity to work, better metabolic and cardiovascular health)

Overall Findings : Body Mass Index (BMI)

Lower Body Mass Index was associated with a higher MetFlex Index.



BMI



Test 1 Test 3

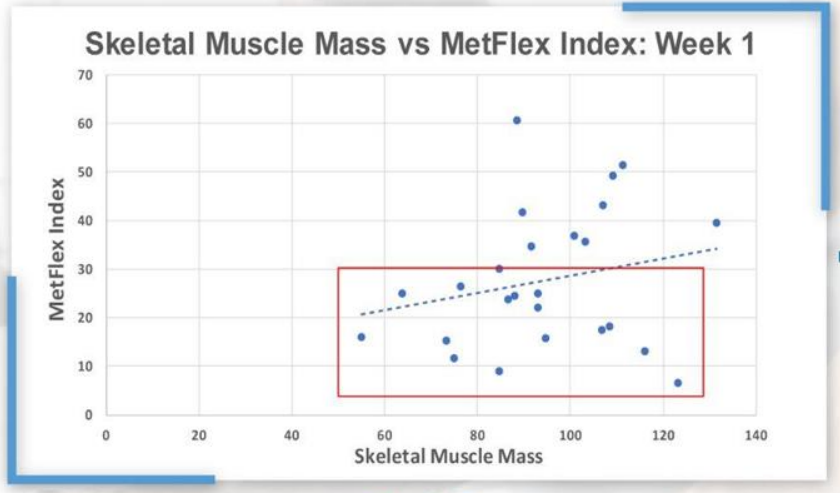
Noticeable positive trends from Test 3:

- The number of participants in the red-framed (BMI > 30) decreased from twelve to ten between Test 1 and Test 3.
- The number of participants in the orange circle (MetFlex Index < 30 within normal-weight and overweight participants) decreased from thirteen to two between Test 1 and Test 3.

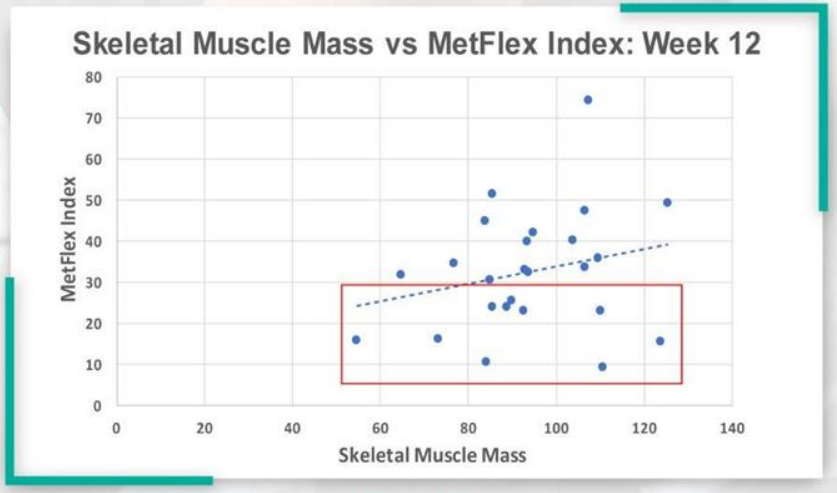
Overall Findings : Skeletal Muscle Mass (SMM)

A higher MetFlex Index is associated with greater SMM.

A higher SMM, relative to the MetFlex Index, is a sign of good metabolic health and fitness.



Test 1

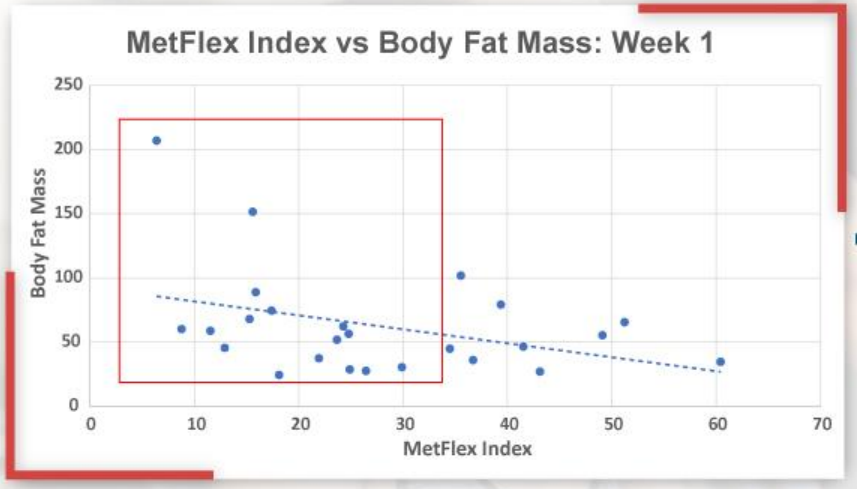


Test 3

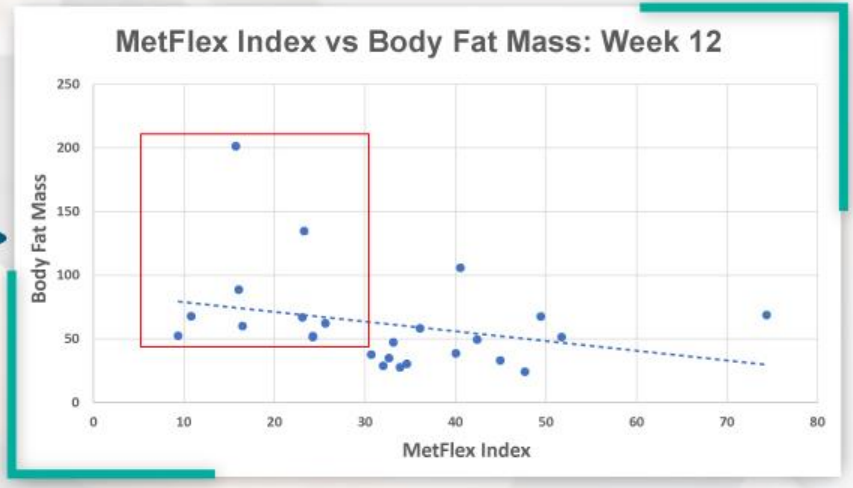
- The number of participants in the **red-framed** area are the highest risk participants with low SMM and low MetFlex Index.
- The number of participants in the **red-framed** area decreased after Test 3 as a result of increase in SMM or MetFlex Index.

Overall Findings : Body Fat Mass (BFM)

Higher MetFlex Index was found to be associated with lower BFM.



BFM



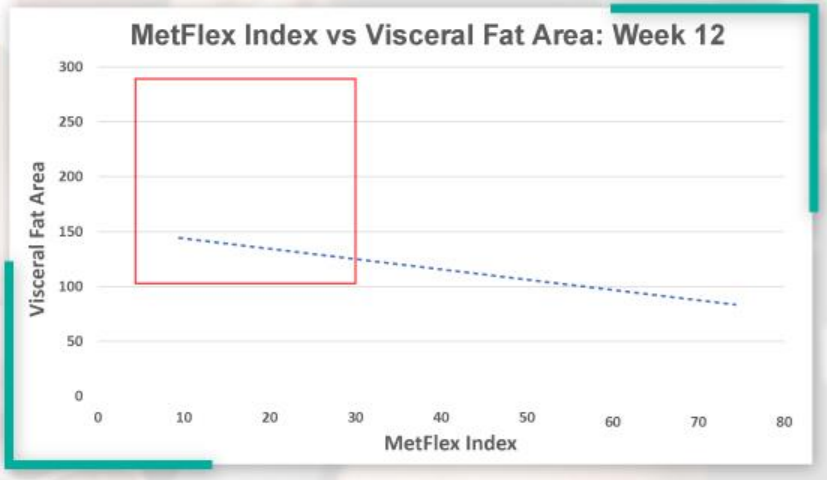
Test 1 **Test 3**

- As a result of increased MetFlex Index or reduced Body Fat Mass, there were fewer participants (in red-framed area) with greater metabolic risk.

Overall Findings : Visceral Fat Area (VFA)

A higher MI is associated with a lower VFA (below 100).

VFA

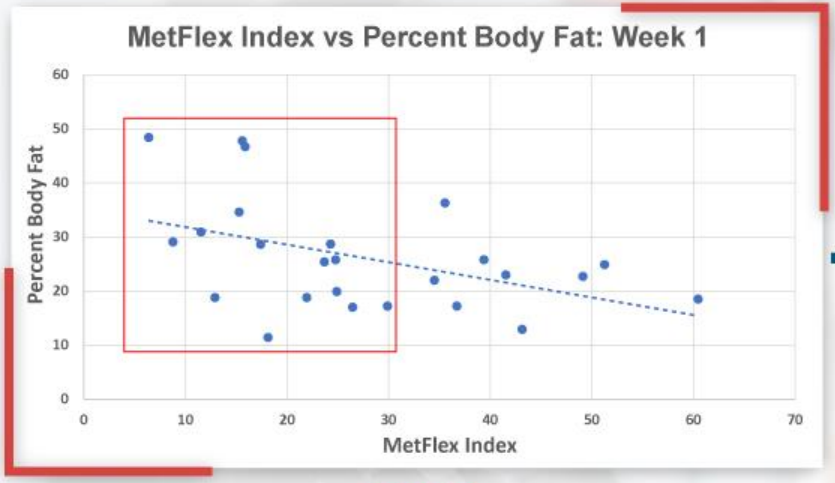


Test 1 **Test 3**

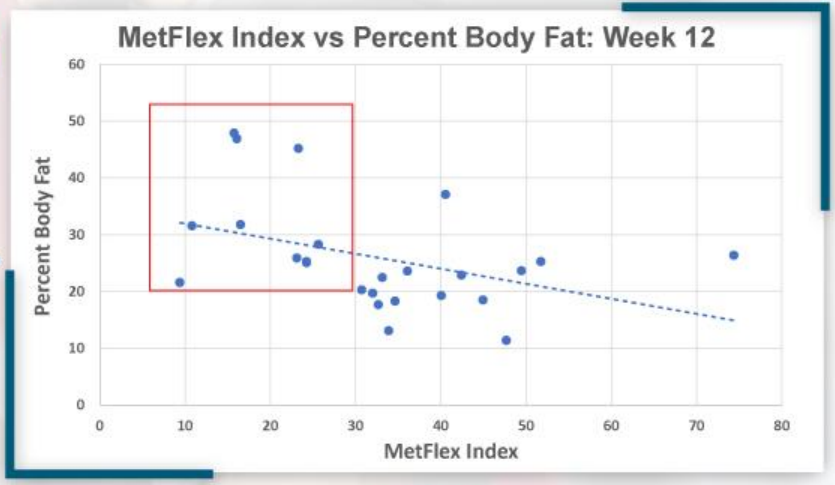
- Participants within the red-framed area demonstrate an increased risk of metabolic related disease VFA (above 100).
- The number of participants within the red-framed area reduced between Test 1 and Test 3 indicating a reduction in VFA and/or increase in MetFlex Index.
- All participants with a VFA (below 100) and MI below 30 (see week 1 figure) have moved beyond that risk area by the 12th week.

Overall Findings : Percent Body Fat (PBF)

Higher MI is associated with a lower PBF.



PBF

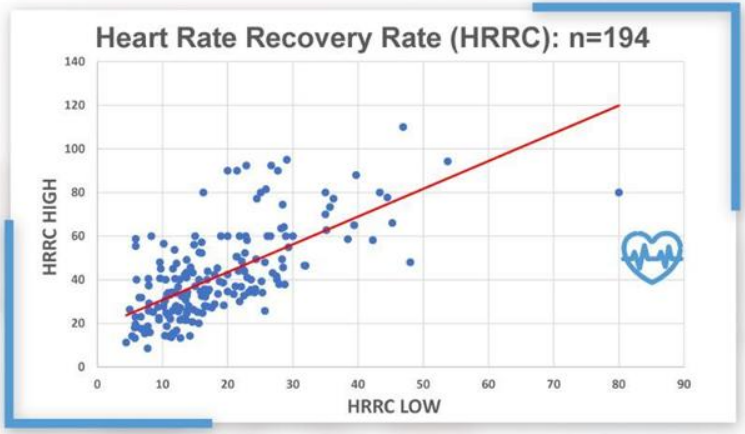


Test 1 **Test 3**

- Participants within the red-framed area demonstrate greater metabolic risk. Notice a reduction in the number of participants within the red-framed area between Test 1 and Test 3 indicating a reduction in PBF and/or an increase in the MI.

Overall Findings : Heart Rate Recovery (HRRC)

- The majority of the participants experienced improvement in their Heart Rate Recovery (**HRRC**).



- The **red line** indicates cardiovascular and neurological adaptations and improvements from following the **OVAL** movement program.
- We hope to observe the bottom cluster of blue dots continue to move **uphill** on the **red line** if participants are performing at least the minimal interval training recommended.

HRRC

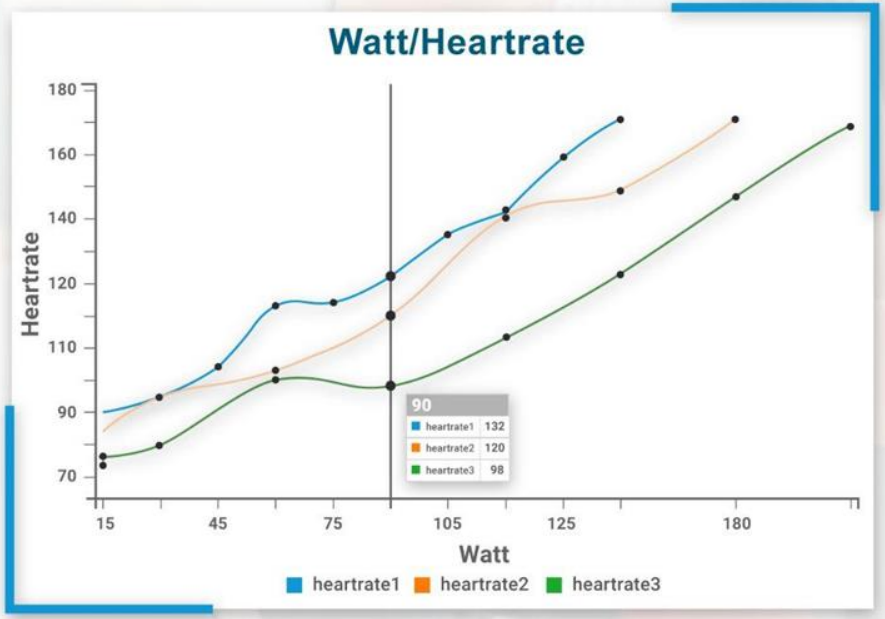
HRRC is the rate of recovery (in heartbeats per minute) from an Interval Zone, such as MIIT or HIIT, back to SMART Zone. A recovery rate under 15 beats per minute is a sign of fatigue and metabolic strain potentially leading to higher risks for heart problems.

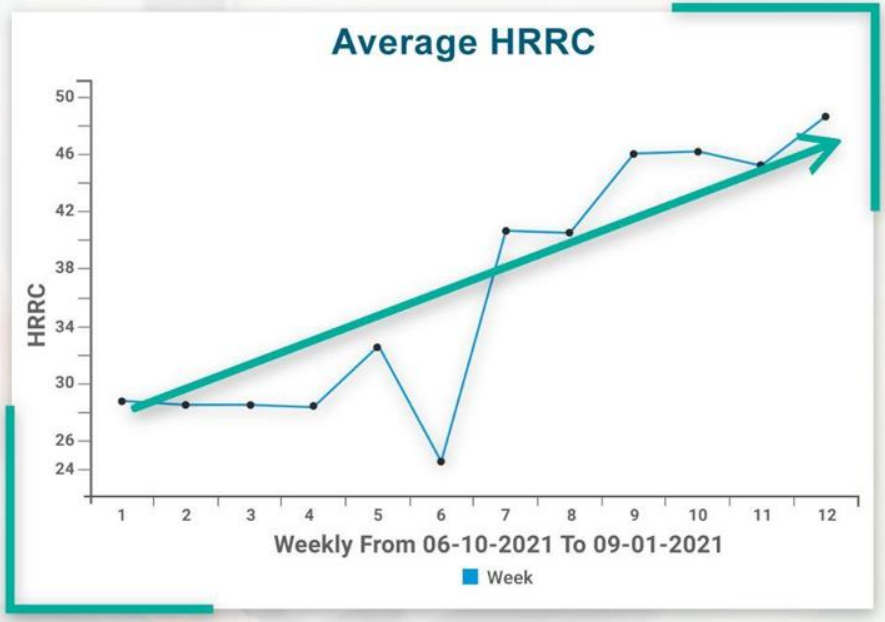
OVAL through its personalized movement program aims to guide your HRRC to higher rates which means your recovery between intervals/workouts are becoming faster and faster requiring less time for rest and recovery.

HRRC adaptation usually requires over three months of training.

Additional Metrics of Cardiovascular Improvements Within the OVAL Platform

- Improved Heart Rates relative to power output (watts) with successive SMART Testing.
- Improved/Increased Heart Rate Recovery Rates within and between Interval trainings.





Overall Findings : Systolic and Diastolic Blood Pressure

Participants reduced Systolic and Diastolic Blood Pressures by 4.7% and 4.5%, respectively.

- High Systolic Blood Pressure & Diastolic Blood Pressure can lead to increased risk for cardiovascular diseases and stroke.

Systolic Blood Pressure (SBP)

Measures the force a heart exerts on the walls of arteries each time it beats.

Diastolic Blood Pressure (DBP)

Indicates how much pressure your blood is exerting against your artery walls while the heart is resting between beats.

Pilot Program : Twelve-Week Status Summary

May - August, 2021

Process

- Initially, 32 participants signed up. 25 participants completed Test 3 (7 dropped out due to injuries, illnesses, and other personal reasons).
- Baseline testing. Both SMART and InBody tests were conducted.
- Individualized movement program given to each participant.
- Minimum requirements per week: 90 minutes of SMART Zone training 1 interval training (MIIT/HIIT).
- 6th week - retesting completed. Participants received updated movement program in addition to **FreeRange** training.
- Comprehensive nutrition session was organized.
- 6th and 12th weeks - retesting, results analysis, and feedback.

Retests

- Retest was completed during the 6th week and movement program were updated for each participant.
- **FreeRange** training was added to the prescription. This provided participants the opportunity to engage in any exercise of their choice.
- Final retesting was conducted at the end of the 12th week. Participants received feedback on one-on-one basis.

Education and Support

- **OVAL** explained results from both SMART and inBody tests to participants.
- **OVAL** provided necessary support and education about the **OVAL** app.
- Coaching sessions on nutrition were organized for the participants.

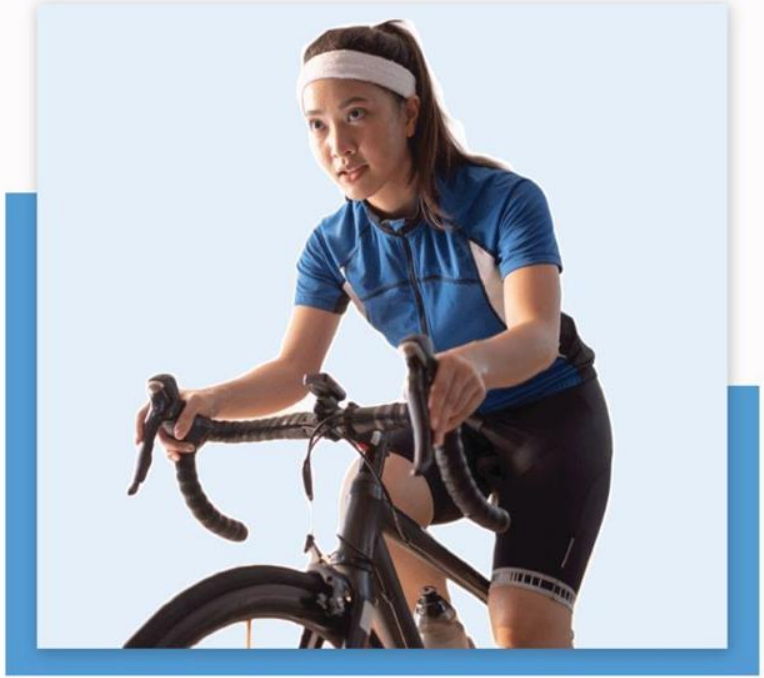
Pilot Program : Twelve-Week Status Summary (continued)

May - August, 2021

Summary of Findings

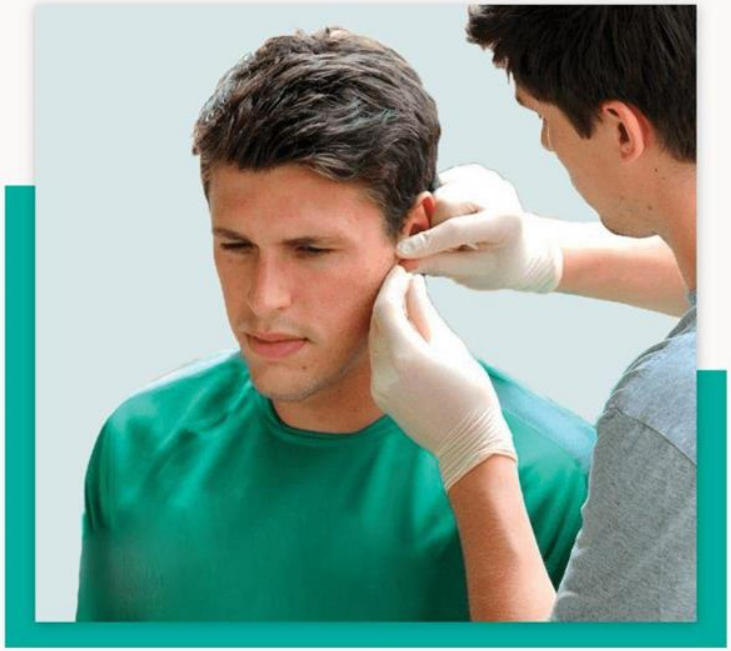
Results vs. Adherence

- **100%** of participants that adhered **>76%** to the movement program increased their MetFlex Index.
- **82%** of participants that adhered **>50%** to the movement program increased their MetFlex Index.
- Higher adherence to the movement program led to **7.2% weight loss** while lower adherence led to a **5.1% weight gain**.
- A **9% reduction** in Visceral Fat Area within the higher exercise adhering participants while lower adhering participants demonstrated a **12% gain** in Visceral Fat Area.
- A **5% reduction** in Waist Circumference within the higher exercise adhering participants while lower adhering participants demonstrated a **5% gain** in Waist Circumference.



Pilot Program : Twelve-Week Status Summary (continued)

May - August, 2021



Summary of Findings

Overall Findings

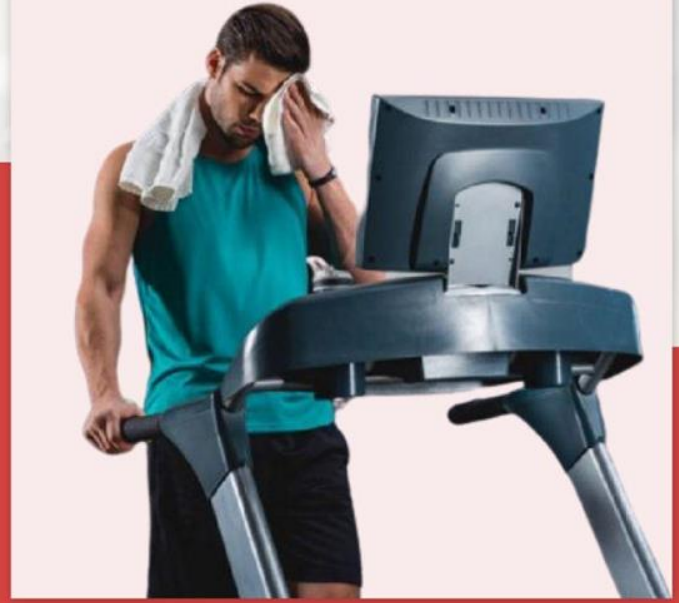
- **75%** of all participants had an increased MetFlex Index including **94%** that were initially **below a MetFlex Index of 30**.
- The average MetFlex Index of participants increased by **18%** between Test 1 and Test 3.
- Participants with a MetFlex Index less than 30 at Test 1 increased their Index **46%** on average while those with a MetFlex Index greater than 30 increased their Index by **10%** on average.
- Lower Body Mass Index was associated with a higher MetFlex Index.
- Participants reduced Systolic and Diastolic Blood Pressures by **4.7%** and **4.5%**, respectively.
- Improved Heart Rates relative to power output (watts) with successive SMART Testing.

Pilot Program : Twelve-Week Status Summary (continued)

May - August, 2021

Overall Findings

- Improved/Increased Heart Rate Recovery Rates within and between Interval trainings.
- Skeletal Muscle Mass remained stable for the group on average.
- Lower Percent Body Fat was associated with an increased MetFlex Index.
- Higher Lean Body Mass was associated with an increased MetFlex Index.



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Appendix

Success Stories : Participant Examples

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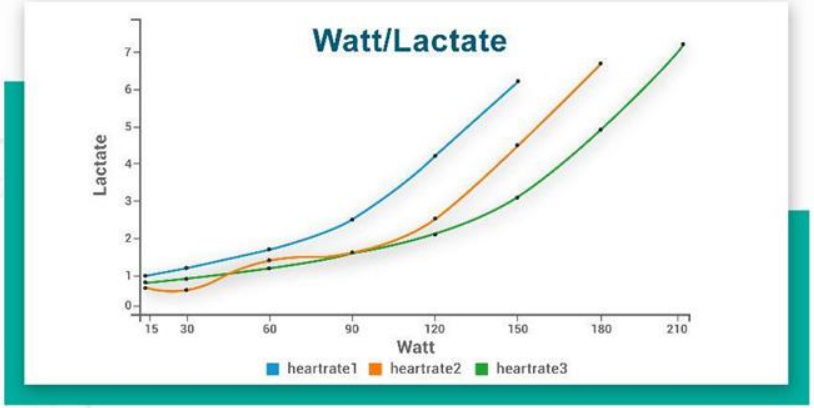
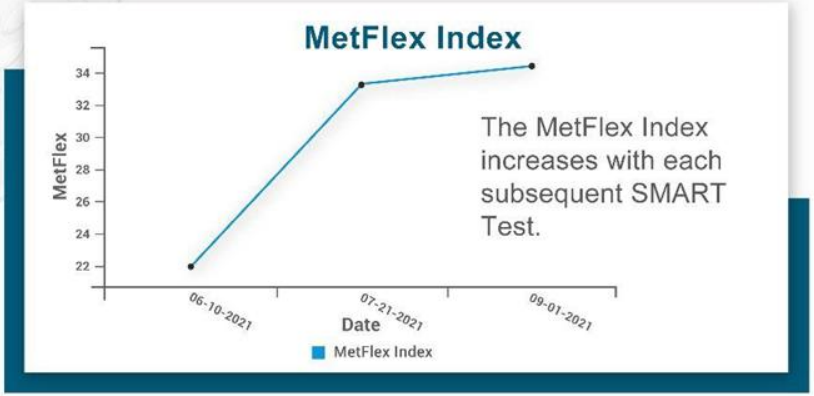
Success Stories : Participant Examples

Participant #1 : Relatively fit 45-year-old male

Exercise adherence improved after the 6th week (after Test 2) likely contributing to improvements in lactate clearance and cardiovascular function.

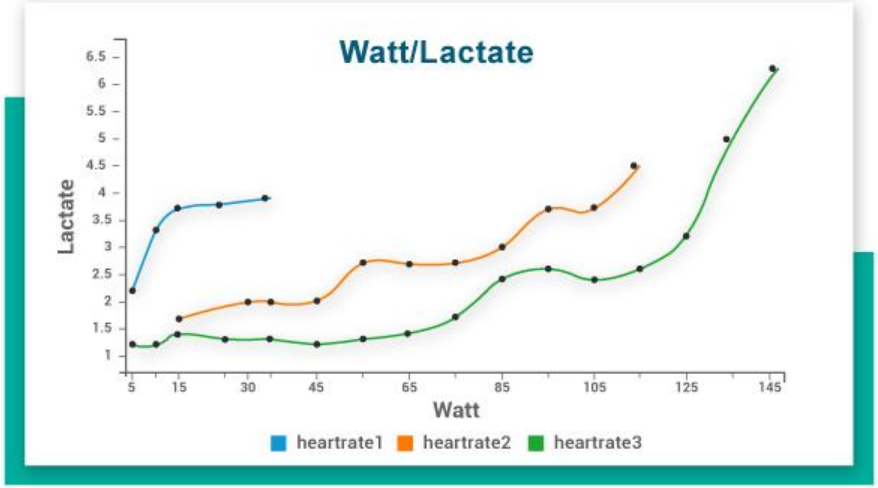


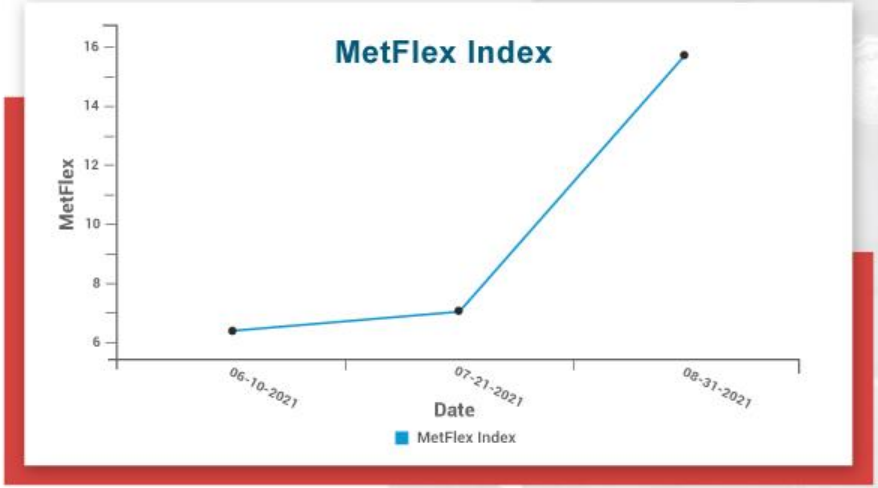
Lactate clearance capacity improves with each SMART Test. Observe each lactate curve become flatter as they shift right-ward.



Success Stories : Participant Examples (continued)

Participant #2 : Severely obese, 42-year-old male



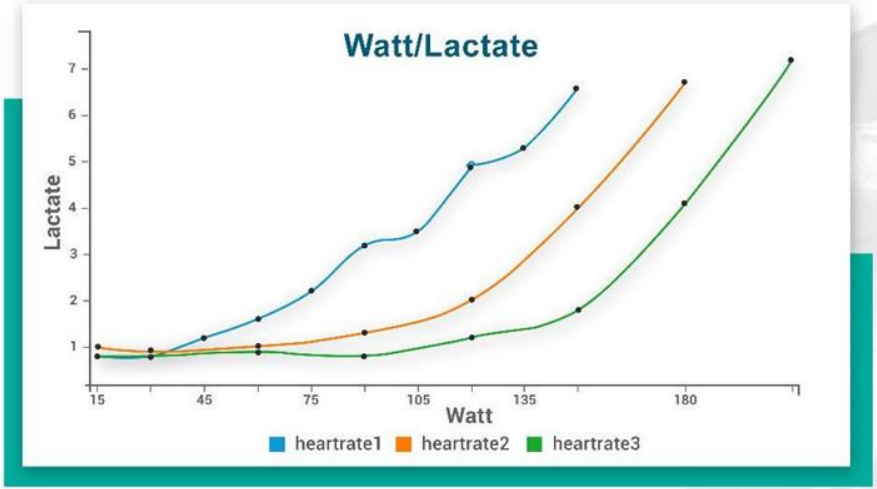


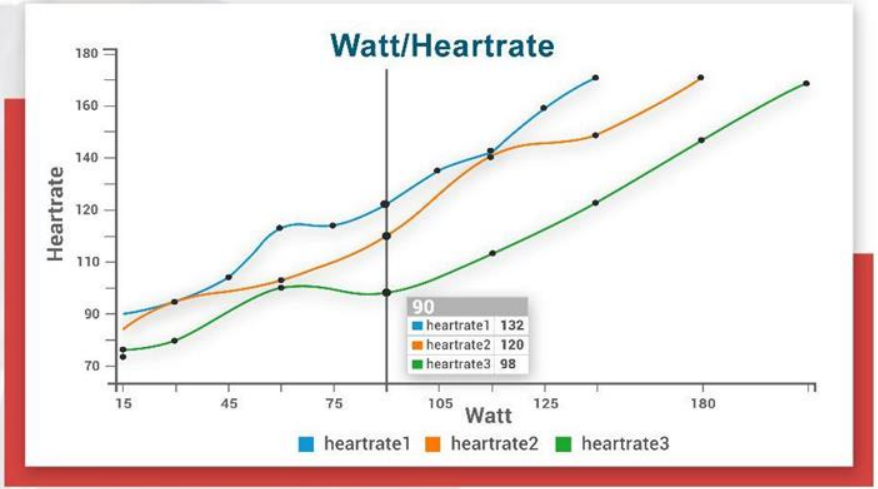
- The graph indicates improving metabolic health partly due to significant improvements in mitochondrial form and function gained thru exercise and training and increased physical activity.

- The figure demonstrates an initial poor MetFlex Index followed by progressive improvements in the MetFlex Index. These changes are critical for improving and sustaining systemic metabolic health.

Success Stories : Participant Examples (continued)

Participant #3 : Healthy 33-year-old male





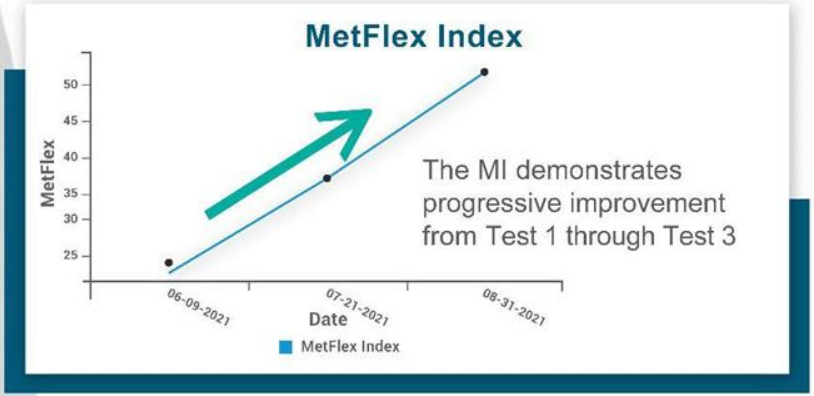
- The figure demonstrates an optimal retesting progression of lactate clearance capacity curves. The right-ward shift of each curve and the longer flattening at the base of each curve from the blue to the orange to the green curve.
- The "90" watt box displays three different heart rates attained at successive SMART Testing at the 90-watt stage. This demonstrates progressively reduced cardiac strain and improved efficiency during each SMART Test at 90 watts.

Success Stories : Participant Examples (continued)

Participant #3 : Healthy 33-year-old male
(continued)

- Exercise adherence improved after the 6th week (after Test 2) likely contributing to improvements in lactate clearance and cardiovascular function.

- HRRC demonstrates gradual improvement over progressive interval training workouts indicating additional positive cardiovascular adaptations.



Thank You

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