mescreen Profiles

Bucket 1 – Critical Support Needed

Profiles: ROS Watch, Lipid Support, Lipid Stress, Severe Mitochondrial Disruption

Description:
This group represents significant mitochondrial stress or damage, where key markers show reduced energy production capacity, increased oxidative stress, and compromised network integrity. Without intervention, this state can lead to accelerated cellular aging, reduced endurance, and increased vulnerability to disease. Immediate focus should be placed on antioxidant support, lipid membrane repair, and foundational mitochondrial rebuilding strategies to restore baseline stability before advancing to performance optimization.

Bucket 2 – Functional Vulnerabilities

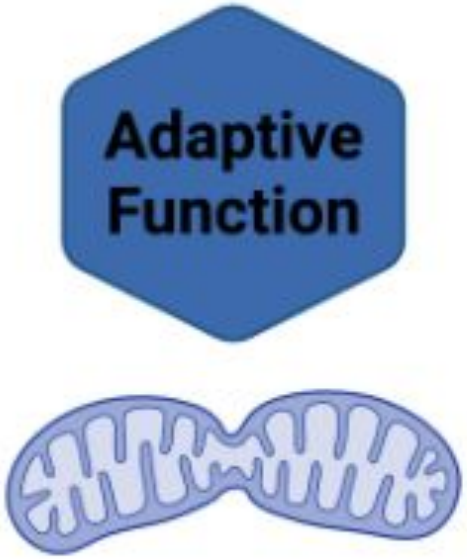
Profiles: Mild-Low Efficiency, Borderline Mitochondrial Dysfunction, Low Mitochondrial Efficiency, Mito Turnover Borderline, Mito Turnover, Network Drift

Description:
This group indicates that mitochondrial performance is compromised in certain areas, leading to inefficiencies in energy generation, structural network stability, or turnover processes. While the system is still functional, underlying stress or inefficiency can reduce resilience and recovery capacity. Individuals here benefit most from targeted interventions to restore lipid membrane health, improve oxidative balance, and optimize mitochondrial turnover rates to prevent further decline.

Bucket 3 – Strong but Adaptive Function

Profiles: High Function Growth Potential, Latent Potential, Functional Compensation, Vagal Support, Nervous System Shift

Description:
This group reflects a strong mitochondrial foundation with the ability to adapt and improve. While overall energy output and efficiency are above average, there may be hidden areas for optimization—such as network connectivity, nervous system balance, or targeted nutrient support—that could unlock even greater performance. These individuals are well-positioned to progress into elite mitochondrial states with strategic training, lifestyle refinement, and recovery-focused interventions.

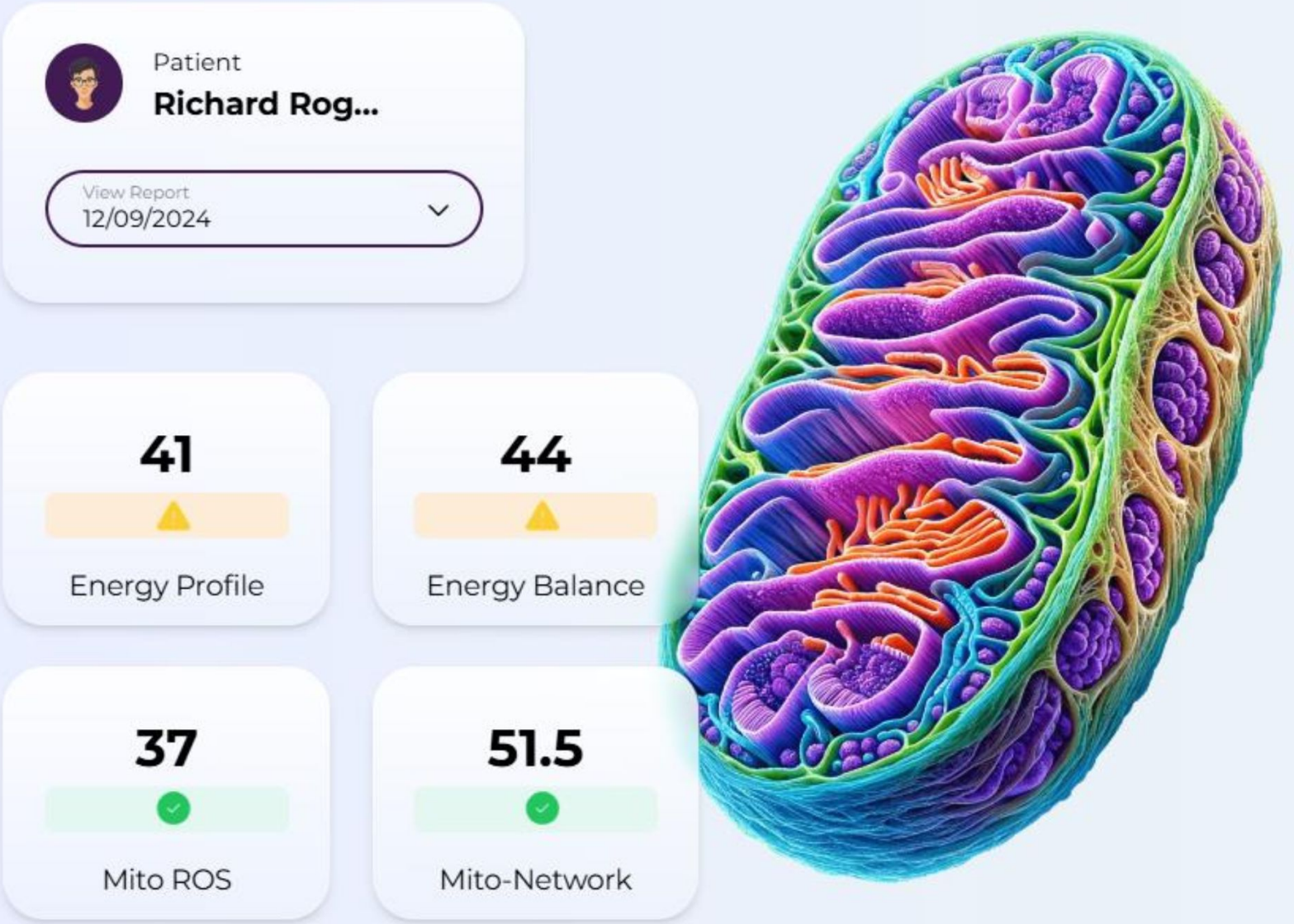


Bucket 4 – Elite Mitochondrial Performance

Profiles: Ultra Adapted Longevity, Super Mitochondrial Responder

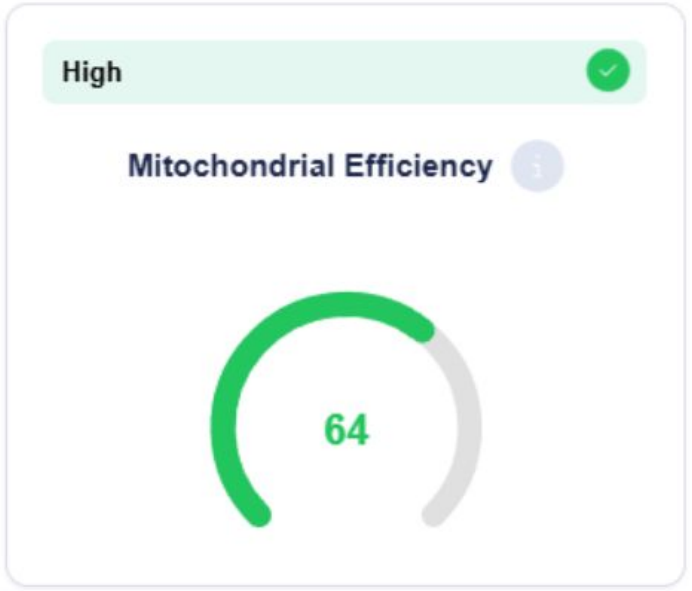
Description: This group represents the highest level of mitochondrial function, where cellular energy systems are highly efficient, resilient under stress, and capable of sustaining peak performance over time. Individuals in this category show exceptional oxidative capacity, robust mitochondrial networks, and minimal reactive oxygen species (ROS) stress. This bucket is associated with longevity traits, faster recovery, and the ability to maintain optimal metabolic output even under challenging conditions.

Four Components to the



Energy Profile

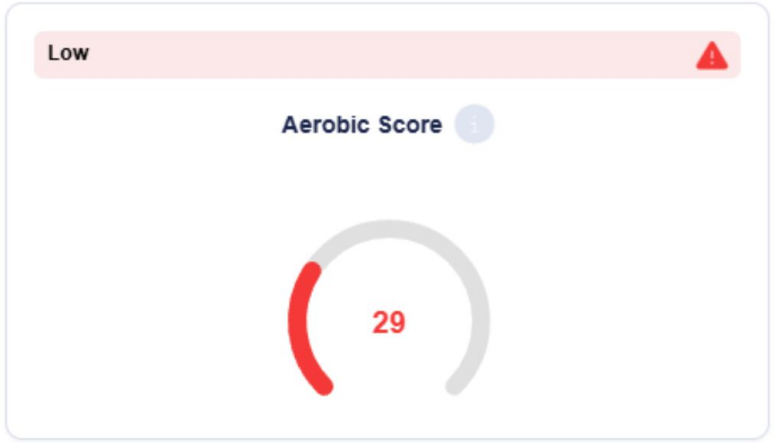
Energy at Rest
(Energy made at rest)



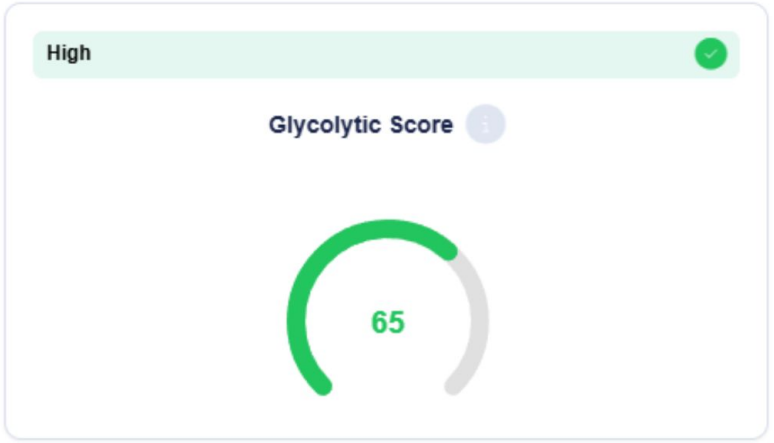
Energy Efficiency
(Leaky Energy)

Energy Generation
(Energy made at Stress)

Energy Balance

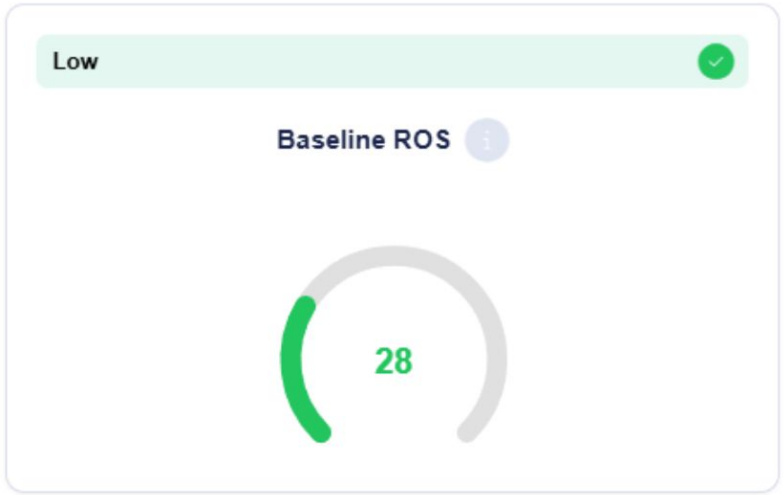


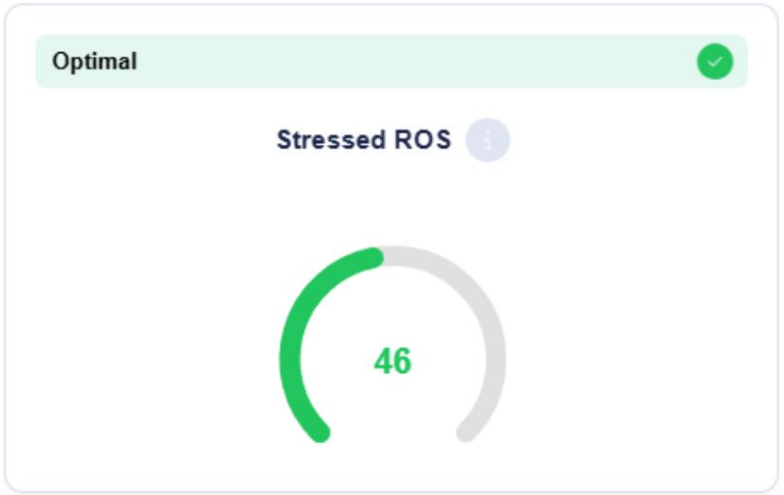
Energy Made from Mitochondria
(Most Efficient)



Energy Made from Glycolysis
(Less Efficient – leads to spikes and drips in energy)

Mito-ROS (Reactive Oxygen)

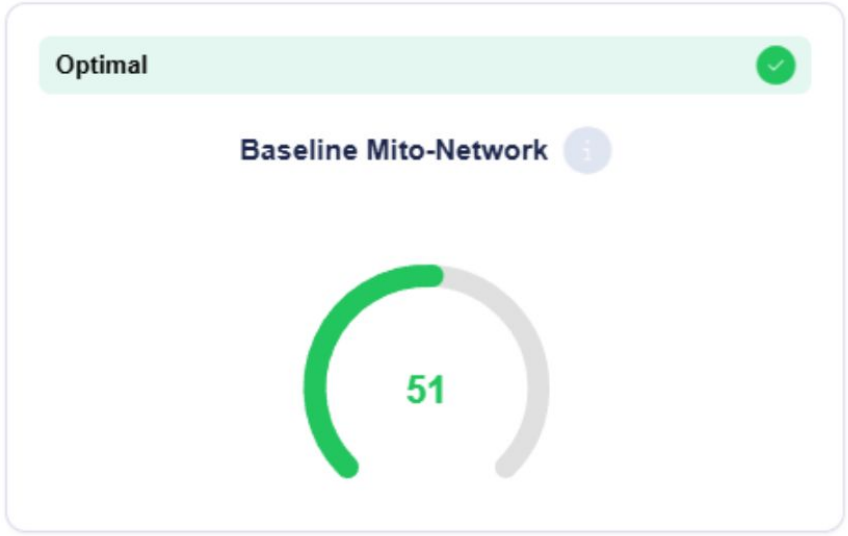




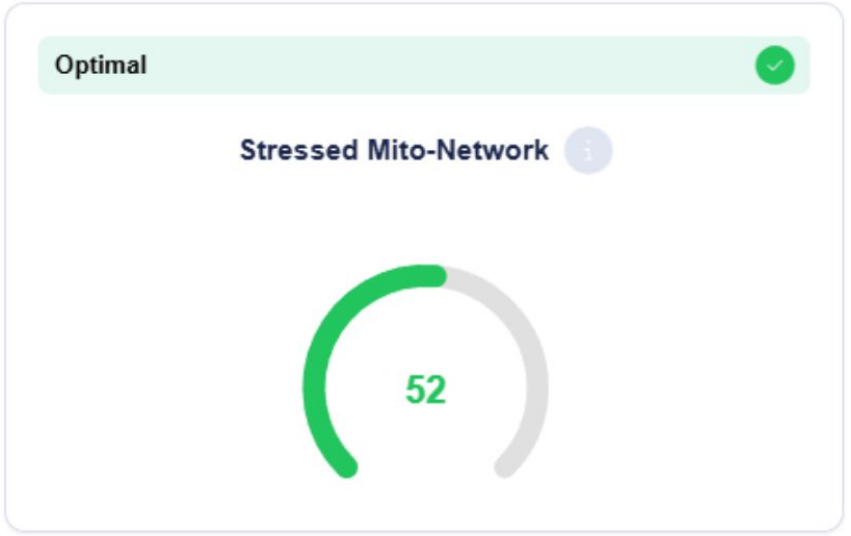
ROS Generation at Baseline
If high – long term ROS generation

ROS Generation at Stress Conditions
If High at BSL – will be high at Stress

Mito-Network (Mitochondrial Network)



Network Efficiency at Baseline



Network Efficiency at Stress

Mitochondria must have a stable network to function well and renew themselves over their lifetime of 10-12 days – think of it like a map, if the traffic is standing still, energy is not being delivered where it needs to go.

Key Tips for Interpreting the Test

- **ROS / Networks are critical – Dysfunction starts with lipids – support lipids first**
- **Once lipids have been dealt with, then move to support ROS Scavenging**
- **If lipids and ROS are within optimal limits, support Mitochondrial Turnover and/or energy generation.**
- **Once optimized, add in additional lifestyle interventions like red light therapy, etc.**

Profile 1 - Severe Mitochondrial Dysfunction

Summary:
Your mitochondrial profile reveals broad systemic failure across critical domains of cellular energy production. Markers such as baseline respiration, mitochondrial efficiency, and membrane potential are significantly impaired, while oxidative stress (ROS) and mitochondrial network fragmentation are elevated. These results indicate that your mitochondria are not only underperforming, but they are also structurally damaged, biochemically unstable, and contributing to widespread metabolic strain.

This is a state of mitochondrial exhaustion, where energy production is chronically suppressed, and ROS accumulation actively damages membrane structures and signaling pathways. If unaddressed, this pattern can drive fatigue, brain fog, immune dysregulation, inflammation, and accelerated aging. These are hallmarks of chronic diseases. The body's repair systems are likely overwhelmed, and energy deficits may continue to deepen without intervention.

This category requires **staged therapeutic intervention** beginning with **membrane restoration**, followed by **cellular cleanup**, and then **oxidative stress stabilization** as layered therapies.

Profile 2 - Lipid Stress

Summary:
Your mitochondrial profile indicates a critical level of oxidative stress specifically affecting mitochondrial membranes. Elevated levels of reactive oxygen species (ROS) combined with mitochondrial network fragmentation suggest active lipid peroxidation — the process by which oxidative damage degrades the lipid-rich membranes surrounding and connecting mitochondria.

This damage disrupts mitochondrial communication, ATP synthesis, and calcium regulation, impairing fusion-fission dynamics and mitochondrial DNA integrity. Left unaddressed, lipid peroxidation sets off a cascade of mitochondrial instability, cellular signaling errors, and chronic inflammation. Symptoms commonly associated with this pattern include energy crashes, neuroinflammation, immune sensitivity, brain fog, and increased vulnerability to environmental or emotional stressors.

This is a high-risk profile that requires immediate attention. The priority is to **halt oxidative damage to mitochondrial membranes** before supporting deeper mitochondrial retraining.

Profile 3 - Lipid Support

Summary:
Your mitochondrial profile reveals a concerning combination of elevated oxidative stress (ROS) and a disrupted mitochondrial network. These are hallmarks of an early-stage pattern of lipid membrane stress. This category reflects **membrane vulnerability**, often resulting from chronic stress, nutrient depletion, toxin exposure, or unresolved inflammation.

The mitochondrial network, which acts as the structural and signaling architecture that links mitochondria together, becomes fragmented or overactive when membrane lipids are damaged. This creates inefficiencies in energy transfer, increased susceptibility to oxidative injury, and communication breakdowns, affecting everything from hormone production to immune response.

This profile suggests that your mitochondria are still functionally capable, but the **structural foundation is compromised**. Supporting lipid architecture and redox stabilization will prevent progression to more advanced dysfunction.

Profile 4 – **ROS Watch**

Summary:
Your profile shows a notable elevation in **reactive oxygen species (ROS),** which can be an early warning sign that oxidative stress accumulates faster than your antioxidant defenses can manage. Although your mitochondrial efficiency and potential may still be functional, this elevated ROS indicates that your cells are under **chronic metabolic stress** and could be trending toward damage if not addressed.

This pattern often reflects cumulative strain from inflammation, poor detoxification, emotional stress, or micronutrient depletion. ROS is a normal byproduct of mitochondrial function, but when it builds up, particularly without a compensatory antioxidant response, it can initiate a slow erosion of mitochondrial membranes, DNA integrity, and enzyme systems. Symptoms may include fatigue after stress, brain fog, sleep disturbances, or inflammatory conditions that flare unpredictably.

This is your mitochondria saying: **“We’re coping, but not comfortably.”**

Profile 5 – **Network Drift**

Summary:

Your mitochondrial profile reveals **elevated mitochondrial network activity**, suggesting that the normally dynamic and responsive architecture of your mitochondria has become dysregulated. The mitochondrial network coordinates energy production, stress signaling, and organelle quality control. When this network is excessively fused, fragmented, or unstable, it can signal a state of **metabolic compensation or cellular stress adaptation**.

This often develops in chronic stress, poor membrane lipid quality, or redox imbalance. Functionally, a drifting mitochondrial network may still allow for ATP production but sacrifices precision, coordination, and efficient signaling. It's like having many people shouting in a room, there's activity, but not clarity. Over time, this can compromise mitochondrial dynamics, fusion-fission cycles, and biogenesis.

Symptoms may include inconsistent energy, exercise intolerance, variable cognitive function, and poor recovery from exertion. Intervention should focus on **restoring structural balance and signaling clarity** within the mitochondrial matrix.

Profile 6 – **Mito Turnover**

Summary:
Your profile shows **low baseline respiration and reduced mitochondrial potential or efficiency**, indicating that energy production is suppressed, not due to acute oxidative stress, but because your system is **overloaded with old, inefficient mitochondria** that haven't been properly cleared. This is a sign of impaired **mitophagy**, the process your cells use to remove dysfunctional mitochondria and make room for new, healthy ones.

This backlog leads to reduced energy output, slowed metabolic flexibility, and an accumulation of suboptimal mitochondrial machinery. It's like running a factory with outdated equipment, the factory technically works, but it's noisy, slow, and vulnerable to breakdown.

This pattern can emerge with age, chronic inflammation, toxin exposure, or suppressed autophagy signaling (often due to insulin resistance, poor sleep, or stress). You may feel flatlined. You are not crashing but always running at 60%. Symptoms often include sluggishness, poor recovery, weight gain resistance, and mental dullness.

Your mitochondria don't just need support. They need a **spring cleaning.**

Profile 7 – **Borderline Mito Turnover**

Your mitochondrial profile shows **altered baseline respiration**, while other key indicators such as efficiency and potential remain stable or mildly suboptimal. This is a **borderline state of early mitochondrial underfunction**, often seen when cells are holding onto outdated or sluggish mitochondria but haven't yet triggered alarm signals like excessive ROS or major energy breakdown.

This can result from chronic low-grade inflammation, poor metabolic flexibility, sedentary behavior, or aging-related declines in mitophagy signaling. Your mitochondria aren't severely damaged, but they're **not operating at full capacity**, and your system is quietly compensating.

You may notice subtle signs: low motivation, reduced mental clarity in the afternoon, delayed recovery from activity, or slow adaptation to dietary or sleep changes. This is a **perfect time to intervene** before mitochondrial inefficiency leads to broader cellular stress

Profile 8 – **Low Mitochondrial Efficiency**

Your mitochondrial profile shows **markedly reduced mitochondrial efficiency**, meaning your cells are expending energy and fuel but not getting a good return. It's like an old battery unable to maintain a charge. Rather than smoothly converting glucose or fat into ATP, your mitochondria leak energy through inefficient electron transport, often due to **membrane instability**, nutrient depletion, or chronic stress.

Low efficiency is rarely a standalone issue, it often signals compromised mitochondrial membrane integrity and disrupted lipid architecture. When the inner mitochondrial membrane becomes unstable, proton gradients collapse, and energy slips through the cracks. This inefficiency can produce chronic fatigue, muscle weakness, poor recovery from exercise, weight gain resistance, and sluggish metabolism.

This profile is an **early warning sign** of energetic collapse. Your mitochondria are not yet in crisis, but this state is unsustainable. Stabilizing the mitochondrial lipid matrix is critical to restoring clean energy output.

Profile 9 – **Borderline Mitochondrial Dysfunction**

Your mitochondrial profile reveals **converging early signs of breakdown** with both mitochondrial efficiency and potential trending low. Although not yet in the danger zone, this pattern suggests a system under escalating stress. Your mitochondria are underperforming, struggling to maintain energy balance, and are at risk of transitioning into more severe dysfunction.

This stage is highly reversible if action is taken now. Symptoms like mid-day fatigue, emotional reactivity, brain fog, exercise intolerance, and poor sleep may be starting to surface. Biologically, this pattern reflects **mitochondria operating at reduced capacity and failing to regenerate effectively**.

This profile signals a need to **rebuild the membrane structure**, **stimulate cellular cleanup** through mitophagy, and restore efficient energy production.

Profile 10 – **Borderline Mitochondrial Dysfunction**

Your mitochondrial profile reveals a **modest reduction in mitochondrial efficiency**, a subtle but measurable signal that your cells are producing energy with more effort than necessary. While respiration and potential may still be within acceptable ranges, the mitochondrial machinery is not converting fuel into ATP as cleanly or economically as it should. This can represent the earliest stage of metabolic drag.

You may not feel “sick,” but signs like post-meal sluggishness, reduced mental clarity in the afternoon, or slower-than-usual recovery from exertion may be present. Often, this inefficiency is caused by **membrane instability, low-grade inflammation, or early-stage cofactor depletion**. The good news is this is one of the **most correctable mitochondrial patterns** especially if addressed proactively.

Profile 11 – Nervous System Shift

Your mitochondrial profile reveals **severely suppressed baseline respiration**, reflecting a functional shutdown likely driven by the nervous system not by direct mitochondrial damage. This suggests your system has entered a **freeze state**, a form of energy conservation triggered by trauma, chronic stress, burnout, or autonomic dysregulation.

Rather than being broken, your mitochondria respond to upstream signals that say “do less.” This is a common response in individuals experiencing high emotional load, unresolved trauma, long COVID, chronic fatigue, or adrenal depletion. It’s your biology protecting itself, but this comes at a cost.

Symptoms may include exhaustion, emotional flatness, reduced motivation, low body temperature, brain fog, digestive slowing, and hypersensitivity to light, sound, or stimulation. Recovery is about **restoring safety, stability, and slow mitochondrial reactivation**.

Profile 12 – Vagal Support Needed

Your mitochondrial profile reflects **an energetic pattern** suggestive of chronic sympathetic overactivation or vagus nerve under-engagement. This isn't classical mitochondrial failure, it's your **autonomic nervous system redirecting energy processing**.

This adaptive pattern often emerges in high-functioning individuals under chronic stress or in people with trauma histories, emotional suppression, dysregulated breathing, or poor digestive motility. Rather than generating efficient, sustained mitochondrial energy, your system favors quick energy bursts to "get through the day," often at the cost of long-term cellular resilience.

You may feel wired but tired, struggle with sleep onset, experience poor digestion or bloating, or carry tension in the chest, diaphragm, or throat. Supporting vagal tone and mitochondrial recalibration **must happen in tandem** to restore true energy flexibility.

Profile 13 – Functional Compensation

Your mitochondrial profile reflects a **glycolytic preference without overt mitochondrial damage**, suggesting your body compensates for environmental, emotional, or physiological strain by shifting energy production away from mitochondria. This isn't a failure. it's an adaptation. Your cells choose the fastest available energy source (glycolysis), likely due to **stress, inflammation, under-recovery, or past mitochondrial insult**.

This pattern is often seen in high-functioning individuals who appear "fine" outside but feel an undercurrent of fatigue, metabolic rigidity, or poor recovery beneath the surface. While your mitochondria may not be severely impaired, they're underutilized, and your body relies on quick, shallow energy production at the expense of deeper endurance and flexibility.

The opportunity here is huge: your mitochondria are **ready to reengage**, but they need support, structure, and the right signals to take the lead again.

Profile 14 – Latent Mitochondrial Potential

Your mitochondrial profile appears **stable but underpowered**, with most metrics falling within average or low-normal ranges, but without any red flags for oxidative stress, collapse, or active dysfunction. This is a profile of **dormant capacity**: the system isn't broken or overwhelmed, but it's also not fully engaged or optimized.

This may reflect a **resting state**, a protective strategy after stress, or a lack of recent mitochondrial stimulation. It's common in individuals between stress cycles, recovering from illness or burnout, or whose current lifestyle doesn't strongly challenge their energy system.

You may feel "fine," but not particularly energized, sharp, or resilient. Subtle symptoms may include delayed morning energy, reduced motivation to exercise, emotional flatness, or decreased metabolic flexibility. Your system is **calm but not yet confident**. The goal is to gently awaken mitochondrial function without overloading it.

Profile 15 – **High-Function with Growth Potential**

Your mitochondrial profile reflects **overall balanced and efficient energy production**, with strong performance across key markers like respiration, potential, efficiency, and redox stability. Your system is **functioning in harmony**, suggesting a state of metabolic resilience and healthy mitochondrial regulation.

This profile indicates that your lifestyle, nutrition, and recovery practices are working. Your cells are efficiently converting fuel into energy, effectively managing oxidative stress, and supporting downstream systems like hormone production, immune balance, and cognitive function.

It doesn’t mean there’s nothing to improve. It means you have **metabolic flexibility, structural integrity, and adaptive capacity**. This is a great place to launch into resilience training, performance enhancement, or longevity optimization.

Profile 16 – **Super Mitochondrial Responder**

Your mitochondrial profile reflects **exceptional adaptive capacity.** You have a rare and optimal state in which your mitochondria remain calm at baseline but show **strong energetic responsiveness when needed**. This pattern reflects an elegant balance between conservation and readiness, often seen in highly resilient systems that have undergone sustained training, excellent recovery, or deep physiological alignment.

You produce energy efficiently, manage oxidative stress well, and maintain dynamic mitochondrial integrity. This profile is associated with optimal performance, quick recovery, emotional regulation, deep sleep, metabolic flexibility, and enhanced brain-body integration.

Think of this as the “Olympic-level mitochondria”, not because you’re over-performing, but because your system **knows when to rest, when to activate, and how to recover**.

Profile 17 – **Hyper adapted longevity**

Your mitochondrial profile reflects **exceptional resilience and adaptive capacity.** Your state is a rare and optimal state in which your mitochondria remain calm at baseline, are inactive under non stress conditions, but show a **strong energetic responsiveness when needed**. This pattern reflects an elegant balance between conservation and readiness, often seen in highly resilient systems that have undergone sustained training, excellent recovery, or deep physiological alignment.

You produce energy efficiently, manage oxidative stress well, and maintain dynamic mitochondrial integrity. This profile is associated with optimal performance, quick recovery, emotional regulation, deep sleep, metabolic flexibility, and enhanced brain-body integration.

Think of this as the “Longevity optimized mitochondria” which conserve and hibernate when at rest and jump into action when needed.