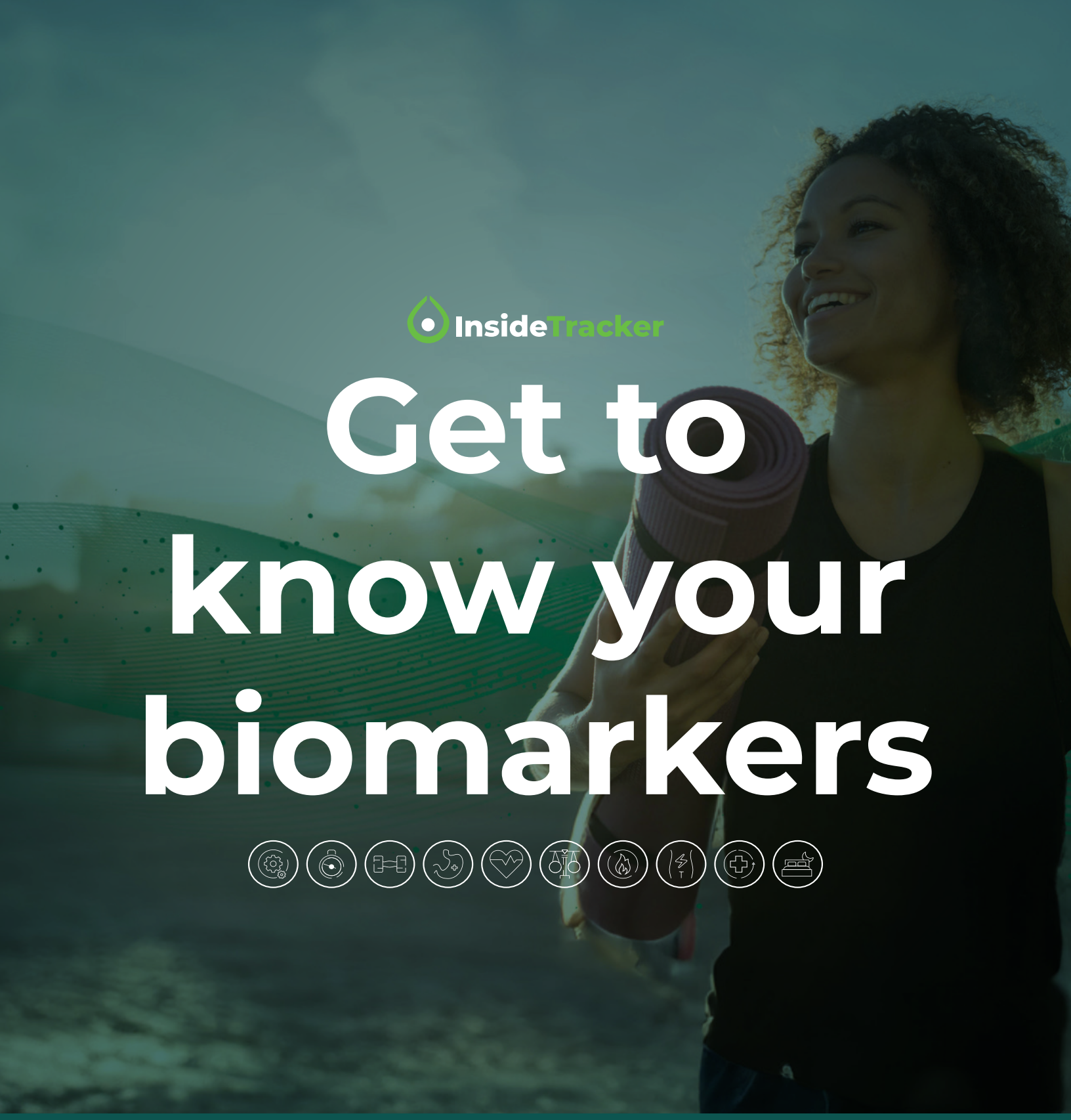


InsideTracker

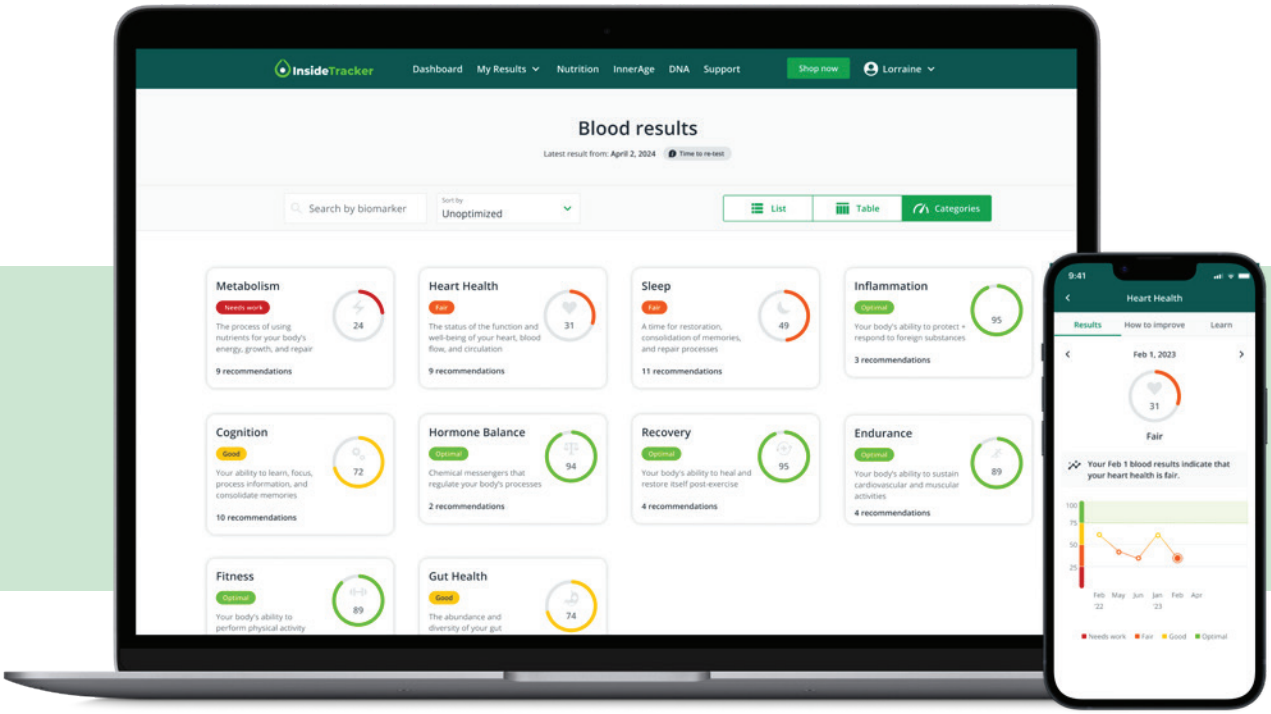
Get to know your biomarkers

Live healthier longer

InsideTracker.com

What's a biomarker?

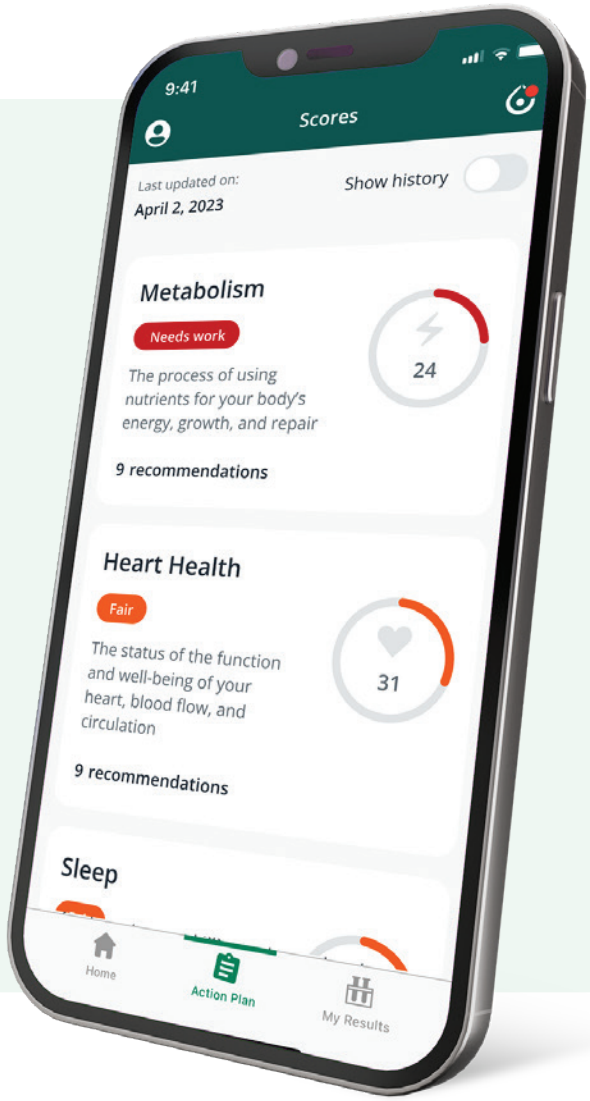
Biomarkers, like glucose or total cholesterol, are measured from a blood draw. They can explain how you're performing in pillars of healthspan like metabolism and heart health. Biomarkers are impacted by your lifestyle choices (including diet and exercise) and your genetics. They offer a unique and unbiased look at whether your current lifestyle is working for you or against you. And most importantly, biomarkers are actionable—meaning your habits can impact your levels.



Live Healthier Longer with InsideTracker

InsideTracker takes all of your body's data and creates a personalized health analysis with science-backed recommendations to improve your health. The analysis measures how your body is performing across 10 areas of health to identify where you're optimized, where there's room for improvement, and most importantly, how to optimize.

Here's what you need to know about what InsideTracker measures.



Heart health

Heart health refers to the health of your cardiovascular system, including arteries, vessels, and more. Blood biomarkers of heart health can also indicate your body's ability to transport and clear cholesterol from the body.

- ## Apolipoprotein B (ApoB)

  ApoB is a protein found on the surface of all potentially atherogenic (artery-clogging) lipoproteins. An optimal/normal ApoB level indicates healthy cholesterol transport and clearance, and is beneficial for heart health and longevity.

- ## Total cholesterol

  Cholesterol is a waxy, fat-like substance that forms part of every cell in the body. Normal levels of cholesterol are important for maintaining energy, an active metabolism, and a healthy heart and circulatory system. If your body makes more cholesterol than you need, then the excess circulates in the bloodstream and increases your risk of poor cardiovascular health.

- ## High-density lipoproteins (HDL)

  HDL (high-density lipoprotein) is the "good" cholesterol that removes cholesterol from the body and reduces the risk of heart disease. Higher HDL levels are associated with lower heart disease risk. Regular exercise and eating healthy fats can help raise HDL cholesterol.

- ## Low-density lipoproteins (LDL)

  LDL, also known as low-density lipoproteins or "bad" cholesterol, carries cholesterol throughout your body, delivering it to different tissues. Optimal levels of LDL are associated with increased energy, improved metabolism, and better heart health.

Metabolism

Boosting your energy levels and managing your metabolism are essential to optimizing overall health and fitness. Key biomarkers provide a snapshot of your metabolism and can give you early warning signs that indicate when your nutrition is not optimal, helping to prevent long-term health risks.

- ## Triglycerides

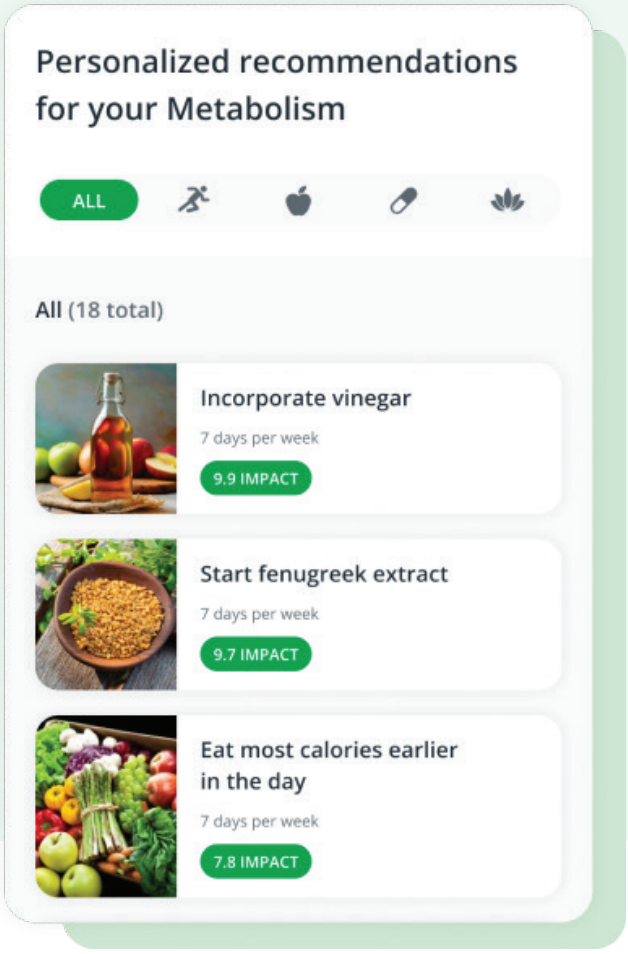
  Triglycerides are important for maintaining energy, improving metabolism, and promoting heart health. High levels of triglycerides, however, are associated with poor heart health, high fasting glucose, being overweight, and being physically inactive.

- ## Glucose

  Glucose comes from digesting carbohydrates into a chemical that your body can easily convert into energy. Properly regulated glucose gives you more energy, improved blood pressure, and better weight control. If your blood glucose is high, you are more likely to gain weight and your risk of diabetes, high blood pressure, and poor heart health may increase

- ## Hemoglobin A1c (HbA1c)

  HbA1c represents the average amount of glucose in your blood for the past 90-120 days. If glucose isn't used right away, it can bind to the hemoglobin inside your red blood cells. Optimized HbA1c is associated with optimal glucose levels and increase longevity.



Fitness

Fitness refers to the body's ability to perform physical activity. Fitness-related biomarkers reflect energy levels, response to stress, the efficiency of cellular repair, and overall muscle health.

- ## Sex-hormone binding globulin (SHBG)

  SHBG is a protein produced primarily in the liver. This protein transports sex hormones, including testosterone, throughout the body. Bioavailability of testosterone is influenced by the level of SHBG. With optimal levels of SHBG, you will have a normal sex drive, strong bones, and a healthy heart.

- ## Testosterone

  Testosterone is a steroid hormone that is essential to health, sexual function, and athletic performance. It's important to have enough testosterone; this hormone helps to build muscle, improves strength, and increases the body's capacity to use oxygen during exercise. Both men and women need testosterone.

- ## Free testosterone*

  Free testosterone refers to the amount of active testosterone in the body. This biomarker is only measured in males, and only about 2% of a males total testosterone is free whereas the other 98% is bound to a carrier protein (like SHBG). Higher levels of free testosterone can indicate an increase in metabolism, while lower levels can indicate a decrease in metabolism.

  *This marker is currently measured in men only.

Gut health

The body's gut health reflects the abundance and diversity of microbes in the gut microbiome. Biomarkers impact, and are impacted by—the gut microbiome. And the gut microbiome affects many of the body's systems and processes.

- **Cortisol**

  Cortisol is a steroid hormone that the body releases in response to stress. Your levels of cortisol fluctuate during the day with peak levels in the morning and lower levels at night. Cortisol performs important functions such as providing quick spurts of energy, maintaining blood glucose levels, regulating blood pressure, aiding in fat, protein and carbohydrate metabolism, reducing sensitivity to pain, and regulating the immune system.

- **Testosterone:cortisol ratio**

  This ratio of two key hormones, total testosterone and cortisol, shows whether you are balancing training and recovery to keep your body in an optimal state for increasing muscle mass and strength.

Hormone Balance

Hormones are chemical messengers in the body that signal the start and stop of various biological processes. The balance between hormone levels can reflect life stage, your body's response to emotional and physical stress, and can impact your sleep quality and energy levels.

- ## Vitamin D

  Vitamin D helps your body to absorb calcium to maintain strong and healthy bones, to fight infections, and to maintain a healthy weight. Your body can make vitamin D from sunshine, and you also absorb a small amount from food. Low vitamin D can lead to low energy, more stress fractures, increased inflammation, and weaker muscles.

- ## Calcium

  Calcium is essential to your bone health and strength. In addition, you need this mineral for repairing muscle tissue, increasing muscle mass, and maintaining healthy blood pressure. If your calcium is low, you have increased risk of stress fractures and high blood pressure.

Inflammation

Keeping inflammation low is important for the health of your body. When inflammation is low, you will feel better, stay healthier, improve your performance, and enhance your longevity.

- ## High sensitivity C-reactive protein (hsCRP)

  hsCRP is a protein that is a general marker of inflammation throughout the body. When the hsCRP test shows optimal levels of CRP, the amount of inflammation in the body is very low. Optimal hsCRP levels appear to be an effective predictor of healthy heart, circulatory system, blood pressure, and blood glucose. The hsCRP test is very sensitive to the amount of CRP in the body and therefore a better indicator of inflammation than the ordinary CRP test.

- ## White blood cell (WBC) count

  WBCs are infection fighters in the immune system. Your white blood cell count is an indicator of inflammation throughout the body. The higher your white blood cell count, the more inflammation there is. Knowing your WBC status will help you to maintain your overall health.

- ## Complete blood count (CBC) WBC types

  The CBC is a commonly ordered test that can tell you a lot about your overall health and performance. The white blood cell types measured by the CBC are: Neutrophils, lymphocytes, monocytes, basophils, and eosinophils. These white blood cell types play important roles in responding to things like infection, high training loads, emotional or physical stress, as well as allergies. Because they respond to these physical stressors, they also play a role in revealing your overall inflammation levels.

  Learn more about the individual markers in our CBC article.

Endurance

Iron is an essential component of proteins involved in oxygen transport and plays a key role in cell growth and differentiation. InsideTracker measures iron-related biomarkers to give you a comprehensive understanding of the iron levels in your body, and whether their optimized for endurance performance.

- ## Hemoglobin

  Hemoglobin is the iron-containing oxygen-transporter in red blood cells. Its main function is to carry oxygen from the lungs to the muscles and brain. Optimal hemoglobin is critical for peak energy and endurance.

- ## Ferritin

  Ferritin is a protein that stores iron in the body. Iron is essential to produce hemoglobin, the part of your red blood cells that carries oxygen to your muscles and brain. It also plays an important role in the function of your nervous and immune systems.

- ## Transferrin saturation (TS)

  TS is your serum iron divided by the total iron-binding capacity, which is the maximum amount of iron that your blood can carry. Transferrin saturation indicates how much iron is actually bound by the protein transferrin. Optimal transferrin saturation is important for maintaining iron balance in your body.

Endurance

Iron is an essential component of proteins involved in oxygen transport and plays a key role in cell growth and differentiation. InsideTracker measures iron-related biomarkers to give you a comprehensive understanding of the iron levels in your body, and whether their optimized for endurance performance.

- ## Total iron-binding capacity (TIBC)

  TIBC measures the maximum amount of iron your blood can carry. Having optimal TIBC is important for maintaining iron balance in your body.

- ## Red blood cell (RBC) count

  Did you know that RBCs are the most abundant cell type in your blood? They play a critical role in carrying oxygen from your lungs to the tissues throughout your body. A healthy RBC count indicates your body is receiving the oxygen it needs to perform properly.

- ## Serum iron

  Iron is the key component of hemoglobin which allows RBCs to transport oxygen throughout the body. Your body takes in iron from the food you eat so it is important to have good sources of iron in your diet, but only about 10% of the iron you consume is absorbed. When your levels of iron are optimal you will have more energy, be stronger, think better, and have a more resilient immune system.

- ## CBC RBC Markers

  The RBC markers measured by the CBC are: hematocrit, MCH, MCHC, MCV, RDW, MPV, and platelet count. These markers can provide insight into to your body's ability to properly manage things like oxygen capacity and transportation, physical and cognitive performance, and iron levels.

Sleep

Sleep is paramount for the body's repair processes and memory consolidation. Blood biomarker levels can impact, and are impacted—by your ability to fall asleep and achieve good quality sleep.

- ## Magnesium

  Magnesium plays a role in muscle movement, nerve function, blood pressure regulation, sleep, immunity, and maintaining healthy blood sugar levels. Optimal magnesium also improves muscle strength and increases the time to muscle fatigue during short, intense bursts of exercise. You are likely to sleep better and feel happier when you have optimized magnesium.

- ## Red blood cell (RBC) magnesium

  RBC magnesium measures the amount of magnesium in your RBCs. Compared to common method of measuring magnesium in your blood serum, RBC Magnesium is a more sensitive measure of magnesium in the body, because when levels of magnesium in your blood serum decrease, your body compensates by pulling magnesium out of red blood cells to make up for the loss. As a result, magnesium levels will show up as "normal" in your blood serum, even as magnesium levels your the bone and tissue are decreasing. In this way, RBC magnesium is an important and more dynamic indicator of your overall magnesium status.

Cognition

Cognition reflects the body's brain and nerve function, impacting reaction time and mood. Cognitive biomarkers indicate your ability to focus, process information, and consolidate memories.

- ## Vitamin B12

  Vitamin B12 plays a role in the production of RBC's, as well as in brain and nervous system function. With optimal levels of B12, the brain, heart, and body work at their best. If your vitamin B12 is low, you may become anemic, causing you to feel tired and weak. Low B12 can also cause memory problems. As you age, your body is less effective at absorbing naturally occurring vitamin B12.

- ## Folate

  Folate, or folic acid, is a water-soluble vitamin necessary for the production of new RBCs, as well as making DNA and RNA. If you don't have enough RBCs, your body delivers less oxygen to your muscles and is slower to repair muscle tissue after workouts.

"I've seen both elevated performance and a new awareness of what's going on 'under the hood.' It's true what they say: knowledge is power!"

SARAH DUFFY, Marketing manager

Recovery

Recovery biomarkers provide insight into the body's response to exercise or physical activity across different intensities and durations.

- ## Creatine kinase

  CK is an enzyme in healthy muscle cells that plays a major role in producing energy for the first few seconds of exercise. Strenuous exercise can damage muscle cells, causing CK to leak into the blood. Increased CK levels indicate muscle damage. This leads to quicker onset of fatigue, greater injury risk, and slower recovery times.

- ## Dehydroepiandrosterone-sulfate (DHEAS)

  DHEAS, is a hormone precursor made in the adrenal glands from cholesterol. Your body uses DHEAS to make different sex hormones, including estradiol and testosterone. After age 20-30, DHEAS levels decline steadily. Optimal levels of DHEAS are associated with increased energy, better bone and muscle health, a healthier immune system, and good sexual function.

- ## Albumin

  Albumin is a protein made by the liver that transports many molecules through the blood, including testosterone and SHBG. Optimal albumin levels indicate that you're likely consuming a normal amount of protein in your diet and, along with other biomarkers, can provide information on the status of your kidney and/or liver health.

- ## Potassium

  Potassium also plays a critical role in regulating blood pressure, heartbeat, kidney function, calcium levels, and energy use in muscle cells. When potassium is optimal, you will have better endurance, stronger bones, and healthier cholesterol and glucose levels.

- ## Sodium

  Sodium is found in every cell of the body, especially in the flu id outside and between cells. You need sodium to regulate the amount of water both inside and outside cells as well as to maintain mineral balance and blood pressure. If you participate in endurance sports or sweat very heavily during workouts, you need to consume enough sodium to replace the amount you lose through sweat.

Recovery

Recovery biomarkers provide insight into the body's response to exercise or physical activity across different intensities and durations.

- ## Alanine aminotransferase (ALT)

  ALT is an enzyme primarily found in the liver, that helps chemical reactions occur. It plays a role in changing stored glucose into usable energy. When there is liver damage or muscle damage, then ALT enters the blood stream. There is normally a small amount of ALT in the blood; higher amounts of ALT in the blood typically indicate liver or muscle damage.

- ## Aspartate aminotransferase (AST)

  AST is an enzyme primarily found in the liver, and also in the heart, muscle tissue, kidneys, brain, and red blood cells. AST helps to metabolize amino acids. While a small amount of AST is normally found in the blood, exercise and liver damage can cause AST elevations. With optimal AST levels you will have more energy, metabolize food more effectively, and recover faster.

- ## Gamma-glutamyl transpeptidase (GGT)

  GGT is an enzyme that is concentrated in the liver, and is also found in the bile ducts, pancreas, spleen, and kidneys. GGT helps to transfer amino acids across the cell membrane, and plays an important role in helping the liver metabolize toxins. Elevations of GGT are strongly related to liver damage, much more so than ALT and AST, making it an important biomarker for liver health.

Stop guessing.
Start improving.

Put your biomarkers to work. Take your body to the next level with an ultra-personalized nutrition, supplement, and lifestyle plan.

Get started now at InsideTracker.com

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