



Lab Results for Ben Greenfield

DOB: 1981-12-20

Last Test Date: 2019-06-10

Cardiovascular Health

Your cardiovascular system is made up of your heart and blood vessels, and is responsible for transporting oxygen, nutrients, hormones, and waste products throughout the body. A healthy cardiovascular system ensures a good balance of nutrients and optimal brain and body function.

Basic Lipid Panel

The basic lipid panel includes cholesterol levels (both the good HDL and the bad LDL and other non-HDL cholesterols), as well as triglycerides. Elevated levels of triglycerides or non-HDL cholesterol can increase your risk of cardiovascular disease, which can lead to heart attacks and strokes. Higher levels of artery-clearing HDL, however, can reduce this risk.

Total Cholesterol A Type of Fat		252
LDL Less Healthy Low-Densit...		140
HDL "Good" Cholesterol		97
Triglycerides Type of Fat		62
Total to HDL Ratio Total Cholesterol to HDL ...		2.6
Triglycerides to HD... Ratio of Triglycerides to H...		0.6
Non-HDL Cholester... All Less Healthy Choleste...		155

LDL Particles

Higher levels of LDL or "bad" cholesterol can result in increased amounts of plaque in your blood vessels, which can obstruct blood and oxygen flow to vital organs. While almost half of those with heart attacks have normal basic lipid panels, two-thirds of heart-attack victims have elevations in other types of LDL particles. By reducing those deeper LDL numbers, you can reduce your risk of a heart attack and stroke.

Apo B Protein in LDL ("Bad") Ch...		95
Lp(a) Different Form of LDL		16
Peak LDL Size The size of LDL particles		224.8
LDL Particles Number of LDL Particles		1663
LDL Phenotype LDL Size Pattern		A
Small LDL Small Low-Density Lipopr...		217
Medium LDL Medium Low-Density Lip...		289

HDL Particles

High density lipoprotein particles are often referred to as "good cholesterol" because they are associated with a lower risk of developing cardiovascular disease.

Apo A1 Protein in HDL ("Good") C...		230
Large HDL Large High-Density Lipop...		9512

Inflammation

Inflammation is your body's reaction to stress or injury. Though inflammation can be helpful in the short-term, long-term inflammation can be harmful and contribute to many chronic diseases, such as cardiovascular disease, cancer, diabetes, dementia, and osteoporosis.

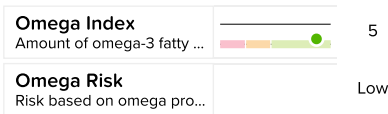
Lp-PLA2 Marker of Inflamed Vessels		140
Fibrinogen Inflammation marker imp...		349

Fatty Acids

Fatty Acids are oily substances that help build cell membranes, though in excess increase deposits in blood vessels leading to cardiovascular disease.

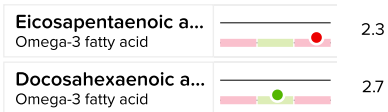
Index

The omega-3 index is an indicator of the amount of two fatty acids in your red blood cells: the omega-3 fatty acids called eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). A lower index value indicates that you have less EPA and DHA in your red blood cells compared to other fatty acids. Studies have found that lower omega-3 index values may be linked to a higher risk of sudden cardiac death.



Omega-3 Fatty Acids

Omega-3 Fatty Acids are essential fatty acids since the body can not make them on its own. These fatty acids are considered protective of the heart, and can lower the risk of many chronic diseases. Most of us do not consume as much of these fatty acids as our ancestors likely consumed.

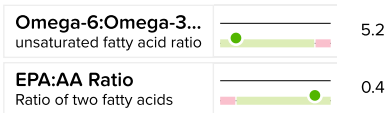


Omega-6 Fatty Acids

Omega-6 fatty acids (FAs) are essential fatty acids: your body needs them but cannot make them. Instead, omega-6 FAs must come from your diet. When eaten in moderation, these fatty acids can lower your LDL, or "bad," cholesterol and reduce the risk for heart-related health conditions, but there is concern that many consume an excess of these fatty acids, which can potentially cause more harm than good.



Fatty Acids Ratios

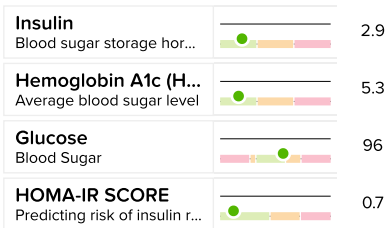


Metabolic Health

Metabolism is your body's way of chemically processing sugar and fat for use throughout the body as energy. An optimal metabolism supports healthy weight control and energy levels, while a dysfunctional metabolism can lead to undesired fluctuations in weight and fatigue or hyperactivity.

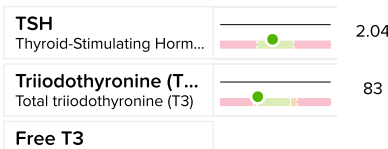
Diabetes & Insulin Resistance

High blood sugar can lead to cardiovascular disease, kidney disease, blindness, or ulcers. Insulin, a hormone created in the pancreas, helps the body use or store blood glucose from food. Insulin resistance can lead to higher levels of insulin and blood sugar, resulting in type 2 diabetes.



Thyroid

The thyroid gland is your body's regulator of metabolism. An underactive thyroid, or hypothyroid, can result in low energy, weight gain, and cold



intolerance, while an overactive thyroid, or hyperthyroid, can cause hyperactivity, undesired weight loss, and heat intolerance.

Available T3 Available T3		2.6
T-Uptake Thyroxine Binding Sites		32
Thyroxine (T4, total) Total thyroxine (T4) level		6.4
Free T4 Available T4		0.9
Thyroid Peroxidase... An antibody to a thyroid ...		5
Free Thyroxine Index A Thyroxine Index		2
Reverse T3 Reverse T3, Serum		8
Anti-Thyroglobulin ... Antibodies to thyroid prot...		<1

Metabolic Hormones

Hormones influence how you metabolize fat, sugar, and protein to produce and store energy, and build tissues such as fat or muscle. Hormonal imbalance can lead to excess fat storage or the inability to gain muscle.

Cortisol Primary stress hormone		15.5
Insulin Blood sugar storage hor...		2.9
Insulin-Like Growth... A Measure of Growth Hor...		87
Z score IGF-1 compared to others		-1

Reproductive Hormones

Reproductive hormones are controlled and produced by a complex interaction of your brain, adrenal glands, and reproductive organs. An imbalance in these hormones can affect many important functions, including overall growth and muscle gain, metabolism, mood, libido, and reproductive health.

Estradiol Main female sex hormone		33
Luteinizing Hormon... Sex Hormone		<0.2
Free Testosterone Active Unbound Testoste...		79.8
Testosterone (total) Steroid hormone		841
DHEA-S Adrenal Hormone		214
SHBG Sex Hormone Binding Gl...		63

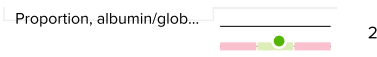
Liver Health

Your liver's main function is to filter blood coming from the digestive tract before passing it throughout the body. A vital organ, your liver is also responsible for detoxifying chemicals, metabolizing drugs, producing proteins, and more. Liver dysfunction can have a negative impact on your immune system and energy levels and can lead to liver disease and cancer.

Liver Enzymes and Function Tests

Liver enzymes help monitor liver function and liver inflammation, most commonly from medications, infections, or excess fat on the body. A marked elevation in liver enzymes can signify liver dysfunction.

ALT / SGPT Alanine aminotransferase		92
ALP Alkaline Phosphatase		37
AST / SGOT Aspartate aminotransfera...		91
Bilirubin (total) Made by the liver to help ...		0.4
Albumin Type of protein in blood		4.8
Total Protein Total protein amount (ser...		7.2
Globulin Immune protein		2.4
A/G Ratio		



Kidney Health

Your kidneys help maintain blood pressure, keep the blood's acid-base level within a healthy range, and filter the blood so nutrients are absorbed and waste is passed out of the body as urine.

Kidney Function

Your kidney function reflects how well your kidneys are filtering your blood. Abnormal kidney function could result in the accumulation of waste products in the body, which can cause fatigue, headaches, nausea, and more.

Creatinine Creatinine in your blood		1.26
eGFR Marker for kidney function		72
eGFR (African Ame...) eGFR if African American		84
BUN Blood Urea Nitrogen		25
Albumin Type of protein in blood		4.8

Electrolytes

An electrolyte imbalance can lead to an imbalance in your body's acid-base status, hydration, or conduction of charges across cells, all of which are essential, especially with increased activity.

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Sodium An electrolyte outside cells		140
Potassium An electrolyte inside cells		4.4
Chloride Balances other electrolytes		106
CO2 Carbon dioxide in blood		27
Calcium Blood and Bone Mineral		9.5

Bone Health

Your bones play many roles in your body, from storing minerals to protecting organs such as the brain. Bone markers are indicators of how well bone tissue is being removed and replaced, aka "bone remodeling." Significantly abnormal marker levels suggest possible bone disorders.

Bone

Bones are primarily made of calcium, supported by vitamin D, and regulated through constant bone remodeling. When bones remodel excessively or become inflamed, there may be large elevations in an enzyme called ALP (alkaline phosphatase).

25-Hydroxy Vitami... Precursor to vitamin D		47
Calcium Blood and Bone Mineral		9.5
ALP Alkaline Phosphatase		37

Blood Health

Your blood consists of two main components: the cellular components (red blood cells, white blood cells, and the cell fragments known as platelets); and the liquid component, called plasma. Together, these two parts of the blood are responsible for many functions, including oxygen transport, temperature regulation, blood clotting, and immune defense.

Platelets

Platelets help form blood clots at the site of an injured blood vessel. Knowing your platelet count, as well as how large your platelets are, may help reveal any bleeding or clotting problems.

Platelet Count Clot-forming cell fragments		284
Mean Platelet Volu... Average platelet size		10.1

White Blood Cells

Your white blood cells are responsible for protecting your body from disease and foreign materials. A low white blood cell count is a decrease in the disease-fighting cells your body depends on, while an overproduction of white blood cells could indicate the presence of diseases like leukemia.

White Blood Cell C... Immune system cells		8.5
Neutrophil Count (...) Type of white blood cell		5.78
% Neutrophil Part of WBC differential		68
Lymphocyte Count ... Calculation of WBC type		1.828
% Lymphocytes Part of WBC differential		21.5
Monocytes (absolut... type of white blood cell		0.655
% Monocytes Part of WBC differential		7.7
Eosinophil (absolute) Calculation of WBC type		0.145
% Eosinophils Part of WBC differential		1.7
Basophil (absolute) Calculation of WBC type		0.094
% Basophils Part of WBC differential		1.1

Red Blood Cells

Red blood cells are the most numerous cell type in your blood and have one main role: to carry oxygen to tissues in your body and transport carbon dioxide back to the lungs to be exhaled. If your blood lacks enough healthy red blood cells, you may be anemic.

Hematocrit Fraction of red blood cells		42.8
RBC Red blood cell count		4.68
Hemoglobin Protein in red blood cells		14.5
MCV Mean corpuscular volume		91.5
MCH Mean cell hemoglobin		31
MCHC RBC hemoglobin concent...		33.9
RDW Red cell distribution width		13.1

Iron

Iron is an essential mineral needed to form hemoglobin, the main protein found in red blood cells. Iron deficiency can lead to anemia, while excess iron can be toxic to the liver or other organs.

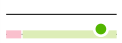


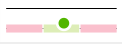
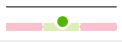
Iron (serum) Iron in liquid part of blood		66
Ferritin Iron storage protein		29
Total Iron Binding C... Estimates Transferrin level		304
Iron Saturation The percent of Iron trans...		22

Vitamins & Minerals

Vitamins and minerals are substances obtained from food and supplements needed for normal growth and body processes. Deficiencies in certain vitamins and minerals can interfere with normal body function.




Vitamins

Vitamins are organic substances required for normal health and function. For example, vitamin B12 is essential for cellular development, including the development of red and white blood cells. Deficiency in B12 can lead to anemia and immune dysfunction.

Folate Folic Acid		12.1
25-Hydroxy Vitami... Precursor to vitamin D		47
Vitamin B12 Essential nutrient for cells		695
Vitamin A Essential Vitamin		72
Thiamine blood Essential nervous system...		135

Minerals

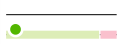
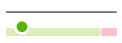
Minerals are inorganic substances needed for many of your body's processes such as cellular development, carrying oxygen to tissues, and bone growth. Mineral deficiencies result in weak bones, organ malfunction, and poor cellular development, which can cause conditions such as anemia.

RBC Magnesium The Magnesium in our ce...		4.9
Copper Essential mineral		92
Calcium Blood and Bone Mineral		9.5

Toxicology

Toxicology

We are exposed to many toxic substances in our environment that interfere with our physiologic functioning. Some of these substances are stored in our tissues and can be measured.

Lead Blood lead levels		1
Mercury Blood Mercury levels		6

Release Notes

2019-06-10

Lab Report released by Christine Keating