| Cellular | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
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| **Methylation** | Methylation is the biochemical process of making sure every cell is functioning optimally. Methylation is not just responsible for how we repair genetic material, but also how we make energy, respond to stress, handle inflammation, how well our cells detoxify, and how our brain chemistry works. Methylation is the process involved in actually turning genes on or off. We may be able to reduce our risk of developing certain diseases and some types of cancers by optimizing methylation. | Methylation is a critical biochemical process that influences gene expression, cellular function and signalling, detoxification and stress response. | Focus on foods high in B-vitamins, magnesium and choline by eating 3-4 servings of a combination of leafy and cruciferous vegetables (raw), avocados, citrus fruits, legumes, poultry, eggs, nuts, and seeds. | Use daily relaxation techniques to reduce exposure to stress hormones which may burden the methylation cycle e.g. meditation, yoga, Qi Gong and massage | Methylmalonate (MMA)<br>RBC Magnesium<br>Total Iron<br>RBC Folate<br>Homocysteine |
| **Detoxification** | Detoxification is the body's way of getting rid of toxins that could otherwise build up and interfere with health. Signs of poor detox include lethargy, fatigue, difficulty concentrating and unexplained aches and pains in the body. The liver is the main site of whole-body detox but every cell has its own toxin-eliminating processes to keep it clean, healthy and working well. Detoxification can be optimized by making the right diet and lifestyle changes to support good cellular cleaning processes. | Detoxification is the body's natural process of eliminating toxins to maintain health, primarily through the liver and cellular functions, and can be optimized with supportive diet and lifestyle choices. | Consume at least 2-3 cups of foods that support liver enzymes e.g. onion, garlic, green tea, pomegranate, grapefruit, raw cruciferous vegetables, broccoli sprouts, wild-caught cold-water fish, organic meats, lentils and beans. Aim for at least 25g of fiber from plant foods daily. | Lower your 'toxic burden' by avoiding harmful micro-plastics, non-organic personal care and cleaning products, pesticides, heavy metals, tobacco, alcohol, smoke, paint and glue. | Homocysteine<br>DHEA-S<br>Methylmalonate (MMA)<br>RBC Folate<br>RBC Magnesium<br>Liver enzymes: GGT, ALT, AST |

| Cellular | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
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| **Oxidative stress** | Oxidative stress is the human equivalent of rusting. The impact of all exposures over time results in damage to our cells. Unmanaged oxidation can impact on our energy levels, memory, premature aging and sometimes cancer risk. In a healthy functioning cell, enzymes that counteract oxidative damage, a 'rust block' so to speak, are made. The ability to make those enzymes is determined by certain genes. However, a good diet and lifestyle can aid towards a lower oxidative burden and help maintain the health of your cells. | Oxidative stress is the gradual cellular damage caused by cumulative exposures over time, but diet, lifestyle, and certain genes that produce protective enzymes can help reduce this burden and support healthy aging. | Consume 1-2 cups of whole plant foods e.g. dark leafy greens, chili peppers, olives, beetroot, pomegranate, berries and olive oil | Be aware that extensive endurance and high-intensity training increases the potential for oxidative stress. Manage training regime, and ensure recovery with rest and optimal nutrition. | Liver enzymes: GGT<br>Manganese<br>Selenium<br>Zinc<br>Copper<br>Ferritin<br>TIBC |
| **Inflammation** | Inflammation is a normal automatic immune response to injury, irritation or infection. When you bump your toe and it becomes swollen, that's the inflammatory response working to speed up healing. Sometimes injuries or irritations are internal (in places like our gut, muscles, joints, or blood vessels). Inflammation is protective by design, but can become destructive if left unchecked. Long term, chronic inflammation can eventually lead to conditions like arthritis, eczema, IBS, autoimmune conditions, and several diseases. | Inflammation is the body's natural healing response to injury or irritation, but when it becomes chronic, it can contribute to conditions like arthritis, eczema, IBS, autoimmune diseases, and more. | Include organic, non-GMO, anti-inflammatory foods, herbs and spices daily: e.g. berries, cocoa, olives, hazelnuts, dark chocolate, wild-caught fatty fish, avocado, chia seeds, walnuts, macadamia nuts, celery, green pepper, blackberries, apples, thyme, turmeric, black pepper, cardamom and cumin seeds. | Limit exposure to environmental inflammatory triggers such as pollen, mold, pesticides, non-organic cleaning products, perfumes, cosmetics and air fresheners. | hs-CRP<br>Bilirubin<br>FBC/CBC<br>Ferritin<br>Histamine<br>HOMA<br>IL-8<br>PAI<br>TNFa<br>IL-6 |

| Systems | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
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| **Mood and Behavior** | It is normal for our mood to change depending on the situation, but when our emotional state leads to changes in behavior that affect our ability to deal with daily routines, support should be sought. Genetics affects our ability to manufacture and balance chemicals in the brain that are necessary to manage mood, anxiety, depression, addiction and related behaviors. In addition, diet and lifestyle choices impact brain chemicals and may require adjustment. | While mood naturally fluctuates, persistent emotional changes that disrupt daily life may signal the need for support, as both genetics and lifestyle influence the brain chemicals that regulate mood, anxiety, and related behaviors. | Consume 3-4 servings daily of anti-inflammatory foods that support GI health (sprouted beans, alfalfa, cruciferous and green leafy vegetables, berries, olives, mushrooms, nuts, seeds, and legumes). | Increase production of endorphins like oxytocin and dopamine through gratitude journaling, laughing, hugging, petting an animal, exercise, dancing and creative hobbies. | % Transferrin Saturation<br>BDNF<br>Cortisol (8 AM)<br>C-Peptide<br>Ferritin<br>Homocysteine<br>IBC<br>Methylmalonate (MMA)<br>RBC Folate<br>RBC Magnesium<br>Serotonin<br>Total Iron<br>TSH<br>Vitamin B12<br>Vitamin D3 (serum 25-OH-D)<br>Zinc:Copper Ratio |
| **Memory and Brain Health** | The brain is the control center of the body, and keeping it healthy is crucial for overall mental and physical health. Apart from regulating all of your hormones and other biological processes, the brain is also responsible for cognitive function, including attention, focus, learning capacity, and memory. Brain health and function tend to decline with age but at a faster rate in individuals with unfavorable diet and lifestyle behaviors. Certain genetic variations may be another reason why our brain health and cognitive function might not be optimal. | The brain controls all bodily functions and cognition, and while its health naturally declines with age, poor lifestyle choices and certain genetic variations can accelerate this decline and impact memory, focus, and overall mental function. | Ensure 2-3 servings daily of foods that reduce neuroinflammation and support brain health (turmeric, rosemary, holy basil, chili peppers, oily fish, berries, olives, dark chocolate, brazil nuts and red cabbage). Avoid sugar and refined carbohydrates. | Do at least 30-60 minutes of physical and mental exercises daily that support neural pathway formation (sudoku, crossword puzzles, learning new skills). | Assessment of progressive decline<br>Fasting Insulin<br>HbA1c<br>Homocysteine<br>HDL<br>hsCRP<br>Total Cholesterol<br>LDL<br>Triglycerides<br>CoQ10<br>IL-6<br>Manganese<br>B12 (MMA)<br>RBC Folate<br>Vitamin D3 (serum 25-OH-D) |

| Systems | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
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| **Glucose and Insulin** | Our cells run on glucose, a simple sugar obtained from the food we eat. Our bodies work hard to ensure the amount of glucose in the blood is kept at just the right level. High blood glucose is often associated with weight issues and diabetes, but chronically elevated blood sugar also has other effects such as accelerated aging and chronic inflammation, which underlie every major chronic illness. Insulin is manufactured in the body and is used to regulate glucose levels. The way insulin and glucose do their job is determined by certain genes as well as by other factors such as our weight, diet, and lifestyle choices. | Glucose fuels our cells, and while insulin and certain genes help regulate blood sugar, poor diet, lifestyle, or genetic factors can lead to chronically high levels that drive inflammation, aging, and chronic disease. | Avoid added sugar and processed carbohydrates; focus on whole grains, quality protein and 4-5 servings of medium-chain triglycerides (MCTs) and unsaturated fats (olives, nuts, seeds, avocado and coconut). | Improve insulin sensitivity by grazing less, intermittent fasting (12-13 hours each night), endurance and strength training. | Fasting Insulin<br>HbA1c<br>Fasting glucose<br>HDL<br>HOMA<br>hsCRP<br>Total Cholesterol<br>LDL<br>Triglycerides<br>TSH<br>Free T3<br>Free T4<br>C-peptide<br>Adiponectin |
| **Collagen and Joints** | All our cells are continuously being renewed by being broken down and replaced by new ones. Collagen is the major structural protein and the foundation of all our soft-tissue (skin, hair, nails, joints, and organs). Variations in collagen genes might affect the structure and function of these areas. Causing excessive breakdown of cells without a comparable formation of new cells will result in degeneration. Genes play a large part in the process of collagen formation and breakdown, as do lifestyle factors such as diet and exercise. | Our cells are constantly renewed, with collagen—a key structural protein—supporting soft tissues, and both genetic variations and lifestyle factors influence collagen's balance between breakdown and formation, affecting tissue health and aging. | Ensure 2-3 servings daily of foods that boost collagen production (quality animal protein, wild-caught seafood, cashews, oats, quinoa, legumes, green leafy vegetables, bone broth, hemp and pumpkin seeds). | Improve joint health with a variety of exercise (aerobic, strength training, flexibility). Increase the frequency and intensity of exercise slowly. | hsCRP<br>RBC Magnesium<br>Rheumatoid Factor (RF)<br>Vitamin D3 (25-OH-D)<br>Zinc |

| Systems | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
|---|---|---|---|---|---|
| **Bone Health** | Bones offer important structural support and protective roles within our body. Bone is made up of minerals such as calcium and phosphorus, which is also used elsewhere in the body. The turnover of these minerals in the breakdown or build-up of new bone cells is important for bone health. Gene variants may impact these processes and affect the balance of breakdown and build-up. Diet and lifestyle choices also contribute a great deal to these processes. | Bones provide essential support and protection, with their mineral balance regulated by genetic variants and influenced by diet and lifestyle, which together affect bone health through ongoing breakdown and renewal. | Consume at least 1 cup daily of bone-building mineral rich foods from bone broth, seaweed, dark leafy vegetables, turnips, sweet potatoes, sardines, nuts and seeds. Also ensure adequate protein intake. | If possible, optimize vitamin D levels by getting 15-20 minutes of sun exposure (lighter skin) or 30-60 minutes (darker skin), or UV light therapy at least 3-4 times a week. | DEXA<br>Bone Specific Alkaline Phosphatase<br>Calcium<br>Free T3<br>Free T4<br>hsCRP<br>Osteocalcin<br>Parathormone<br>Phosphate<br>RBC Magnesium<br>TSH<br>Vitamin D3 (serum 25-OH-D)<br>Zinc |
| **Hormone Balance**<br>Female | Hormones are chemical messengers produced by our glands. They instruct organs and systems in the body on how to function. The main female hormones include estrogen and progesterone. These are necessary throughout the life cycle for the regulation of most major female-related bodily processes including puberty, fertility, pregnancy, and menopause. Androgens are also present in women but to a lesser degree. The main male hormones are known as androgens which include the powerful male hormone testosterone. Androgens are necessary throughout the life cycle for the regulation of most major male-related bodily processes including puberty, fertility, and andropause. Estrogen is also present in men but to a lesser degree. Ineffective hormone metabolism can contribute to certain conditions. Genes, as well as diet and lifestyle factors, regulate the activation and breakdown of these hormones. | Hormones like estrogen, progesterone, and androgens regulate key male and female bodily functions throughout life, with their metabolism controlled by genetics, diet, and lifestyle, and imbalances potentially leading to health issues. | Include at least 1-2 servings daily of foods high in magnesium and B vitamins to assist with hormone regulation (legumes, green leafy vegetables, avocados, eggs, poultry, pistachios, sesame, sunflower, and pumpkin seeds). | Avoid activities that negatively impact hormones: restrictive diets, extreme exercise, and ongoing stress. Ensure rest, relaxation, meditation, rhythmic breathing, quality sleep, and gentle exercise daily. | 17-B Estradiol (E2)<br>Cortisol (8 AM)<br>DHEA-S<br>FSH<br>LH<br>Methylmalonate (MMA)<br>Progesterone<br>RBC Folate<br>SHBG<br>Testosterone<br>Vitamin B12<br>PSA<br>CoQ10 Uniquinone |

| Systems | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
|---|---|---|---|---|---|
| **Hormone Balance**<br>Male | Hormones are chemical messengers produced by our glands. They instruct organs and systems in the body on how to function. The main female hormones include estrogen and progesterone. These are necessary throughout the life cycle for the regulation of most major female-related bodily processes including puberty, fertility, pregnancy, and menopause. Androgens are also present in women but to a lesser degree. The main male hormones are known as androgens which include the powerful male hormone testosterone. Androgens are necessary throughout the life cycle for the regulation of most major male-related bodily processes including puberty, fertility, and andropause. Estrogen is also present in men but to a lesser degree. Ineffective hormone metabolism can contribute to certain conditions. Genes, as well as diet and lifestyle factors, regulate the activation and breakdown of these hormones. | Hormones like estrogen, progesterone, and androgens regulate key male and female bodily functions throughout life, with their metabolism controlled by genetics, diet, and lifestyle, and imbalances potentially leading to health issues. | Ensure at least 2-3 servings daily of foods rich in toxin binders, sulforaphane precursors, and B vitamins (broccoli, cabbage, arugula, mustard seeds, legumes, nuts, seeds, and Matcha green tea). | Engage in cardiovascular, strength, and conditioning orientated exercise at least three to four times a week. | 17-B Estradiol (E2)<br>Cortisol (8 AM)<br>DHEA-S<br>FSH<br>LH<br>Methylmalonate (MMA)<br>Progesterone<br>RBC Folate<br>SHBG<br>Testosterone<br>Vitamin B12<br>PSA<br>CoQ10 Uniquinone |
| **Histamine Overload** | Histamine is a chemical produced by mast cells that is involved in immunity and the removal of allergens from the body. It also helps with digestion and is released in response to injury and toxins. Histamine can be made by bacteria in the gut but is also present in certain foods. Genes regulate enzymes that are responsible for histamine breakdown. Inefficient breakdown may result in a histamine overload and cause symptoms like migraines, flushing, dizziness, skin rashes and hives. | Histamine, produced by mast cells and influenced by genetics, plays key roles in immunity, digestion, and allergen response, but inefficient breakdown can lead to symptoms like migraines and skin rashes. | Eat 2-3 daily servings of foods that lower histamine production and contain luteolin, quercetin and Kaempferol (dill, oregano, onions, thyme, green peppers, apples, capers, green beans, and juniper berries). | Manage all physical and mental stressors that induce histamine production: temperature extremes, trauma, and stressful events. | Histamine<br>IgE<br>Tryptase |

| Cardiovascular Health | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
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| **Vascular Health** | Veins and arteries make up a network in the body responsible for transporting oxygen and nutrients to our organs and systems, and for removing waste. Having healthy blood vessels means maintaining their strength and flexibility. Loss of function makes them vulnerable to damage and disease. Certain genes, and diet and lifestyle factors influence how these vessels are maintained and kept healthy. | Veins and arteries transport oxygen and nutrients while removing waste, and their health—dependent on genetics, diet, and lifestyle—is crucial for maintaining vessel strength and preventing damage. | Reduce inflammation in blood vessel walls and increase nitric oxide with 2-3 daily servings of olive oil, pomegranate, beets, green leafy vegetables, cocoa, tomato paste, brazil nuts and walnuts. | Engage in at least 3 hours of cardiovascular exercise each week: walking, swimming and yoga. | Creatinine Kinase (CK also known as CPK-2)<br>HDL<br>Homocysteine<br>hsCRP<br>IL-6<br>INR<br>LDL<br>Pro-BNP (B-type natriuretic peptide)<br>TNFa<br>Total Cholesterol<br>Triglycerides |
| **Cholesterol** | Cholesterol metabolism refers to processes that determine the distribution of lipids in the body. Fats bind to proteins that transport them in the bloodstream between organs. Different forms of fat particles have important roles to play as part of cell membrane structures and as precursors for hormones. Suboptimal cholesterol processes may result in an imbalance in the accumulation and breakdown of fats in the bloodstream, which most commonly leads to cardiovascular diseases like heart disease and stroke. | Cholesterol metabolism involves the transport and balance of fats essential for cell membranes and hormone production, and disruptions can lead to cardiovascular diseases such as heart disease and stroke. | Focus on monounsaturated fats (avocados, olives, olive oil, nuts, seeds, wild-caught fatty fish) and strictly limit the intake of saturated fatty acids (fatty meats, butter, cream, lard, skin on chicken). | Support optimal HDL cholesterol levels with 30 minutes of moderate activity, striving for 150mins a week. | Apolipoprotein-B<br>HDL<br>IL-6<br>LDL<br>Lipoprotein a<br>Particle Size<br>TNFa<br>Total Cholesterol<br>Triglycerides<br>VItamin D3 (serum 25-OH-D) |

| Cardiovascular Health | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
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| **Blood Clotting** | Blood clotting is a survival mechanism designed to prevent uncontrolled bleeding. On the other hand, excess blood clotting, which may be linked to genetic variants coupled with diet and lifestyle factors also needs to be addressed. When clotting occurs, the clot travels to a small blood vessel or vein in either the heart, brain or extremities and may result in a stroke, heart attack or deep vein thrombosis. There are numerous preventative actions that can be taken. | Blood clotting prevents excessive bleeding but can become dangerous when excessive—due to genetics and lifestyle—leading to strokes, heart attacks, or deep vein thrombosis, which can often be prevented through various measures. | Ensure 2-3 servings a day of food/herbs that reduce blood clotting risk (cayenne, cinnamon, turmeric, ginger, paprika, dill, oregano, peppermint, raisins, prunes, cranberries, strawberries, grapes, oranges, tomatoes and garlic). | Exercise at a moderate intensity with endurance and strength activities 2-3 hours a week. Ensure adequate hydration and avoid contact sports. | FBC/CBC<br>Fibrinogen<br>HDL<br>hsCRP<br>INR<br>LDL<br>Platelet Aggregation Study<br>Platelets<br>Total Cholesterol<br>Triglycerides |
| **Blood Pressure** | Blood pressure indicates how hard the heart is working in order to pump blood around the circulatory system, and is used as a measure for confirming good health. High blood pressure can cause damage to blood vessels, delicate tissues in organs and systems in the body. Genetic variance impacts the ability to contract and relax blood vessels and balance fluid volume within them. | Blood pressure measures the heart's effort to circulate blood, with genetics influencing vessel function and fluid balance, and high blood pressure posing risks to blood vessels and organs. | Aim for 2-3 servings of nitric oxide boosting foods to improve vasodilation (beets, green leafy vegetables, nuts, seeds, dark chocolate and pomegranate). | Regularly practice relaxation activities that stimulate the vagus nerve: rhythmic breathing, loud singing and cold water immersion. | Free T3<br>Free T4<br>HDL<br>hsCRP<br>LDL<br>Total Cholesterol<br>Triglycerides<br>TSH<br>Urea & Electrolytes (U&E) |

| Energy | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
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| **Pro-inflammatory Fat** | Fat cells are not just inactive storage compartments for excess weight - they are metabolically active messengers that control our energy levels. These messenger molecules found in fat tissue are called adipokines. Fat tissue secretes various pro- and anti-inflammatory adipokines to manage inflammation. If there is excess adipose tissue in the body, the inflammatory response can become disrupted, and these proinflammatory molecules increase. Obesity-induced inflammation can be managed by losing excess weight, which reduces adipokines. | Fat cells actively regulate energy and inflammation through adipokines, and excess fat can disrupt this balance, increasing inflammation that can be reduced by losing weight. | Include daily servings of foods naturally or enriched in omega-3s such as wild-caught fatty fish, flax seeds, macadamia nuts, chia seeds, hemp seeds, spinach, eggs, grass-fed meats, and dairy. | Cold exposure, moderate exercise, and intermittent fasting help to reduce inflammation. | Adiponectin<br>hsCRP<br>IL-6<br>TNFa |
| **Weight gain & weight loss resistance** | There is considerable inter-individual variability in our physical ability to lose, gain, or maintain a healthy weight. Certain gene variations affect how we regulate energy and make us more genetically- prone to weight gain and slow weight loss. A one-size-fits-all model does not exist when it comes to how much or how frequently we should eat, or what type of exercise we should do and for how long. Genetic variations can explain, at least in part, how people respond to overeating, exercise, and diet. | Individual genetic differences influence how we regulate energy, affecting weight gain and loss, meaning personalized diet and exercise plans are necessary since one-size-fits-all approaches don't work for everyone. | Eat nutrient-dense fresh produce and achieve a balance of high-quality proteins, carbohydrates, and fats daily. | Ensure 7-8 hours of sleep each night to assist the brain and body with good oxygenation and detoxification for weight management. | Adiponectin<br>Fasting glucose<br>Fasting insulin<br>HbA1c<br>HDL<br>hsCRP<br>IL-6<br>LDL<br>TNFa<br>Total Cholesterol<br>Triglycerides |

| Energy | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
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| **Adipogenesis** | The formation, storage, and release of fat cells are affected by variability in our genes. These gene variations may be partly responsible for why some people find it easy to gain or lose weight compared to others, even though their diet and lifestyles are similar. How our fat cells release energy is determined by certain genes and their variations. Knowing how your fat cells are predisposed to store and release energy can empower you to make the right diet and lifestyle choices to suit your unique genotype. | Genetic variations influence how fat cells form, store, and release energy, helping explain differences in weight management and enabling personalized diet and lifestyle choices based on your unique genotype. | Support the removal of fat-soluble toxins that may increase fat storage by eating detoxifying leafy greens (cilantro, collard greens, beet greens, and parsley). A medical metabolic detoxification program may be beneficial to accelerate fat loss. (It is highly recommended that you consult one of our 3X4 accredited practitioners to assist with this kind of program.) | Fat-soluble toxins from normal metabolic processes and the environment increase fat cell storage. Support toxin elimination through dry brushing, rebounding, lymph drainage massage, sweating with a sauna (infrared or steam), and exercise. | Fasting glucose<br>Fasting insulin<br>HbA1c<br>HDL<br>LDL<br>Total Cholesterol<br>Triglycerides |
| **Exercise response** | Research has confirmed that people's response to exercise varies considerably. Some respond quickly to exercise (e.g. they get fit fast and their body composition changes favorably), while others are less sensitive to exercise's effects. A significant contributor to these differences in exercise response is genetics. An individual's ability to mobilize stored body fat and burn it for exercise fuel is partly predisposed by certain genes. It is useful to understand the extent exercise may help weight loss and how to balance these factors out. | Genetics significantly influence how individuals respond to exercise, affecting fitness gains, body composition changes, and the ability to burn stored fat, making personalized exercise approaches important for effective weight management. | Manage your weight with high-quality, nutrient-dense foods, rather than relying on exercise alone. Eliminate calorie-dense, processed foods. | Although the genetics in this pathway may indicate that exercise may not be your best weight loss tool for you, exercise is still important for cardiovascular health and stress management. Exercise regularly to improve your fitness, and heart health, and boost endorphin production. Consider your pathways in the activity category to support optimal outcomes. | N/A |

| Energy | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
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| **Energy expenditure** | Energy expenditure is the amount of energy (kilojoules or calories) that is needed to carry out important functions such as breathing, digesting food, circulating blood, regulating temperature, and exercising. The more commonly used term when referring to how we burn calories is to say we have a 'fast' or 'slow' metabolism. The rate at which we use and manage calories for energy is largely determined by our genes, our activity, what and how much we eat, resulting in significant individual differences between how we burn energy. | Energy expenditure—the calories needed for vital functions and activity—varies widely among individuals due to genetics, diet, and lifestyle, often described as having a ‘fast’ or ‘slow’ metabolism. | Regularly consume foods, herbs, and spices that help your cells to release energy: curcumin, berries, chili peppers, green tea, berberine, and omega-3 fats from fish, seeds, and nuts. | Ensure moderate/high-intensity exercise regularly to increase energy expenditure. Consider your pathways in the activity category to support optimal outcomes. | N/A |
| **Appetite Satiety Intake** | Some people are very sensitive to the sensation of satiety (fullness), while others often overeat and take longer to register that they are full. We all experience hunger and fullness differently. While many people believe that serving sizes and other eating behaviors should be equal for all, variations in our genes determine our appetite level and satiety to some degree, and consequently, may affect our eating patterns (snacking, binge eating, servings, frequency of meals, etc.) in a very real, biological way. | Genetic variations influence how sensitive individuals are to feelings of fullness and hunger, affecting eating behaviors like portion size, meal frequency, and tendencies toward overeating. | Eat quality foods daily that make you feel fuller and more satisfied. These include food high in protein such as legumes and meats, and foods high in resistant starch such as cooked, cooled potatoes, Basmati rice, oatmeal, legumes, and buckwheat. | Balance brain chemicals responsible for appetite regulation (serotonin, dopamine, leptin, and ghrelin) through daily exercise, adequate sleep, and aromatherapy oils like lavender and lemongrass. | Fasting Glucose<br>Fasting insulin |

| Cellular | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
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| **Injury** | Injuries are caused by many internal and external factors. A torn tissue or chronic overuse of muscles, tendons or ligaments does not affect everyone in the same way, or necessarily result in injury. The combination of your body's make-up and genetics contribute to the development of injuries. Knowing your genetically determined risk for injury can help to manage and avoid these risks, and help you adjust exercise, lifestyle, diet, and recovery routines accordingly. | Genetics and individual body factors influence injury risk and response, so understanding your genetic predisposition can help tailor exercise, lifestyle, diet, and recovery to prevent and manage injuries. | Consume bone broth. | Practice exercises regularly that increase range of motion, improve strength, endurance, and balance. When increasing workout intensity, frequency and duration, do so gradually. Improve connective tissue health with dynamic flexibility and slow repetitions against resistance. | N/A |
| **Endurance** | Endurance refers to the ability to maintain activity for an extended period of time. The Endurance pathway indicates how you will respond to low to medium intensity training that improves your body's ability to produce sustained energy and resist fatigue. Your genes play a role in determining how well you will respond to endurance-based activities, and can be used as a guide to optimize your exercise program to get the best results. Numerous health benefits can be achieved at lower intensities of exercise. | Endurance—the ability to sustain activity—is influenced by genes that affect how well you respond to low- to medium-intensity training, allowing you to tailor exercise for optimal results and health benefits. | N/A | **High:** Focus on a higher ratio of endurance workouts that build aerobic capacity and lactate threshold, aiming for a perceived effort of 5–7 out of 10.<br><br>**Medium/Low:** Start with a lower ratio of endurance workouts targeting aerobic capacity and lactate threshold at a perceived effort of 5–7 out of 10, as improvements may take longer to appear. | N/A |

| Cellular | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
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| **Recovery** | Because exercise is a type of 'stress' on the body (the good kind of stress), some level of wear and tear inevitably occurs in muscles and tissues during and directly after a workout (this is how muscles grow). Given the right recovery resources and building blocks, the body quickly repairs and rebuilds muscles and tissues back to a healthy, normal state, ready for the next exertion. Without enough recovery time or resources, inflammation and oxidative stress can arise in the body and the risk for tissue break-down, injury, and pain increases. | Exercise causes beneficial stress that leads to muscle wear and tear, but with proper recovery and resources, the body repairs effectively—without which inflammation, oxidative stress, and injury risk increase. | Always consume carbohydrate or a combined carbohydrate-protein recovery meal depending on your Cellular genetic profile. This will enhance the rate of recovery allowing you to be ready for your next exercise session sooner. | It is imperative to allow for adequate rest (2 days) between intense exercise sessions, a good night of sleep, and quality nutrition. in order to achieve adequate recovery and improve fitness. Plan for active recovery after all exercise sessions | N/A |
| **Power** | The power pathway refers to both your muscular strength and anaerobic capacity, impacting your ability to produce short bursts of high energy. Power is not only important for athletic performance but also in many daily activities. Genetics influence your baseline muscular strength and how quickly you respond to power-based training. Combining appropriate resistance or plyometric workouts with high intensity interval type training can improve your ability to generate power. Power-type workouts protect against cardiometabolic disease, improve functional movement, and can have a favourable impact on body composition. | The power pathway, influenced by genetics, affects your muscular strength and anaerobic capacity for short bursts of energy, and targeted high-intensity and resistance training can enhance power, benefiting athletic performance, daily function, and overall health. | N/A | **High:** You likely respond quickly to power-based training and may reach your goals faster. Enhance your anaerobic capacity with short, high-intensity or sprint intervals paired with brief rest periods.<br><br>**Medium/Low:** Build anaerobic capacity through regular interval workouts featuring moderate to high-intensity intervals with short rest. If your fitness level is low, start moderately and increase intensity gradually. | N/A |

| Cellular | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
|---|---|---|---|---|---|
| **Training response** | Your genetics play a significant role in influencing your baseline fitness level, as well as your response to aerobic training. One can measure current fitness levels and track improvements using VO2 max, which represents the maximum amount of oxygen your body can utilize during intense exercise. Improvements in VO2 max vary significantly between individuals, with some responding quickly and notably to exercise, while others seeing more gradual and modest increases. Improving your VO2 max enhances your overall quality of life, reduces the risk of cardiovascular disease, and promotes performance in endurance-based sports. | Genetics significantly influence your baseline fitness and response to aerobic training, with VO2 max measuring your body's oxygen use during exercise and improvements varying widely between individuals, impacting health and endurance performance. | N/A | **High impact:** You need less training volume to improve VO2max; include both low (aerobic) and high (anaerobic) intensity workouts, guided by your Power and Endurance Pathways.<br><br>**Medium/Low impact:** Prioritize consistent, frequent training with gradual increases in intensity and duration; build aerobic base fitness with low-intensity endurance before progressing to higher intensity. | N/A |

| Nutrients | Explanation | Summarized Explanation | Diet | Lifestyle | Blood tests |
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| **Vitamin B12** | Vitamin B12 is an essential vitamin that works together with folate and other B vitamins . It's a major player in maintaining the health of both brain and blood cells, as well as the synthesis of DNA. Vitamin B12 is exclusively available from animal products, but may be made in the gut by bacteria. Genes may affect the availability, metabolism and requirement for Vitamin B12. | Vitamin B12, essential for brain, blood cell health, and DNA synthesis, is mainly obtained from animal products and gut bacteria, with genetics influencing its availability, metabolism, and individual requirements. | Ensure at least 3-6oz of vitamin b12 rich foods daily (clams, mussels, mackerel, crab and grass-fed beef, free range eggs, organic chicken and dairy products). | N/A | FBC/CBC<br>Homocysteine<br>Methylmalonate (MMA)<br>Vitamin B12 |
| **Folate** | Folate is an essential vitamin that works together with all B vitamins and plays a vital role in methylation. Folate also helps maintain brain, nerve, blood cells, and DNA health. Natural occurring folate is found in numerous foods including leafy greens, legumes and asparagus. The synthetic form is called folic acid, commonly used in supplements and fortified foods, but is less beneficial compared to folate. Genetic variation affects the availability and the requirement for folate. | Folate, a vital B vitamin found in leafy greens and legumes, supports methylation and brain, nerve, blood, and DNA health, with genetic variations influencing its availability and individual needs. | Ensure 4-5 daily servings of high quality lightly cooked or raw folate-rich foods: lentils, garbanzo and lima beans, asparagus, spinach, avocados and orange juice | N/A | Homocysteine<br>RBC Folate |

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| **Salt** | Salt sensitivity is estimated to be present in 51% of individuals with high blood pressure and 26% with normal blood pressure. In individuals with salt sensitivity, blood pressure may increase when excess sodium is consumed. Although the mechanisms underlying salt sensitivity are complex, your genes can help determine and predict your response to salt. | Salt sensitivity, influenced by genetics, affects how blood pressure responds to sodium intake and is present in about half of those with high blood pressure and a quarter of those with normal levels. | Minimize salt and consume high potassium foods (dark leafy greens, bananas and avocados). | N/A | Urea & Electrolytes (U&E) |
| **Vitamin D** | Vitamin D is made in the skin when exposed to sunlight. It is then activated in the liver and kidneys to produce vitamin D3. Vitamin D3 is able to switch multiple genes on, genes that are responsible for the maintenance of bone health and immunity, as well as the health of the hormone, glucose and cardiovascular systems. Variants in the VDR gene impact absorption, metabolism, and utilization of Vitamin D, therefore dietary intervention and increased sun exposure may be required. | Vitamin D, produced in the skin and activated in the liver and kidneys, regulates genes vital for bone, immune, hormone, glucose, and cardiovascular health, with genetic variations affecting its absorption and metabolism, sometimes requiring dietary or sun exposure adjustments. | Consume at least 4 servings of vitamin D rich foods each week: wild-caught fatty fish, free-range eggs, sun-exposed mushrooms. | Ensure vitamin d synthesis with at least 15-30 minutes of sun exposure to your arms, legs and face around noon each day if possible, or with a sun lamp. Dark pigmented skin tone, air pollution, sunscreen and clothing are all factors that reduce the ability to synthesize vitamin D. | Vitamin D3 (serum 25-OH-D) |

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| **Choline** | Choline is a vitamin that plays an important role in the building of cell membranes. It is a key nutrient for a healthy pregnancy, mood regulation, memory and making new DNA. It is also involved in fat transport and supports methylation. Certain genes may affect the availability of choline, increasing dietary choline requirements. | Choline is a vital nutrient important for cell membrane formation, pregnancy, mood, memory, DNA synthesis, fat transport, and methylation, with certain genes influencing its availability and dietary needs. | Include 3 or more daily servings of choline-rich foods: egg, dairy, liver, beef, chicken, fish, peanuts, spinach, beets and wheat germ | N/A | Homocysteine |
| **Fatty acids** | Fatty acids are the building blocks of fats and perform many important functions in the body. They are the base for cell membranes, help make hormones, are involved in inflammation, brain function and the immune system. Different dietary fats impact the body in different ways and our genes impact how these fats are metabolized and processed. Good quality dietary fat intake may correct these imbalances driven by genes. | Fatty acids, essential components of fats, support cell membranes, hormone production, inflammation, brain function, and immunity, with genetics influencing their metabolism and dietary fat quality helping to balance these effects. | Consume 8-12oz of wild-caught, cold-water fatty fish 3-4 times a week. Favor lower mercury varieties like sardines, shrimp, salmon and cod. Supplements: Omega-3 EPA + DHA | N/A | HDL<br>LDL<br>Fasting insulin<br>Fasting glucose<br>Total Cholesterol<br>Triglycerides |

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| **Caffeine** | Caffeine is a central nervous system stimulant. In small amounts, caffeine's effects include mild euphoria, alertness, and enhanced cognitive performance, but in higher quantities, it can trigger anxiety, restlessness, irritability, nausea, and insomnia. The breakdown (metabolism) of caffeine in the body can vary up to 40-fold between individuals, and is largely a genetically-determined ability. Certain gene variants confer a higher sensitivity to caffeine and are associated with slower metabolism of caffeine. | Caffeine stimulates the nervous system, causing alertness and improved cognition in small amounts but anxiety and insomnia in higher doses, with genetic differences greatly influencing how quickly individuals metabolize and respond to it. | Avoid or reduce caffeine-containing beverages like caffeinated coffee, caffeinated soft drinks, and energy drinks. Consider chiccory, dandelion coffee alternative, herbal teas like chamomile, rooibos and mint, and decaf coffee | N/A | DHEA-S<br>Cortisol (8 AM) |
| **Vitamin C** | Vitamin C is capable of excreting or neutralizing substances such as toxins and byproducts of normal cellular function that may cause rust-like damage within our cells. It is also a key nutrient in the health of our collagen and blood vessels and assists in iron absorption, and wound healing. Certain genes show us how effective we are at activating vitamin C for use in these functions. | Vitamin C helps neutralize cellular toxins, supports collagen and blood vessel health, aids iron absorption and wound healing, with genetic variations influencing how effectively we activate and use it. | Consume at least 2-3 servings of foods naturally high in vitamin c daily (citrus fruits, red, green and yellow peppers, guava, sweet potatoes, tomatoes, kiwis, broccoli, brussels sprouts, papayas, organic strawberries). | N/A | Plasma: Vitamin C |

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| **Gluten** | Celiac disease occurs when there is an immune reaction to gluten which is the protein found in wheat, barley, triticale and rye. In these cases, gluten can cause inflammation in the gut which may damage the gut wall and potentially lead to complications resulting in deficiency conditions like anemia, osteoporosis and thyroid problems. If certain gene variants are present, gluten may need to be removed from the diet completely. | Celiac disease is an immune reaction to gluten that causes gut inflammation and damage, potentially leading to deficiencies, and may require complete gluten removal from the diet if certain gene variants are present. | Avoid gluten containing foods (wheat, barley, rye and spelt). Gluten-free grains include sorghum, rice, amaranth, teff, millet, quinoa, buckwheat and gluten-free oats. | N/A | Celiac and gluten sensitivity panel - IgA & IgE<br><br>Celiac Disease Autoimmune Panel |
| **Iron overload** | Certain genes affect the body's ability to transport iron from the tissues to the blood, so that excess iron can be excreted. Excessive iron accumulation within the tissues, known as hemochromatosis, is a condition that can result in the damage of organs which can precipitate disease conditions such as diabetes, cancer, irregular heart beat and liver cirrhosis. | Certain genes influence how the body transports iron from tissues to blood for excretion, and when this process is impaired, excess iron buildup (hemochromatosis) can damage organs and lead to diseases like diabetes, cancer, irregular heartbeat, and liver cirrhosis. | Include foods high in tannins, oxalates, and phytates when eating iron-rich animal proteins which will help to inhibit iron absorption (tea, rhubarb, legumes, nuts, chard, cliantro, soybeans). Replace iron-rich animal sources with vegetarian protein. Avoid alcohol and cooking with cast-iron. | N/A | HB<br>Liver enzymes: GGT<br>S-Transferrin<br>Total Iron<br>% Transferrin Saturation<br>Ferritin |