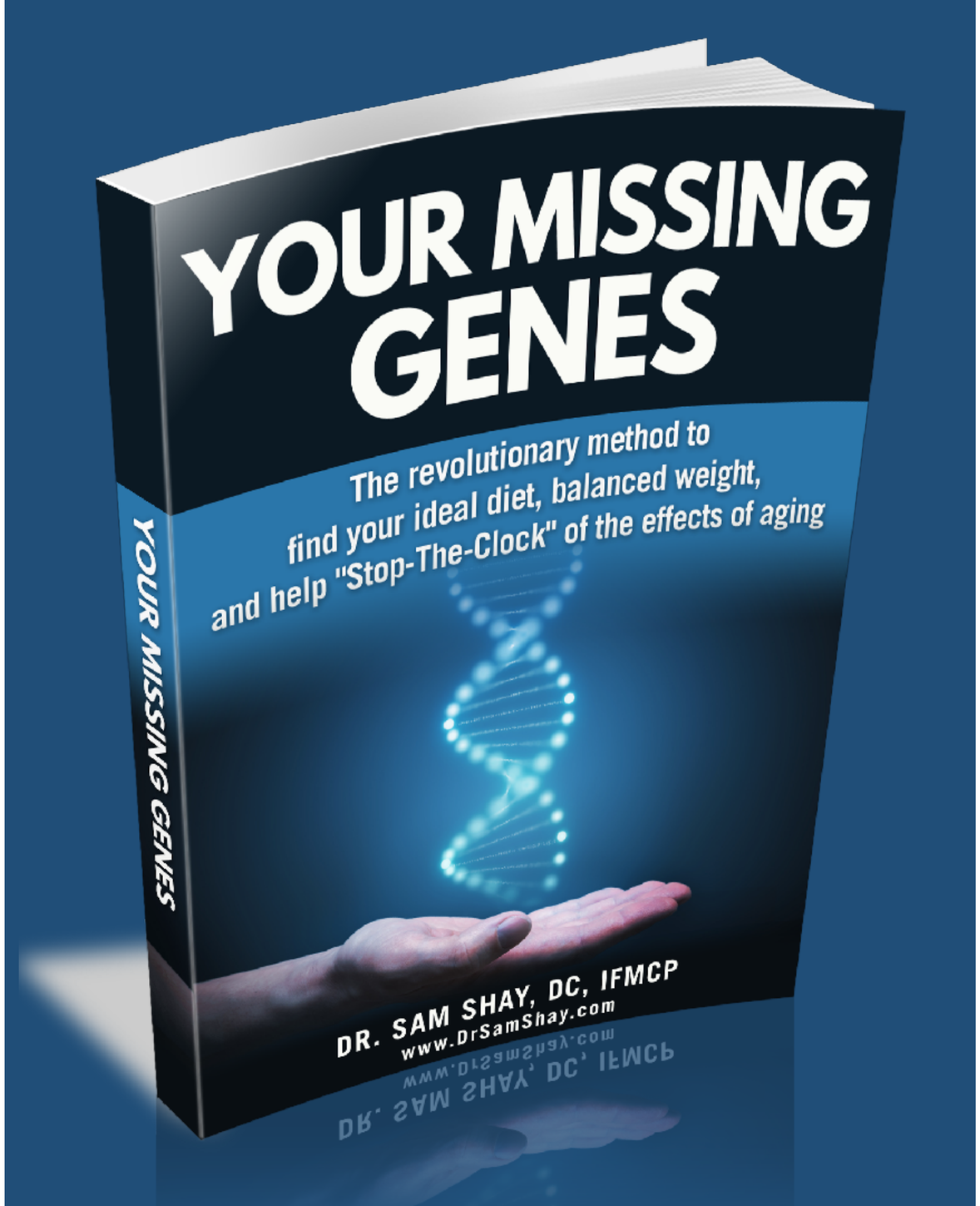

A simple guide to genetics so you can achieve greater longevity, optimal performance, and wellbeing.

DR. SAM SHAY
SOLVING YOUR WELLNESS MYSTERY

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Dr. Sam here...

This document, while jam packed with useful information, is designed to be ACTIONABLE and EASY TO UNDERSTAND.

My intention is that you get to enjoy the benefits of this important investment in your longevity, vitality, and wellbeing as soon as possible. With that, let's get to your own personalized results.

Genetics testing radically improved my life by helping me get my runaway inflammation under control, identify and remove a key trigger food (coffee in my case), and clarified my optimal diet. I had lived in the dark about my ideal diet for decades and this genetics test completely changed my digestion, energy levels, and mood, not to mention saved me tons of money on the wrong foods, and bandaid supplements.

My wish for you is you also enjoy the benefits of genetics testing, which would act like a “Rosetta Stone” for longevity, wellbeing, and your unique diet.

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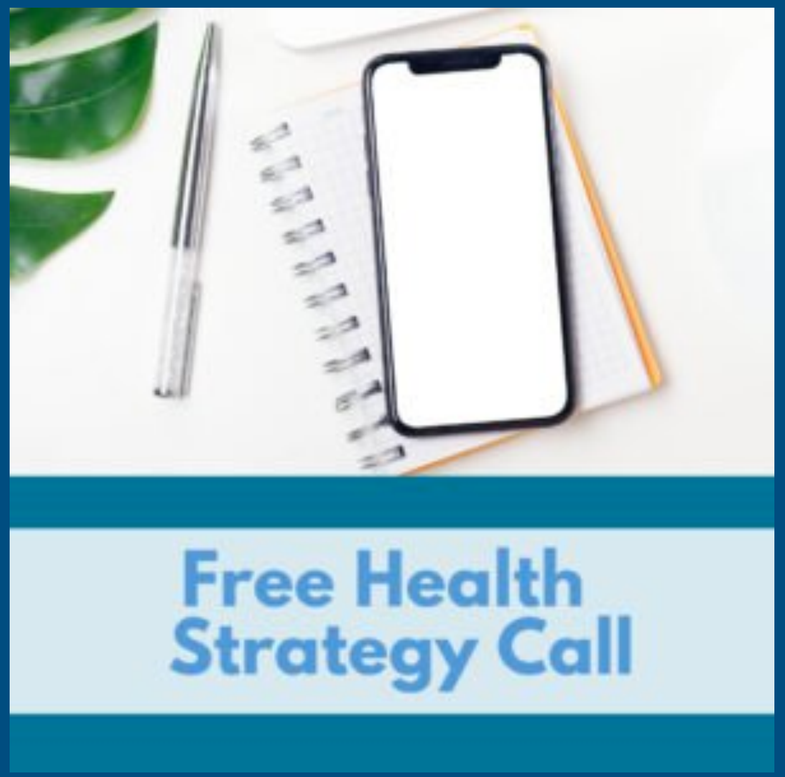
Want 1-on-1 Support for Your Health?



Any time that you want to talk with me about:

- **Getting started** with genetics labs
- **Guidance** for your personal health journey
- Ask any remaining **questions** you may have
- Get **more info** on how to get genetic testing

Be sure to book a
FREE Health Strategy Call
to get your clear next steps.

Book Your FREE
Health Strategy Call Here

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Dedication

This book is dedicated to my departed mentor, Dr. John Donofrio.

You were a very rare combination: A genius clinician, master teacher, and brilliant innovator, combined with humor, integrity, and a big compassionate heart.

I say a real doctor has the heart of a healer, the mind of a scholar, and the spine of a soldier. That was you.

You led by example. You turned students into clinicians…you turned degrees into doctors. You have taught tens of thousands, who in turn treat millions.

You have changed the world for the better, especially my world. You were my mentor, my friend, and the Uncle I never had.

I miss you so much.

Your nephew, Sam

Dr. John, me, and Dr. Yvonne when they came to visit New Zealand in 2013

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How to use this eBook

Genetics is a Powerful Guide

Knowing your genetic predispositions (and gene variations) is a powerful tool to help you make more informed nutritional, exercise and lifestyle choices to maximize your potential for Healthy Living and Healthy Aging.

Disclaimers:

The information provided in this book is designed to provide helpful information on the subjects discussed. This book is not meant to be used, nor should it be used, to diagnose or treat any medical condition.

If you have any health or weight issues, food allergies, are carrying any injuries, or on any medication then you must consult with your Doctor(s) or other Allied Health Professional(s) before undertaking any significant changes to nutrition, exercise or lifestyle choices.

For diagnosis or treatment of any medical problem, consult your own health professional. The publisher and author are not responsible for any specific health or allergy needs that may require medical supervision and are not liable for any damages or negative consequences from any treatment, action, inaction application or preparation, to any person reading or following the information in this book.

References are provided for informational purposes only and do not constitute endorsement of any websites or other sources. Readers should be aware that the websites listed in this book may change.

Reading this book or using the recommendations or links in this book does not create a doctor-patient relationship.

Adapted from: http://EzineArticles.com/4723776

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Why Genetics?

Functional medicine combines the best of western diagnostics with the best of natural medicine lifestyle interventions and nutrition.

Today we have access to amazing functional tests (re: genetics, gut/parasite, adrenal, mitochondria, liver, food intolerances, etc.) that reveal all the hidden biochemical pathways that we can then create truly personalized nutrition.

Test, don't guess so you can save yourself time, money, and effort by getting to the root of the issues.

Genetics testing is one of the more recent tools available to help you identify your ideal diet, achieve your natural weight, and to "Stop-the-Clock" of the effects of aging.

"Lasting health comes from the **interaction of our genes** with our lifestyle and environment. Personalizing this connection is the future."

-Jeffrey Bland,

PhD, Father of Functional Medicine

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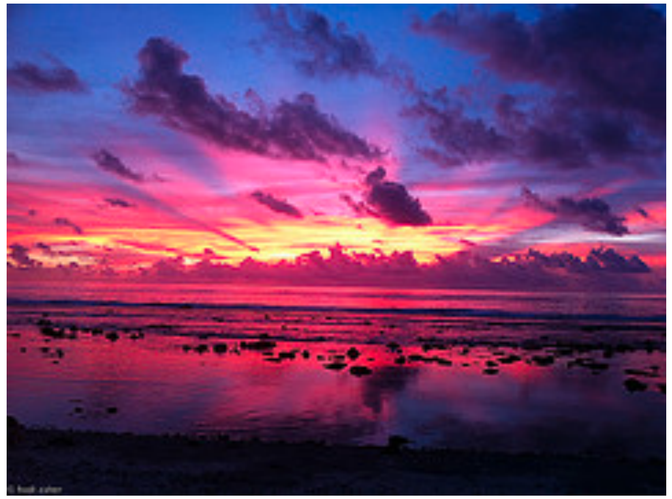
What is “Stop-The-Clock”?

Aging happens, yet it doesn’t happen at the same speed. Some people age poorly, others age well, even gracefully, some even look ageless.

At some point we notice our aging, and we want it to stop, we want to “Stop-The-Clock”.



We vibrant energy, great skin, a sharp mind, a lean body, and the confidence that we aren’t just looking good or just feeling good, but our bodies are actually health and resilient.

“Stop-The-Clock" is not a ‘trick’, nor a ‘magic bullet’, nor a special ‘product’, nor a ‘supplement’. “Stop-The-Clock” is a scientific system of detailed lifestyle analysis combined with advanced functional testing to create your customized life plan to optimize your vitality.

“Stop-The-Clock” is a unique concierge approach customized to your needs. Genetics is a key component to this entire approach.

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Who is this for? Who can benefit from genetics?

Answer: Everyone no matter where they are.
Your genes can help you move up the spectrum.

Chronically Unwell, wants to feel 'Normal'

Feeling "Normal" Relatively Symptom-Free

Optimal Performance: Entrepreneurs Biohackers

Chronic Fatigue

"Meh", Coping, Up and Down, "Carrying-On"

High Performance

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Do you have these challenges?

Diet confusion:

- Overwhelmed with the ‘latest’ food fads?
- Sick of new diets? (and people commenting on your diet?)
- Wish you had a clear answer on what diet is best for you?
- Feel hungry within 1-2 hours of a meal?
- Sugar cravings

Indigestion:

- Gas/bloating?
- Constipation?

Fatigue:

- Wake up tired? Wired at night?
- Post-meal lethargy
- Waking ~3am at night?

Chronic inflammation:

- Joint pain?
- Swelling with water weight?
- Can’t lose weight?
- Foggy Brain?

Trouble with trying to do it on your own?

- Unclear where to start?
- Have no map to know what areas to prioritize?
- Confused about all the different diets?
- Overwhelmed by all the different ‘health tips’?
- Unclear on what testing is actually needed?
- Think all genetic testing is the same?
- Think that anti-aging is just about finding the right brain supplement? (It isn’t).
- Confused by all the podcasts, magazine articles, TV shows, online summits, docu-series, and latest books touting the latest and best products or protocols?

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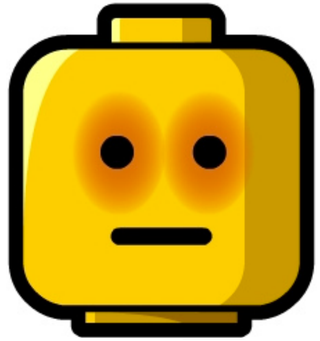
My Story: From Burnout to Helping others

I was raised by a stressed out, unhealthy, tired mom-preneur (Dad gave child support). I was in p**oor health and** living inside a **high -stress environment** growing up.

There were a variety of things going on simultaneously that contributed to my poor health including:

- **Insomnia, gut issues,** fatigue, sugar, gluten, dairy, fast food, margarine
- **Bullied, gaslight, and invalidated** (told “It was in my head”)
- **Video Game Addiction**
- **Sugar Addiction**
- **Chronic joint pain**
- **Anxious, depressed**

It was entirely unclear how or if I was going to get better. It was a very challenging time for me.



Mr. Pony

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My Story: From Burnout to Helping others

My journey of healing and discovery has been a long and deep one. I learned to recover from **addiction** and **burnout** over several decades.

I earned multiple degrees to learn how to leverage my own healing to help others. With years of clinical experience, **I help others with new frameworks and accurate testing.**

Functional genetics testing wasn't available for me back then, and it would have spared me a huge amount of time, money, and energy. **Now it's available to you.**

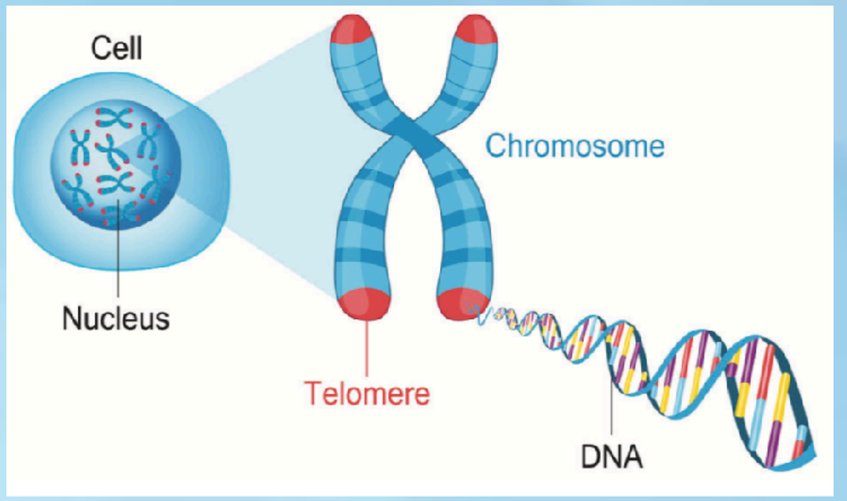
The new vision is to share the benefits of genetics testing in a straight-forward and actionable way to help others achieve their health and life goals.

What is a Gene?

THE BASICS OF DNA

The human genome consists of 23 pairs of chromosomes found in the cell nuclei, as well as mitochondrial DNA, which contain genes and other non-coding sequences. Overall, it is estimated that each individual has approximately 30,000 genes. A gene is, essentially, a sequence of DNA that codes for a molecule with a function. As chromosomes come in pairs, each individual has two copies of each gene, one inherited from each parent.

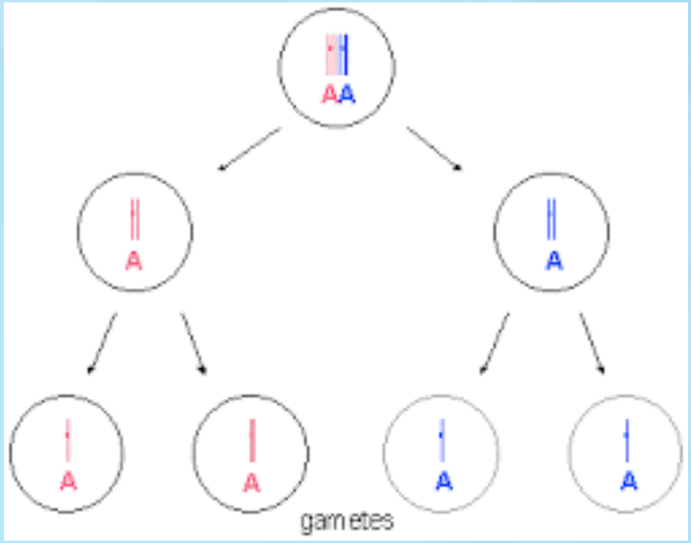
Genetic variants (alterations in the DNA sequence) is what makes everyone unique, but also contributes to your health status.



A gene is essentially a piece of DNA, which is made up of a series of bases. DNA is made up of a twisted double strand of bases, which are paired.

Variations in these paired bases can change the efficiency of the whole gene. Each gene sequence codes for a particular protein.

Unhelpful variations ('yellow' and 'red' dots in your genes), change the efficiency of the gene in a negative way.



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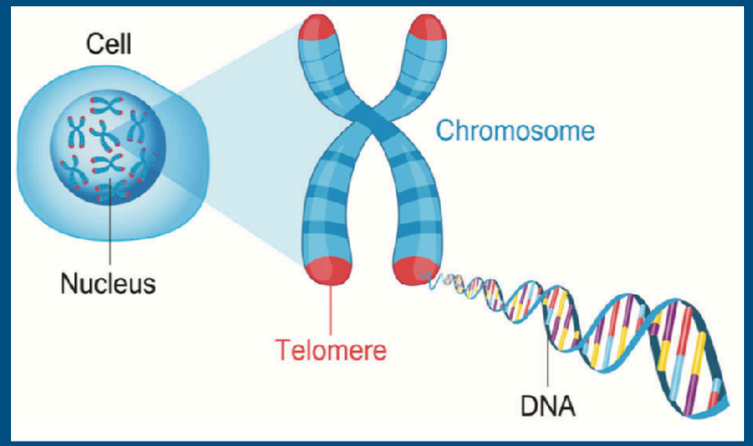
An Analogy:
Genes in DNA = books in a library



DNA	Library
Genome in Cell Nucleus	The “Library” = The Nucleus
Genes organized into chromosomes	The “Shelves” = chromosomes
Chromosomes have bands of DNA that contain genes	the “Books” on the shelves = the bands on the chromosomes
The genes = the recipes to make proteins	Open a ‘book’ lay it flat and you get a recipe on one page and a recipe on the other

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How you get Genetic Variation: Mom and Dad's genes mix (Re: How you get to: "Red", "Yellow", and "Green" dots)

LEGEND:

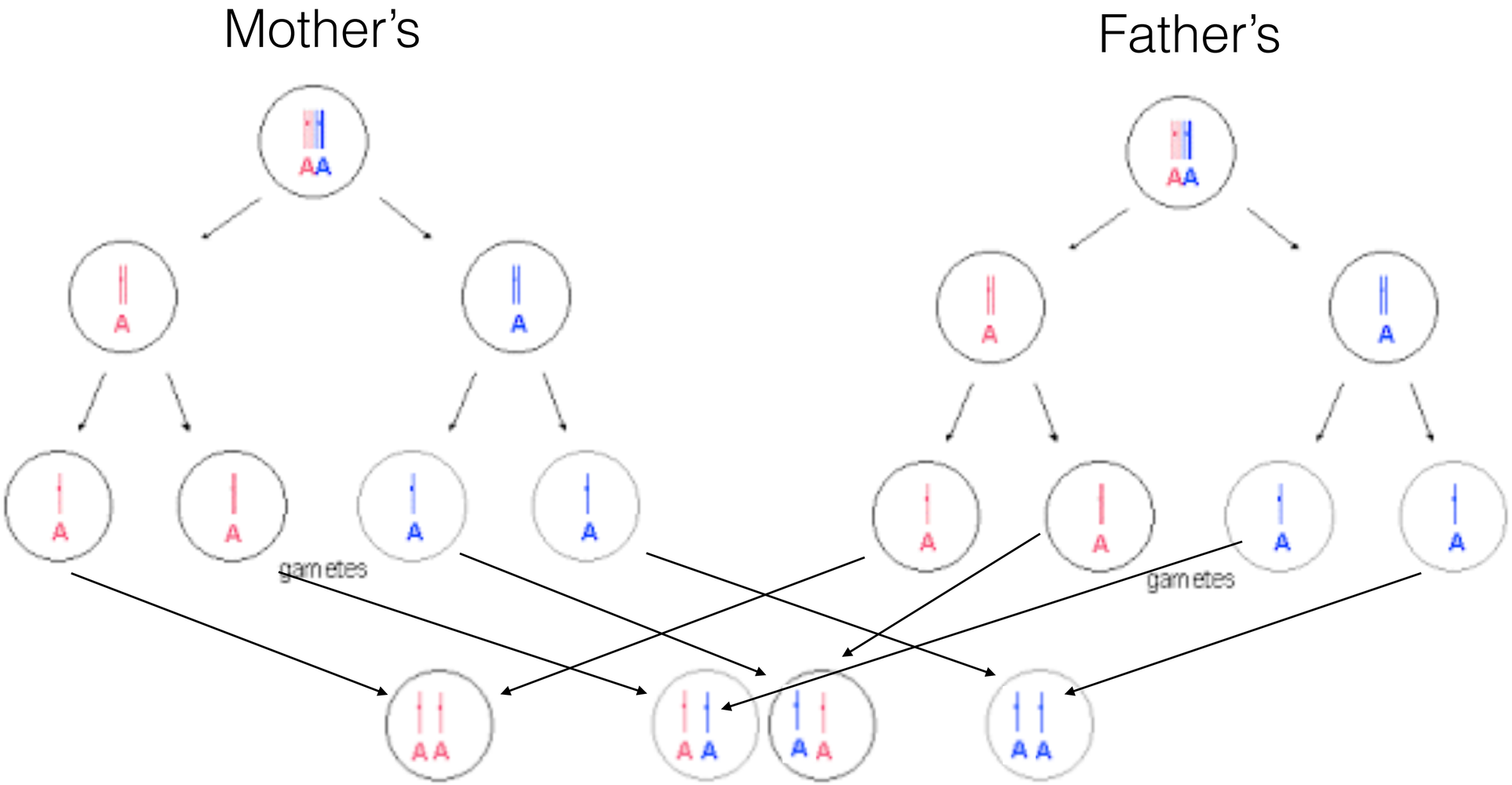
Normal/ Wild type

Variant

BENEFICIAL

LESS BENEFICIAL

LEAST BENEFICIAL



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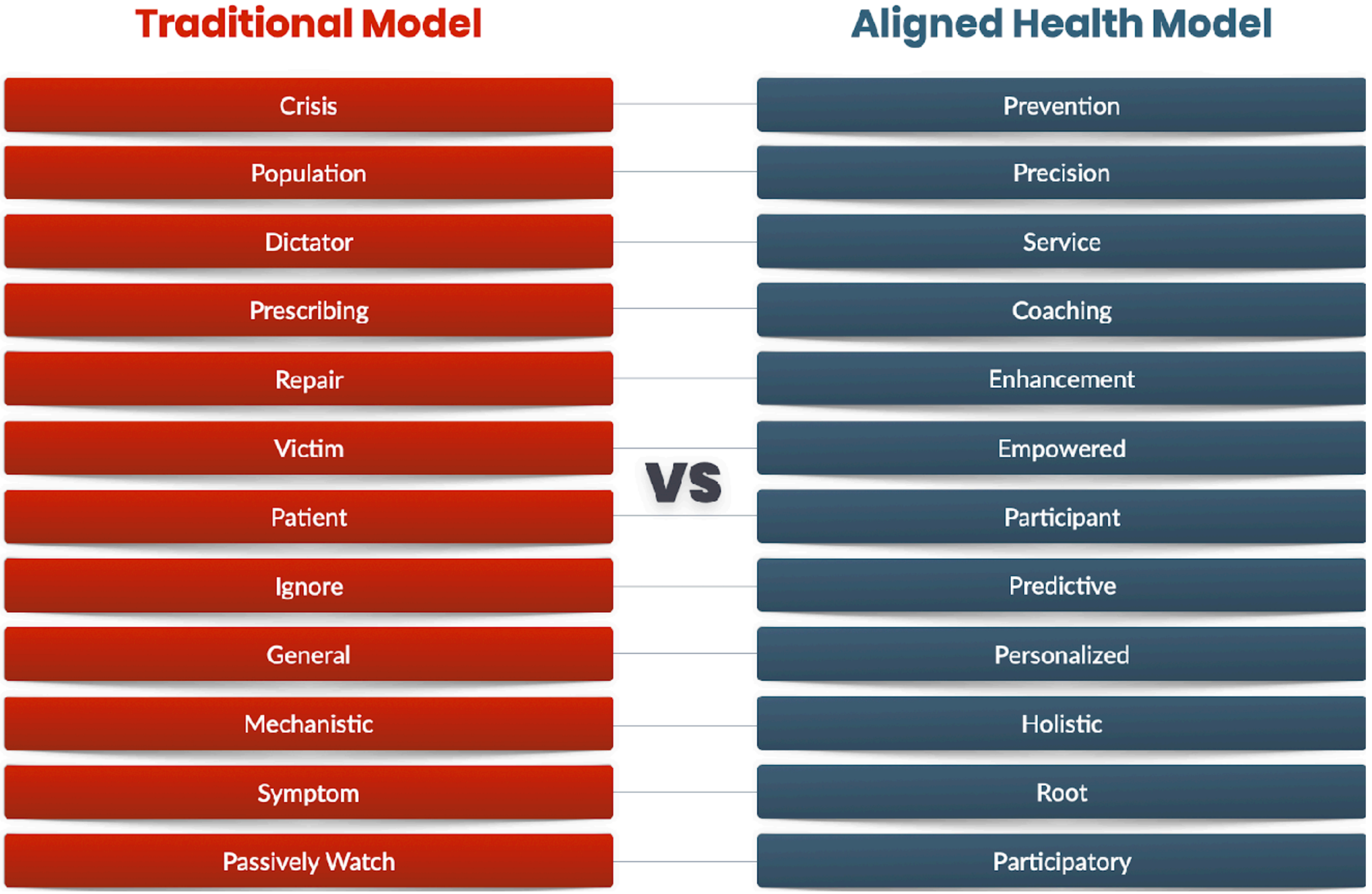
Two Paradigms of Health Care



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Same Two Paradigms Show up in Genetics

Western Genetics	Functional Genetics
Individual Gene	Clusters of Genes
Pathology	Function
Black and White Thinking	Greyspace
Focus on the Disease	Drivers of disease
Helplessness & Pessimism	Hope & Optimism
Drugs to cope (Symptomatic)	Lifestyle change (Epigenetics)

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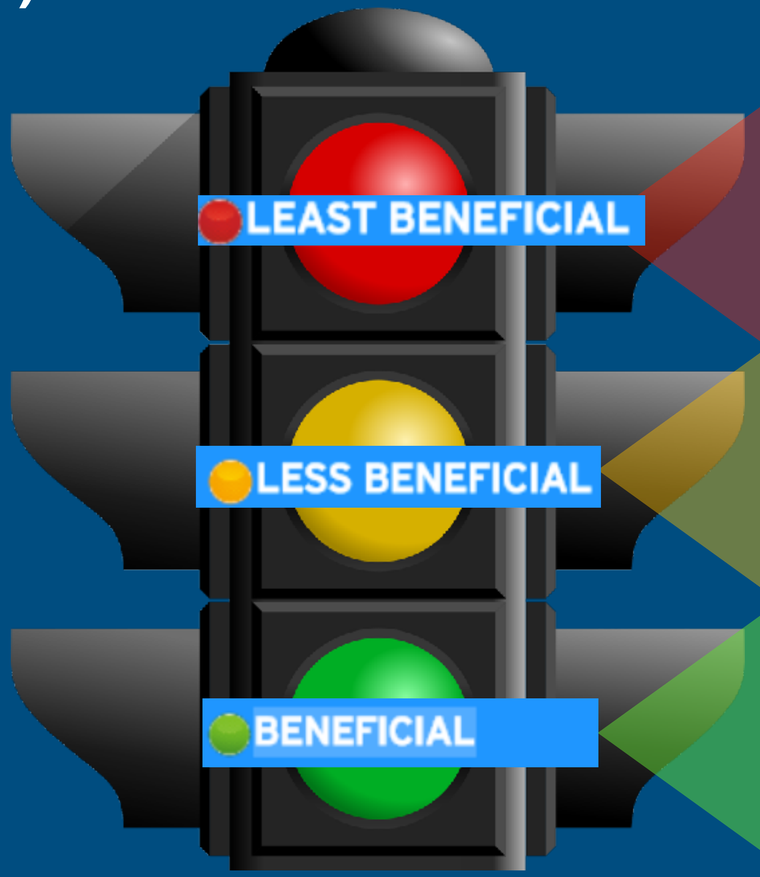
Your genes stay the same,
but their *expression* can vary.
This is epigenetics (AKA functional genetics).

Your genes have a default setting but each setting has a ‘dial’ or ‘dimmer switch’ to shift the expression, either towards red or towards green.

Someone with a ‘red dot’ can implement a great lifestyle change and their genes can express more ‘green-like’.

Someone with a ‘green dot’ can implement a poor lifestyle choice and their genes drift towards ‘red-like’ expression.

This is what makes our genes functional in this way.



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Genetics Playing Field

To use the analogy of a football playing field, some people have a larger 'genetic' playing field than others; to cross the boundaries would be unwise.

Understanding there is ample room to move within your own field and, therefore, knowing your boundaries means you can work within your genetic means.

There are no limitations as such, just boundaries to work within that help your whole system operate at an higher level.

Genes & Lifestyle

Importance of Gene and Environment/Lifestyle Interactions

The Federal Government report released in May 2009, titled "***Weighing it up – Obesity in Australia",*** stated that:

1. **Environmental and Lifestyle Factors** contribute about 30% to an individual's body weight, and;
2. **Genetics** contributes the other 70%

(Similarly, research indicates the ratio for Heart Health is approx. 50 % and 50%.)

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Life Expectancy vs. Health Expectancy

LIFE EXPECTANCY VERSUS HEALTH EXPECTANCY

Globally, healthcare systems are facing major challenges as world is in the midst of an epidemic of preventable lifestyle diseases, such as obesity, diabetes, and heart disease. As well as having this epidemic, we have an ageing population. Consequently, **even though life expectancy has increased, health expectancy is decreasing**.

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#1 Cause of Bankruptcy in the USA: Medical Expenses

Invest in your health now.

One of the ‘effects’ of aging is spiraling medical expenses, unless you take action *now*.

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The (Dubious) Promises of 23AndMe/Ancestry:

You are promised…

- You'll have the information to know what you need to do for your health.
- You'll be given a list of lifestyle, nutrition, and exercise recommendations in a clear and organized list of priorities.
- That it will make sense and be easy to implement.

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The REALITY of 23AndMe/Ancestry:

The reality, however, is…

- Overwhelmed
- No Prioritization of information
- No help implementing necessary changes
- Alarmist/Sensationalized Results
- You are treated like an algorithm, not a person

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SOLUTION: Comprehensive Concierge Genetics Testing

Genetics Lab Package

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What you want in your Genetics test

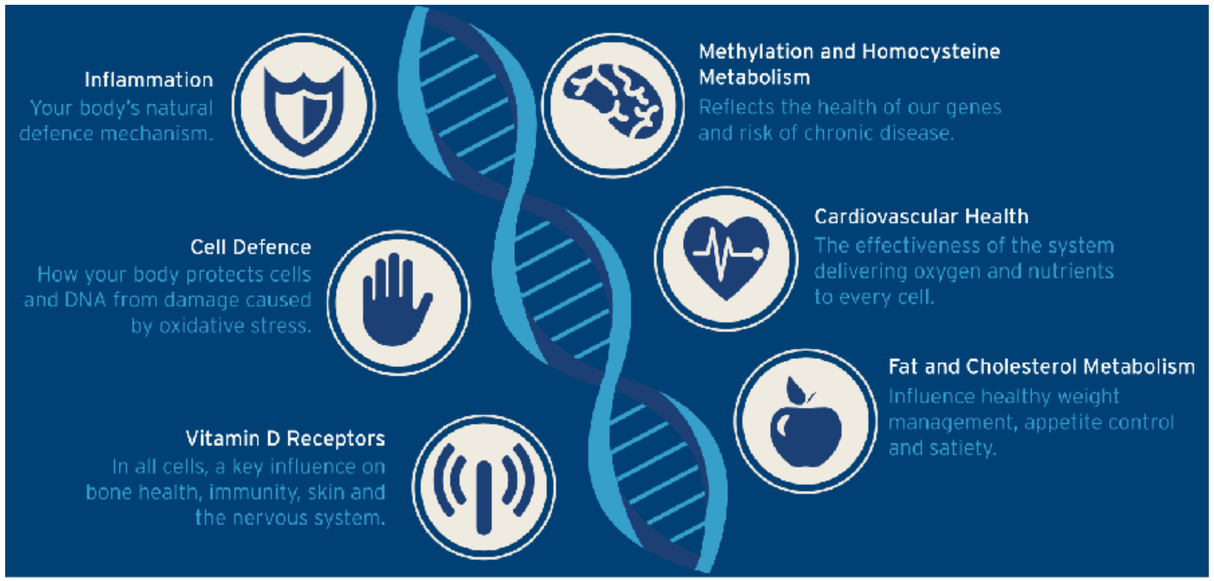
Genes are chosen with the following criteria:

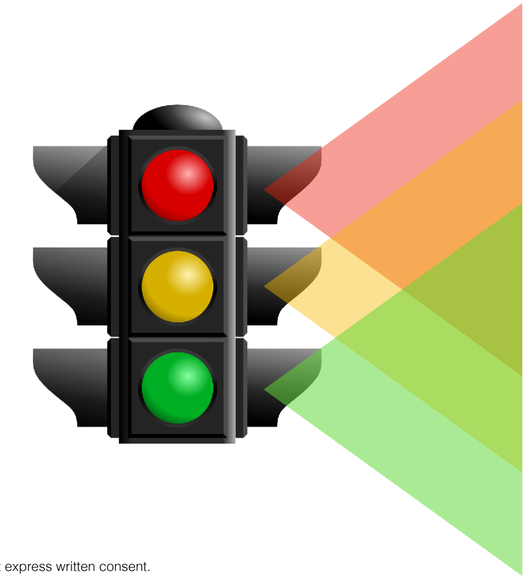
1. The genes influence one of the main “drivers” of all diseases.

2. The genes are ‘upstream’ of the other genes, meaning they are the ‘general’ of the other foot soldier genes.

3. Gene variations (yellow/red dots) show up in at least 10% of the general population (so you’re not looking for ultra-rare genes).

4. Each gene has peer-reviewed research, *done on humans*, to show that lifestyle, exercise, diet, and nutrition alone can change the epigenetic expression of the gene for the better.





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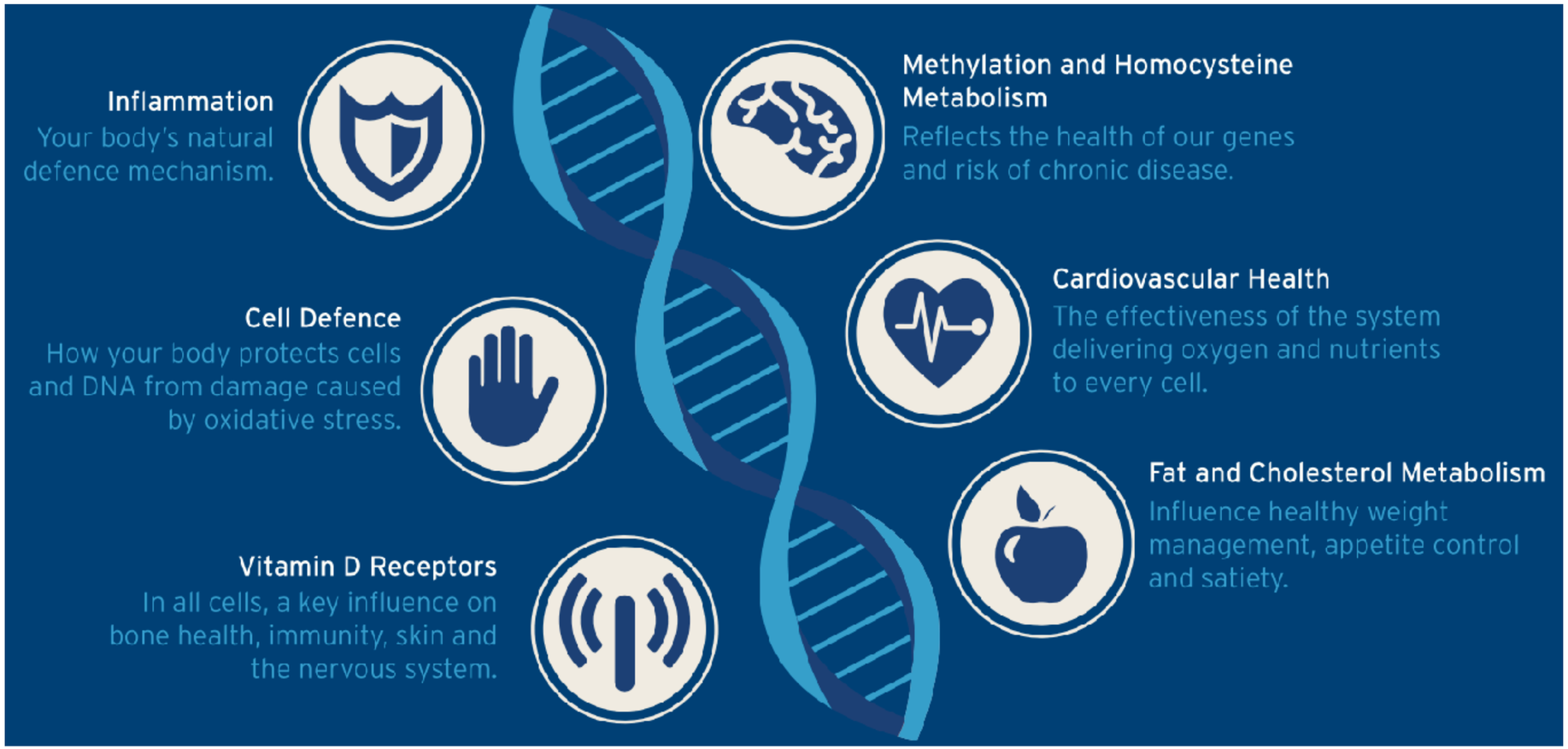
Genetic Groupings

What you want in your Genetics test is groupings of genes in the highest priority drivers of disease like:

- Inflammation
- Cell Defense
  - Free radical quenching
  - Liver Detox
- Vitamin D Receptors
- Methylation and homocysteine metabolism
- Cardiovascular Health
- Fat & Cholesterol Metabolism



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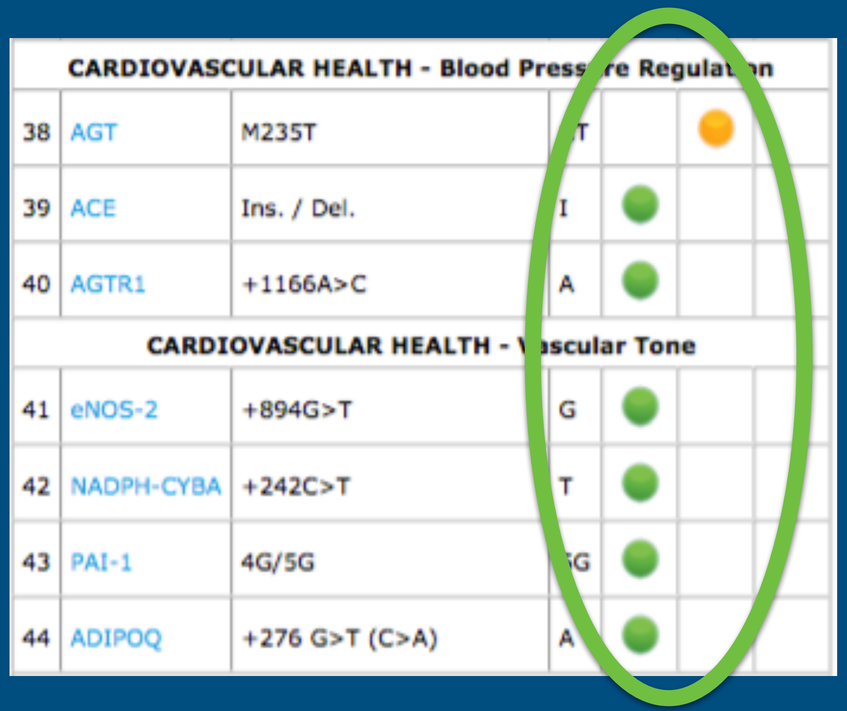
Example: Look for “groupings”

Who is more likely to have problems with their cardiovascular system?

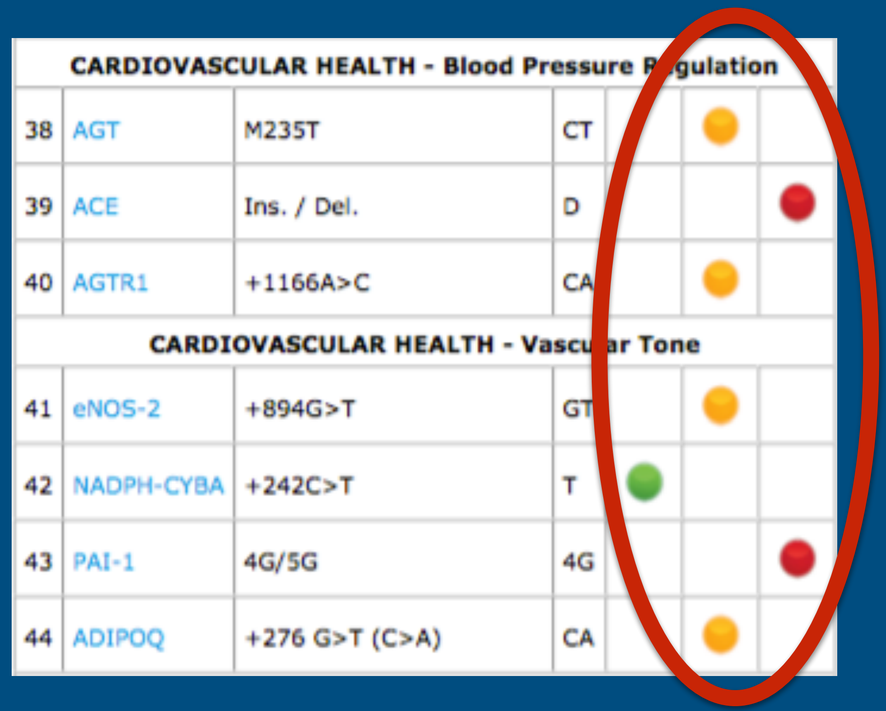
The person on the left or on the right?

We wouldn’t get the whole picture if we just looked at the outlier for either side (the yellow dot on the left or the green dot on the right).



CARDIOVASCULAR HEALTH - Blood Pressure Regulation						
38	AGT	M235T	T		●	
39	ACE	Ins. / Del.	I	●		
40	AGTR1	+1166A>C	A	●		
CARDIOVASCULAR HEALTH - Vascular Tone						
41	eNOS-2	+894G>T	G	●		
42	NADPH-CYBA	+242C>T	T	●		
43	PAI-1	4G/5G	5G	●		
44	ADIPOQ	+276 G>T (C>A)	A	●		

VS.



CARDIOVASCULAR HEALTH - Blood Pressure Regulation						
38	AGT	M235T	CT		●	
39	ACE	Ins. / Del.	D			●
40	AGTR1	+1166A>C	CA		●	
CARDIOVASCULAR HEALTH - Vascular Tone						
41	eNOS-2	+894G>T	GT		●	
42	NADPH-CYBA	+242C>T	T	●		
43	PAI-1	4G/5G	4G			●
44	ADIPOQ	+276 G>T (C>A)	CA		●	

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Top Priority: Inflammation

"Inflammation seems to underline not just senescence (deterioration with age) but all chronic illness that often comes along with it: diabetes, atherosclerosis, Alzheimer's, heart disease, cognitive function decline, premature aging, and even cancer."

Discover Magazine
The New Science Of Health

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Genes that Affect Inflammation

Inflammation is a natural body defense mechanism and an important part of the normal immune response.

It protects you from infections and helps with tissue repair after an injury.

Your health and wellbeing is critically dependent on this inflammatory response being well regulated and operating correctly.

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Genes that Affect Inflammation

Ideally, when you get sick or injured *you want* a **strong inflammatory response** that ensures you deal effectively with any infection or injury but then settles down.

VS.

*You do **not** want* an inflammatory response that is **overly aggressive** as this can lead to more inflammation, tissue destruction, muscle wastage, and bone loss.

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Genes that Affect Inflammation

Genetically, some people are more likely to have this overly aggressive inflammatory response.

You also do not want a state of chronic inflammation.

Elevated levels of inflammation with many chronic diseases: cardiovascular disease, atherosclerosis, diabetes, periodontal disease and many autoimmune diseases.

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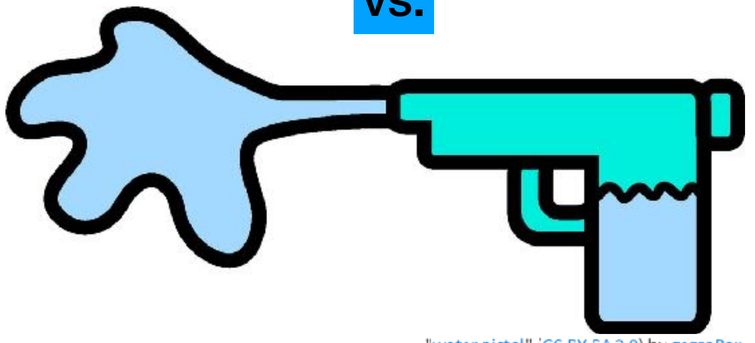
Anti-Inflammatory genes

Your body produces anti-inflammatory chemicals to ensure your inflammatory response remains controlled.

Genetically, some people do not produce good levels of these anti-inflammatory chemicals and are unable to control their inflammatory response and are more likely to end up with chronic inflammation.

"Fireman on Ladder" (CC BY-ND 2.0) by dhendrix73

vs.



"water pistol" (CC BY-SA 2.0) by gazzaPax

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fitgenes

Don’t chase individual inflammatory genes:
Look for “groupings”

#	Gene	Reported Variant	rsID	Your Result			
INFLAMMATION - Pro-inflammatory Cytokines							
1	IL-1α-1	889C>T	rs1800587	T			🔴
2	IL-1α-2	+4845G>T	rs17561	T			🔴
3	IL-1-β	-511G>A	rs16944	AG		🟡	
4	IL-6	-174 G>C	rs1800795	GC		🟡	
5	IL-8	-251T>A	rs4073	T	🟢		
6	IL-18	-607C>A (G>T)	rs1946518	T	🟢		
7	TNFα	-308 G>A	rs1800629	G	🟢		
8	CRP-1	+0169171C>T	rs2794520	TC		🟡	
9	CRP-2	+0143294C>T (G>A)	rs2592887	GA		🟡	
10	CRP-3	3872C>T	rs1205	CT		🟡	
11	COX-2-3	-1195A>G	rs689466	G	🟢		
12	COX-2-4	+8473T>C	rs5275	T	🟢		
INFLAMMATION - Anti-inflammatory Cytokines							
13	IL-10-1	-1082G>A	rs1800896	A			🔴
14	IL-10-2	-819C>T	rs1800871	TC		🟡	
15	IL-10-3	-592C>A	rs1800872	C	🟢		

Over-initiation:

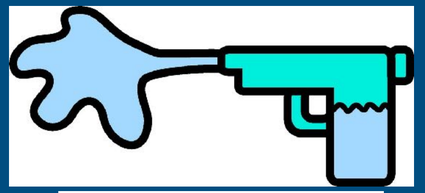
"Lighter Flame" (CC BY-ND 2.0) by The White Wolf

VS.

Over-sustaining:

"Fire!" (CC BY-SA 2.0) by Pitel

Under-clearing:



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Example: The 3 types of Genetic-based weight gain
Inflammatory Weight Gain

This Genetics Lab Package helps resolve:

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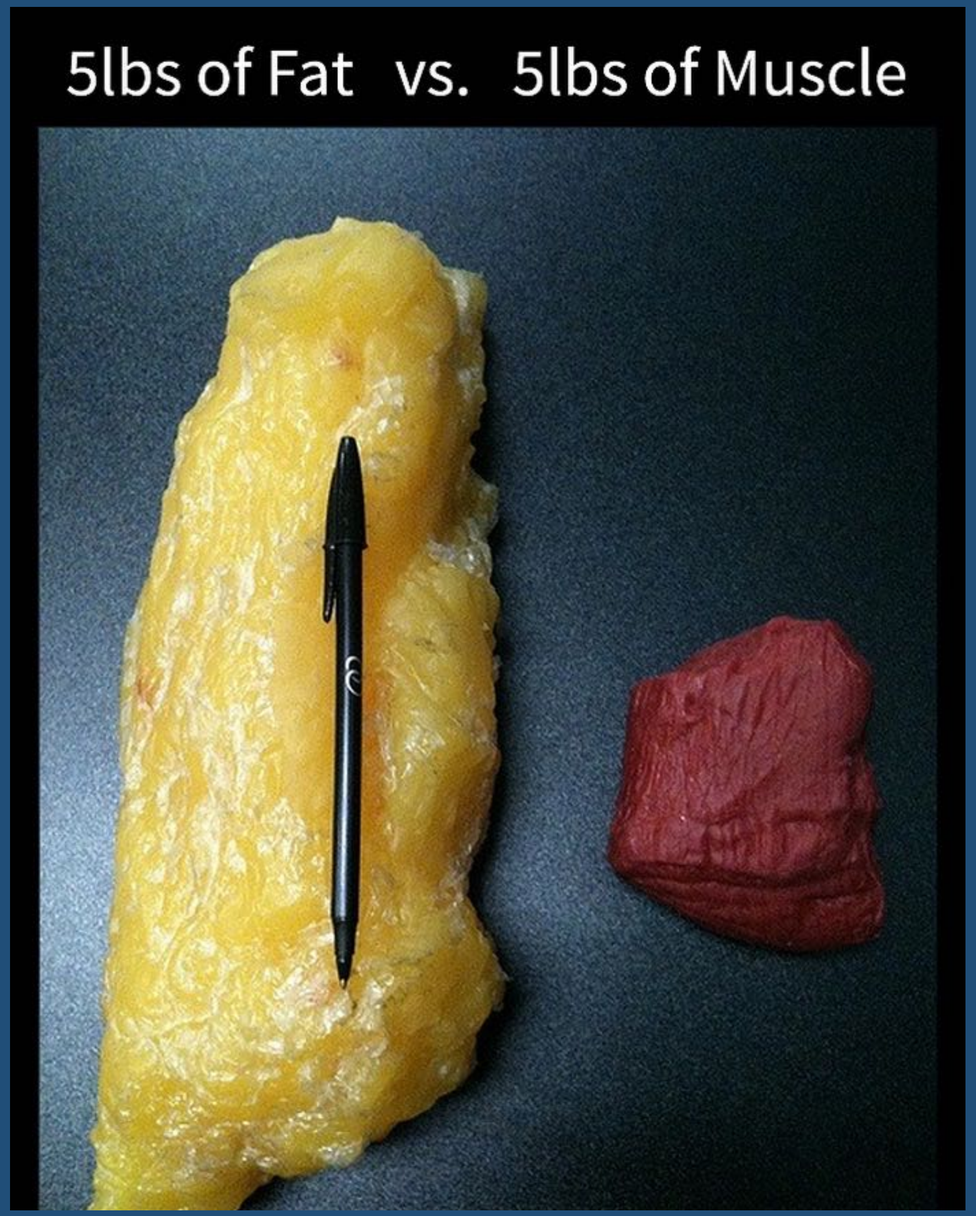
The Paradox of Fat Loss

Signs of inflammatory weight gain:

- Do you gain 1-2+ pounds by eating with only a small piece of bread?
- The harder you exercise, the less muscular and more weight you put on?
- Fat redistributing itself around your body?
- Cutting calories not working?



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Body Fat Makes Inflammation

Body fat produces a range of inflammatory chemicals. The more body fat you have, the more inflamed you become.

The body creates more fat, which creates more inflammation, which creates more fat… etc.

#	Gene	Reported Variant	rsID	Your Result			
INFLAMMATION - Pro-inflammatory Cytokines							
1	IL-1α-1	889C>T	rs1800587	T			🔴
2	IL-1α-2	+4845G>T	rs17561	T			🔴
3	IL-1-β	-511G>A	rs16944	AG		🟡	
4	IL-6	-174 G>C	rs1800795	GC		🟡	
5	IL-8	-251T>A	rs4073	T	🟢		
6	IL-18	-607C>A (G>T)	rs1946518	T	🟢		
7	TNFα	-308 G>A	rs1800629	G	🟢		
8	CRP-1	+0169171C>T	rs2794520	TC		🟡	
9	CRP-2	+0143294C>T (G>A)	rs2592887	GA		🟡	
10	CRP-3	3872C>T	rs1205	CT		🟡	
11	COX-2-3	-1195A>G	rs689466	G	🟢		
12	COX-2-4	+8473T>C	rs5275	T	🟢		
INFLAMMATION - Anti-inflammatory Cytokines							
13	IL-10-1	-1082G>A	rs1800896	A			🔴
14	IL-10-2	-819C>T	rs1800871	TC		🟡	
15	IL-10-3	-592C>A	rs1800872	C	🟢		

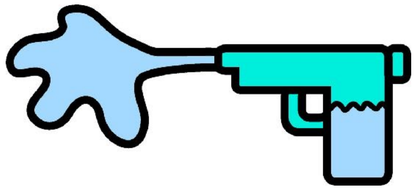
Over-initiation:

"Lighter Flame" (CC BY-ND 2.0) by The White Wolf

Over-sustaining:

"Fire!" (CC BY-SA 2.0) by Pitel

Under-clearing:



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fitgenes PERSONALISED HEALTH

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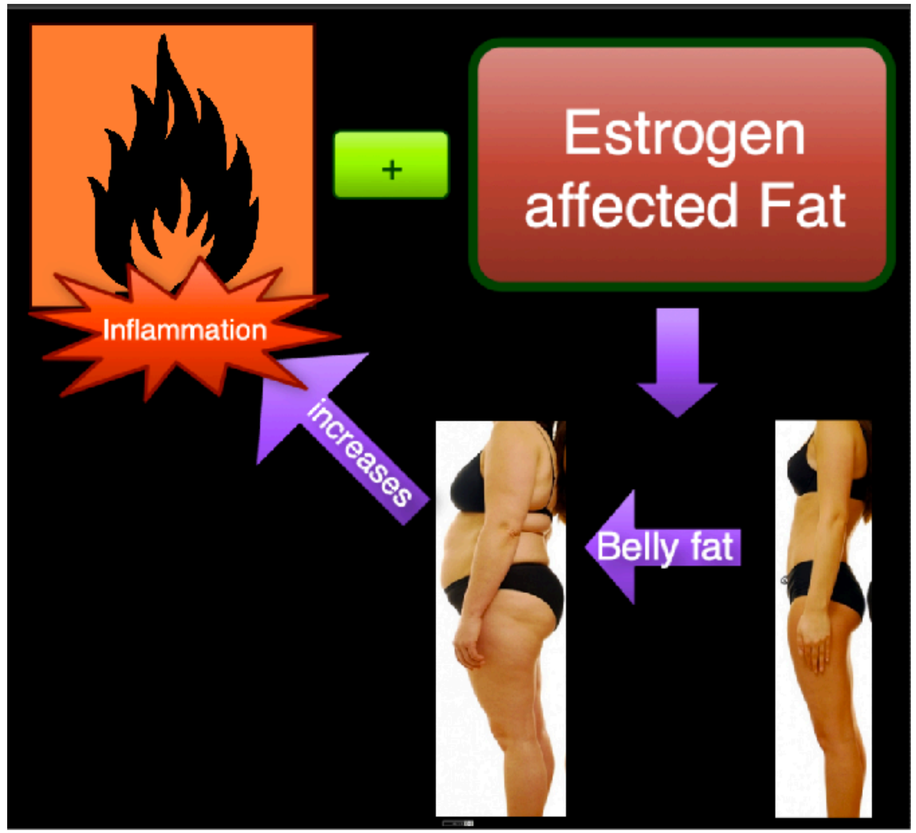
The Paradox of Fat Loss: Inflammation can trigger more belly fat

Inflammation + Estrogen-dosed fat = Belly Fat

Belly Fat Increases Inflammation ➡️ Vicious Cycle



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Case Study: 40-year-old female started intense exercise program to lose weight. Instead she gained weight and her cycles went off.

We checked her genes and she's got inflammation clusters in all 3 areas:

#	Gene	Reported Variant	rsID	Your Result			
INFLAMMATION - Pro-inflammatory Cytokines							
1	IL-1α-1	889C>T	rs1800587	T			🔴
2	IL-1α-2	+4845G>T	rs17561	T			🔴
3	IL-1-β	-511G>A	rs16944	AG		🟡	
4	IL-6	-174 G>C	rs1800795	GC		🟡	
5	IL-8	-251T>A	rs4073	T	🟢		
6	IL-18	-607C>A (G>T)	rs1946518	T	🟢		
7	TNFα	-308 G>A	rs1800629	G	🟢		
8	CRP-1	+0169171C>T	rs2794520	TC		🟡	
9	CRP-2	+0143294C>T (G>A)	rs2592887	GA		🟡	
10	CRP-3	3872C>T	rs1205	CT		🟡	
11	COX-2-3	-1195A>G	rs689466	G	🟢		
12	COX-2-4	+8473T>C	rs5275	T	🟢		
INFLAMMATION - Anti-inflammatory Cytokines							
13	IL-10-1	-1082G>A	rs1800896	A			🔴
14	IL-10-2	-819C>T	rs1800871	TC		🟡	
15	IL-10-3	-592C>A	rs1800872	C	🟢		

Over-initiation:

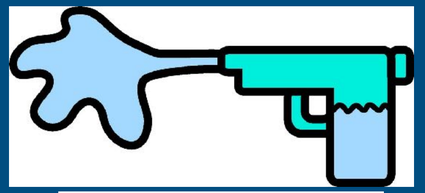
"Lighter Flame" (CC BY-ND 2.0) by The White Wolf

VS.

Over-sustaining:

"Fire!" (CC BY-SA 2.0) by Pitel

Under-clearing:



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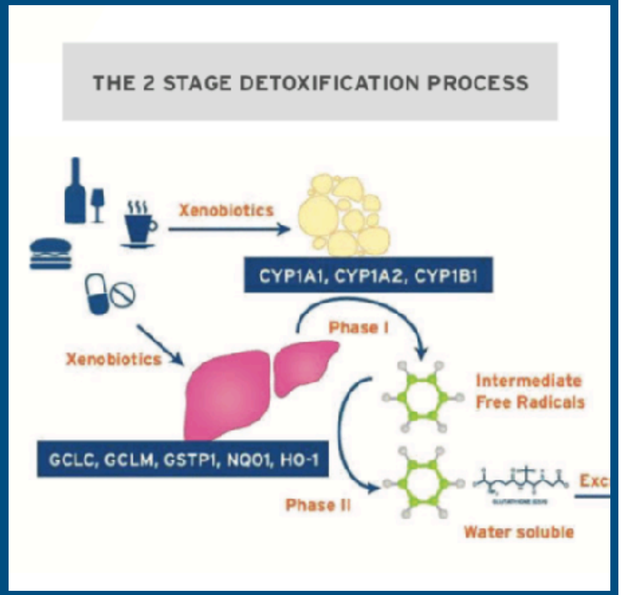
Case Study:

High inflammatory genes + Her liver genes had difficulties detoxing estrogen and inflammation. The inflammation from over-exercise bogged down her liver and it messed up her ability to properly detox her hormones, leading to hormonal irregularities.

There are other genes at play of course, yet the basic issue deduces to inflammation and detox genes.



PHASE I

#	Gene (variant)	Description of the encoded molecule	Your Result
19	CYP1A1 (rs1048943)	Located mainly in the gut, breast, lungs and skin. Involved in estrogen metabolism. Orange dot and particularly red dot indicate increased enzyme activity and increased levels of reactive toxins and ROS.	A
20	CYP1A2 (rs762551)	Located in the liver, and accounts for 95% of caffeine metabolism. Involved in estrogen metabolism. Red dot indicates decreased CYP1A2 enzyme activity and reduced ability to metabolise caffeine, which can cause health issues with moderate to heavy consumption of caffeine. Orange dot and particularly red dot indicate decreased enzyme activity and slow caffeine clearance. Of note, even for green dot, high caffeine intake can lead to increased levels of reactive toxins and ROS.	CA
21	CYP1B1 (rs1056836)	Located mainly in breast, endometrium and ovaries. Involved in estrogen metabolism. Activity of this enzyme leads to activation of pro-carcinogens. Orange dot and particularly red dot indicate increased enzyme activity and increased levels of reactive toxins and ROS.	GC

Estrogen & caffeine

Estrogen metabolism

PHASE II

#	Gene (variant)	Description of the encoded molecule	Your Result
22	GCLC (rs17883901)	First rate limiting enzyme involved in glutathione production. Orange dot and particularly red dot indicate decreased enzyme activity and decreased capacity to produce glutathione for detoxification.	C
23	GCLM (rs41303970)	Second rate limiting enzyme involved in glutathione production. Orange dot and particularly red dot indicate decreased enzyme activity and decreased capacity to produce glutathione for detoxification.	C
24	GSTP1 (rs1695)	Joins (conjugates) glutathione to toxins, estrogen metabolites and ROS, to render them safe and able to be excreted. Orange dot and particularly red dot indicate decreased enzyme activity and decreased capacity to clear toxins and ROS.	AG
25	NQO1 (rs1800566)	Enzyme with strong antioxidant capacity. Described as the anti-cancer enzyme. NQO1 is capable of quenching superoxide and other radical species. Orange dot is extremely reduced enzyme activity and red dot is no enzyme activity.	C
26	HO-1 (rs2071746)	Enzyme with both anti-inflammatory and anti-oxidant roles. Located mainly in the brain, endothelial cells, gut and lungs. Orange dot and particularly red dot indicate decreased enzyme activity and increased risk of oxidative stress and inflammation.	TA

Estrogen metabolism

Inflammation & free radicals

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Case Study:

Summary: Excessive exercise + hyper-inflammatory genes = excessive inflammation + weight
Excessive inflammation + sluggish estrogen detox genes = difficulty regulating hormones.

"Lighter Flame" (CC BY-ND 2.0) by The White Wolf

VS.

"Fire!" (CC BY-SA 2.0) by Pitel

#	Gene	Reported Variant	rsID	Your Result			
INFLAMMATION - Pro-inflammatory Cytokines							
1	IL-1α-1	-889C>T	rs1800587				●
2	IL-1α-2	+4845G>T	rs17561	T			●
3	IL-1-β	-511G>A	rs16944			●	
4	IL-6	-174 G>C	rs1800795	GC		●	
5	IL-8	-251T>A	rs4073	T	●		
6	IL-18	-607C>A (G>T)	rs1946518	T	●		
7	TNFα	-308 G>A	rs1800629	G	●		
8	CRP-1	+0169171C>T	rs2794520	TC		●	
9	CRP-2	+0143294C>T (G>A)	rs[illegible]			●	
10	CRP-3	3872C>T	rs1205	CT		●	
11	COX-2-3	-1195A>G	rs689466	G	●		
12	COX-2-4	+8473T>C	rs5275	T	●		
INFLAMMATION - Anti-inflammatory Cytokines							
13	IL-10-1	-1082G>A	rs1800896	A			●
14	IL-10-2	-819C>T	rs1800871	TC		●	
15	IL-10-3	-592C>A	rs1800872	C	●		
CELLULAR DEFENCE - Anti-oxidant Status							
16	MnSOD	Val16Ala	rs4880	C			●
17	GPX1	Pro198Leu	rs1050450	CT		●	
18	CAT	+262T>C (A>G)	rs1001179	G	●		
CELLULAR DEFENCE - Detoxification and Cell Defence - Phase I							
19	CYP1A1	+ 4889A>G, (Ile462Val)	rs1048943	A	●		
20	CYP1A2	-164A>C	rs762551	CA		●	
21	CYP1B1	+4326C>G, (Leu432Val)	rs1056836	GC		●	

#	Gene	Reported Variant	rsID	Your Result			
CELLULAR DEFENCE - Detoxification and Cell Defence - Phase II							
22	GCLC	-129C>T	rs17883901	C	●		
23	GCLM	-588C>T	rs41303970	C	●		
24	GSTP1	+313A>G, (Ile105V)	rs[illegible]	G		●	
25	NQ01	+609 C>T	rs1800566	C	●		
26	HO-1	+413A>T	rs[illegible]	A		●	
VITAMIN D METABOLISM - Vitamin D Receptors							
27	VDR	BsmI RFLP	rs1544410	AG		●	
28	VDR-2	Taq1 C>T	rs731236	CT		●	
METHYLATION AND HOMOCYSTEINE METABOLISM - Methylation and Homocysteine Metabolism							
29	MTHFR-1	+677 C>T	rs1801133	C	●		
30	MTHFR-2	+1298A>C	rs1801131	A	●		
31	MTR	-2756A>G	rs1805087	A	●		
32	MTRR	-66A>G	rs1801394	GA		●	
33	BHMT	+742G>A, (Arg239Gln)	rs3733890	GA		●	
34	COMT	Val158Met	rs4680	A			●
35	CBS	+699C>T (G>A)	rs234706	G			●
METHYLATION AND HOMOCYSTEINE METABOLISM - Vitamin B12 Status							
36	TCN2	+776 C>G (Pro259Arg)	rs1801198	G			●
37	FUT2	A>G(T>C), (Ser258Gly)	rs602662	AG		●	

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Solution:

We found the *fewest* number of lifestyle changes that beneficially help *the most important genes.*
In her case, it was putting her on anti-inflammatory lifestyle, supplements, and cutting down her over-exercise to reduce her inflammation, plus liver-detox support.

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Functional Genetics in Action

Below is her comprehensive, stream-lined example of the prioritized next steps to take to make the MOST amount of positive change with the FEWEST steps to take.
This is her unique set of recommendations (note, there are other recommendations, only the first 11 are shown).

Lifestyle recommendation	There are 23 red/yellow dots out of the first 37 genes. Of those 23, the following number of genes is *beneficially affected* by the single recommendation on the left-most column:
Sulforaphane (specialized nutrient)	14
Avoid smoking - both active and passive	14
SOD (Super Oxide Dismutase) Inducer (specialized nutrients)	11
Reduce body weight if overweight	10
Increase Omega 3 rich foods i.e fish and oils	9
High Omega-3	9
High fibre intake	9
Avoid over-training	9
Decrease Omega 6 rich foods	9
Vitamin D3 - 25(OH)D3)	9
Cruciferous vegetables (3+ serves / week)	9

Dosage matters: She needed much higher doses of specific nutrients because she has a genetic need for those higher doses.

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DR. SAM SHAY
SOLVING YOUR WELLNESS MYSTERY

GENETIC TESTING

Achieve Your Natural Weight

The result of implementing? Her muscle tone returned (and got stronger), her weight normalized, and her cycles normalized.

How did she drop the weight? The body retains water to dilute inflammatory (toxic) chemicals in order to buy time for the liver to filter the inflammatory chemicals out.

Remove the inflammation, you remove the need to retain water.

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3-in-1 Testing: The “Natural Weight” test does more

Identifies the key lifestyle changes in:

1. Diet
2. Genetics-specific nutrients you need in higher amounts than other people
3. And other lifestyle changes specific to your genetic needs.

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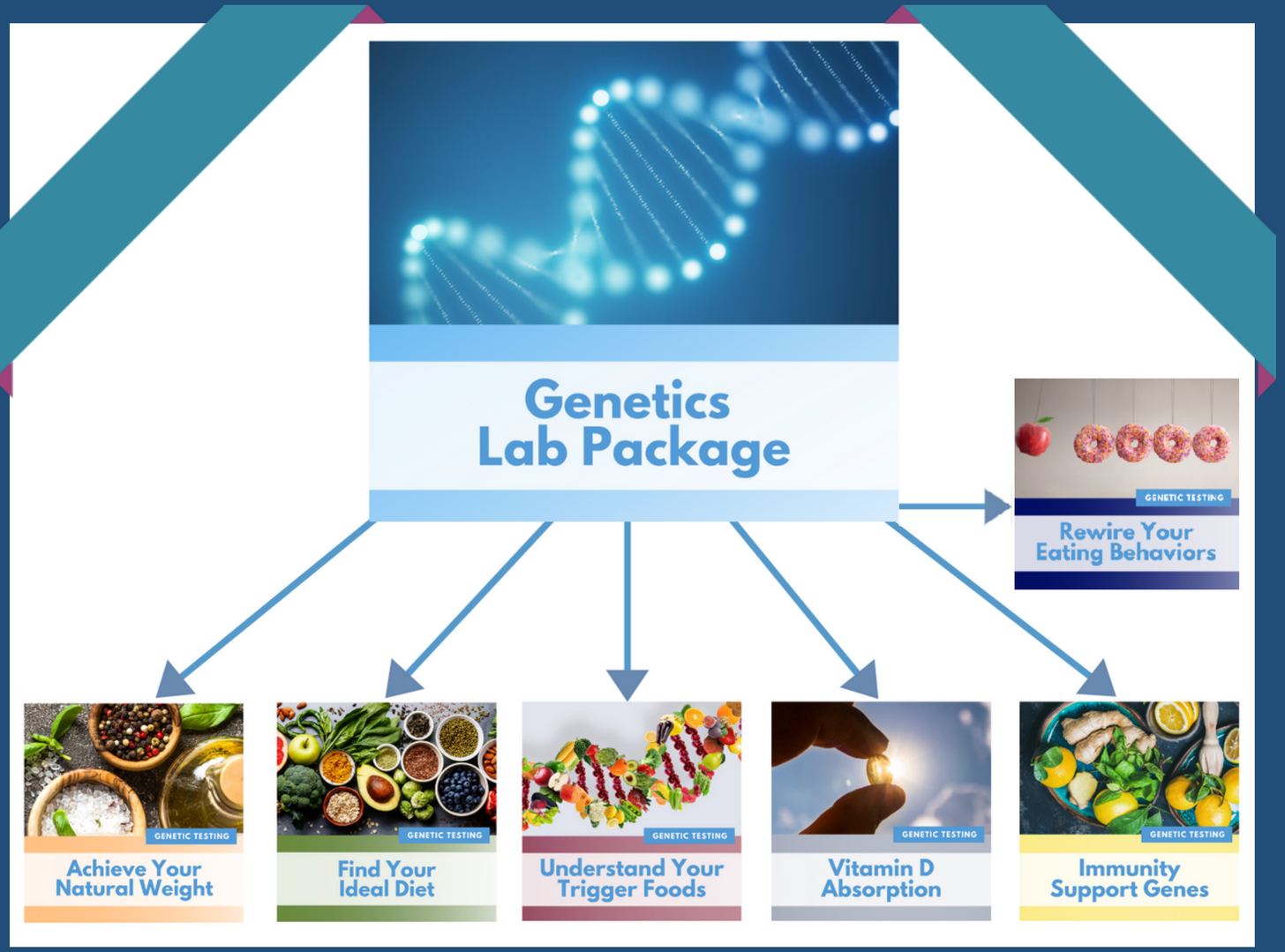
The other 5 tests



You can start to see the power of personalized genetics testing and the clarifying answers you get to help solve your wellness mysteries.

Let's talk about the remaining aspects of genetic testing that is covered in addition to regulating your weight.

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Ideal Diet Test

DR. SAM SHAY
SOLVING YOUR WELLNESS MYSTERY

This genetic test reveals your best diet for optimal weight, energy, clear thinking, and great digestion.

How? It genetically determines your "**Carb Tolerance**" which is how many carbs you can have at meals.

Learn what your optimal diet is:

- Ketogenic diet
- Paleolithic diet
- Mediterranean diet, or
- High carb diet

This genetics test also shows how you can adapt to higher carb events (e.g., birthday parties, social events, and travel) and improve your digestion to reduce bloating and inflammatory weight gain.

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Your Genetic "Carb Tolerance"

The number represents how many duplicates of the gene you have that breaks down carbs in your saliva.

The lower your number, the harder it is for you to tolerate carbs.

Low carb tolerance

https://upload.wikimedia.org/wikipedia/commons/thumb/2/26/Pacman_HD.png/600px-Pacman_HD.png

"Tri-Colour Quinoa" (CC BY-SA 2.0) by avlxyz

https://cdn.pixabay.com/photo/2013/09/28/15/23/corn-187781_960_720.jp

High carb tolerance

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Your Ideal Diet - based on your Carb Tolerance

Low Carb tolerance

= Ketogenic —> Paleo

Moderate Carb tolerance

= Mediterranean

High Carb tolerance

= High Carb

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This “Ideal Diet” test changed my life

Turns out that I have the 2nd lowest Carb Tolerance you can have.

I had the perfect “Portlandia” mediterranean diet, yet I still had really bad digestive problems, fluctuating energy, and sugar cravings.

Despite knowing my farmers, buying local, organic, and soaking all my quinoa, I still had digestive problems I’ve been dealing with for over 20 years.

Quantity, not just quality, was the issue. I don’t have the genetic capacity to handle high carbs. I’m genetically more suited towards a keto/paleo-style diet.

Within 1 week of reducing my carbs to my genetic capacity, *my embarrassing digestive problems of 20+ years went away.*

I firmly believe everyone needs to get this test. My diet improved drastically from that test, despite teaching diet for over 10 years by that point.

Test, don’t guess.

You have a unique carb tolerance and it’s worth finding out your ideal diet.

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Trigger Foods

There are 5 primary food substances commonly intersect our diet, sometimes by choice and sometimes accidentally: Gluten, Lactose (dairy), Alcohol, Caffeine, and Salt.

Your genes determine your foundational response to these food substances. You *must* know what your genetic risks to these foods because they are so prevalent and the reactions can trigger very bad reactions in the body.

Some of the key questions this genetics test will answer:

- Will coffee induce anxiety or depression?
- Am I at risk for alcoholism?
- Am I lactose intolerant?
- Am I gluten intolerant and at risk for celiac disease?
- Will salt likely raise my blood pressure?

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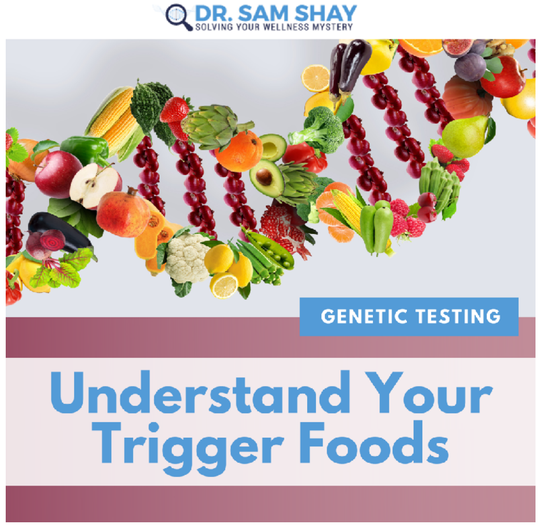
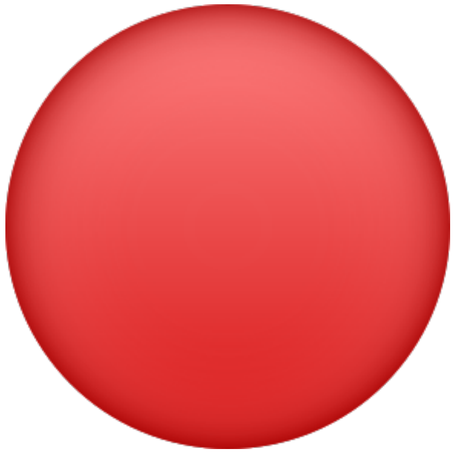
This “Trigger Foods” test changed my life

Turns out, I’m a “red dot” in caffeine.





About 80% of my clients who do this “Trigger Foods” test find at least 1 big ‘surprise’ finding. I’m no exception.

For me it was caffeine: I could no longer pretend coffee didn’t induce anxiety and depression.

I had the most ‘bulletproof’ coffee concoction you could imagine: All organic, high altitude coffee, free of mold and other toxins, made into a luxurious (and complex) drink mixed with coconut oil, clove, dandelion, cardamon, cinnamon, turmeric, coconut milk, licorice, and a bit of salt.

Yet, I would feel anxious within 1-2 hours and really low mood later in the day. Caffeine and I just don’t get along genetically. I was in denial until I read my genetics results. I’m much healthier and happier without caffeine in my life.

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Vitamin D

Vitamin D is getting a lot of deserved attention now as a critical factor to reduce inflammation and moderating the immune response.

Vitamin D is critical to the human body, as it beneficially activates over 1000 genes (~3-5% of the human genome), and every cell in the body (except dead skin cells and red blood cells) have Vitamin D receptors to ‘catch’ vitamin D as it floats by in the blood.

You get Vitamin D in 3 main ways: sunlight, food, and supplements. However, some people have genes that make it very difficult to convert sunlight to Vitamin D.

Yet, **getting usable Vitamin D3 into your blood** is *only half of the journey…*

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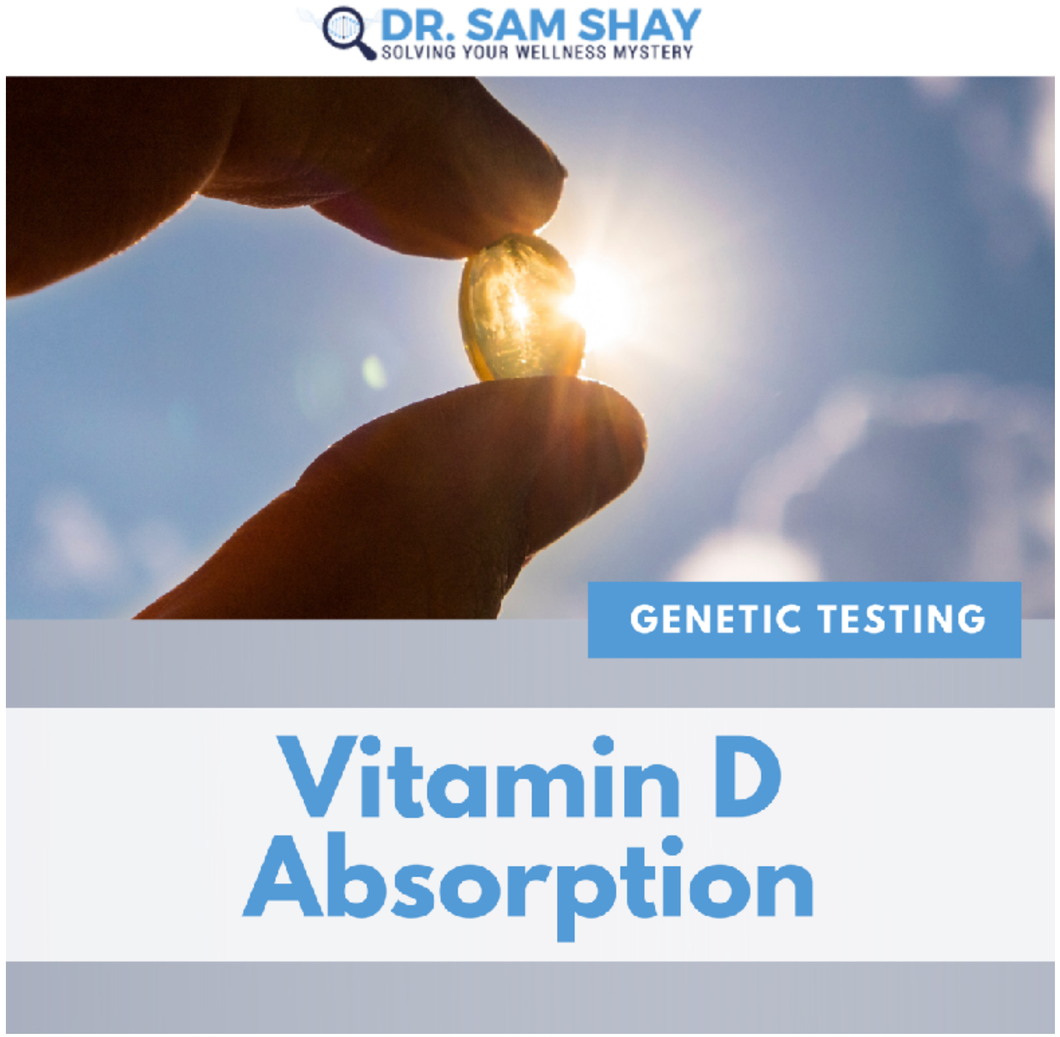
Getting Vitamin D3 from the blood ***into your cells*** is the other half of the journey.

Vitamin D3 gets into the cells by docking on the “Vitamin D Receptors”. These receptors are coded by the “VDR” genes. If you have variations (red or yellow dots) in your VDR genes, then you’ll have problems utilizing Vitamin D to lower inflammation and support your immune system.

The good news is that there are certain lifestyle changes and nutrients that can ‘up regulate’ or increase the expression of the Vitamin D Receptors.



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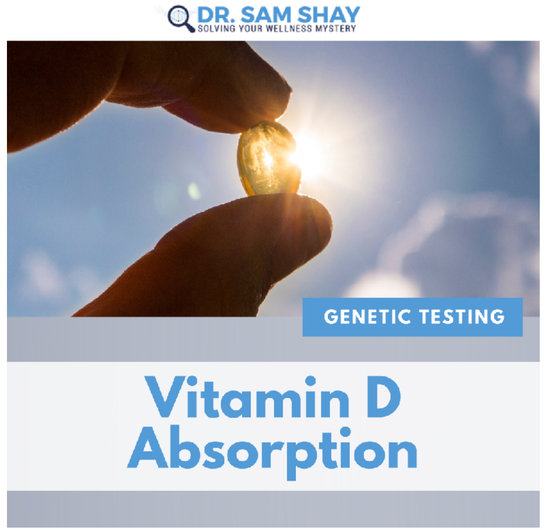
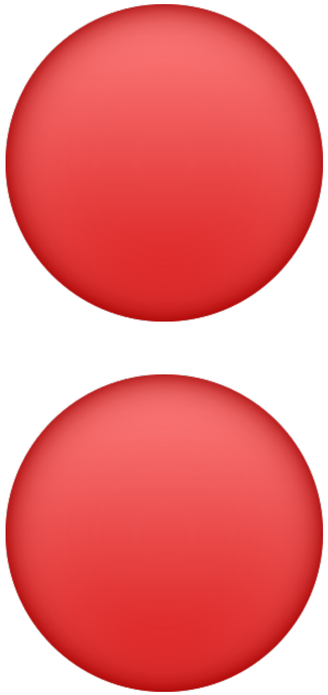
This “Vitamin D Absorption” test changed my life

Turns out, I have difficulty getting usable Vitamin D from sunlight *and* difficulty absorbing Vitamin D into my cells.





Without this Vitamin D Absorption test, I would have continued to believe that sunlight alone was enough for me to get the Vitamin D I needed.

My genes for making Vitamin D3 out of sunlight are very challenged. Now I know that I have to eat foods high in Vitamin D and take Vitamin D supplements.

Also, even if I did have enough Vitamin D in my blood, I still have a genetic weakness where I don’t easily absorb Vitamin D into my cells.

Fortunately, this test reveals the exact lifestyle and nutritional changes I need to improve the expression of the VDR genes so I can absorb vitamin D into my cells.

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Immunity Support

DR. SAM SHAY
SOLVING YOUR WELLNESS MYSTERY

Immunity Support Genes

NOTE:

This specialized report takes a closer look at nearly 3 dozen genes with specialized focus on immune and inflammation response systems.

In these current times, knowing which genes need support for our immune system is vitally important.

This test will reveal exactly what the lifestyle changes and nutrients your genetic profile needs to support your immune/inflammatory system

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This “Immunity Support” test validated what I was doing

For me personally, the “Immunity Support” test affirmed what I had already implemented.

NOTE:

Being the most recent test panel, I had already made great changes to my lifestyle, which happen to coincide with the recommendations in this panel.

That being said, it further solidified my commitment to my lifestyle changes because I have the genetic ‘proof’ that the lifestyle changes are the correct ones based on the best of our current genetics science.

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Rewire your Eating Behaviors

Sometimes food feels more emotional than physical. As a former sugar addict and food addict, I deeply resonate with anyone who feels they struggle with controlling their willpower with certain aspects of food.

This genetics report is very helpful, mostly as a psychological pressure relief on one's eating behaviors, complete with a deep education on how to control one's environment instead of relying on one's willpower.

Learn how to not feel guilty about your genetic tendencies and instead feel empowered to control your eating environment instead.

Learn the 6 different eating behaviors strongly influenced by genetics, and what you can do about them.

- **Satiety**: Do you not feel "full" after a normal amount of food because of a genetic variation? You'll receive strategies to help feel more "full" so you don't overeat from your genetics.
- **Bitter taste**: Are you a super-taster for bitter? If so, you'll avoid tons of healthy green vegetables. If you are a super-taster, you'll get the 4 separate cooking strategies to make them taste better so you can add more healthy bitter foods in a tasty and easy way.
- **Sugar taste**: Learn if you are genetically prone to crave the taste of sugar, and the strategies to prevent sugar cravings.
- **Sugar consumption**: This checks for the genetic tendency to overeat sugar. Learn how to change your environment (not your willpower) to minimize over-consumption of sugar.
- **Fat consumption**: Fat is not just a calorie source, it's a flavor and texture. Some people genetically like more fat as a flavor and texture enhancer. Learn how to identify the correct quality fats and how to store fats safely.
- **Fat metabolism**: Learn what ratio of saturated fats to mono/polyunsaturated fats to eat based on your genetics.

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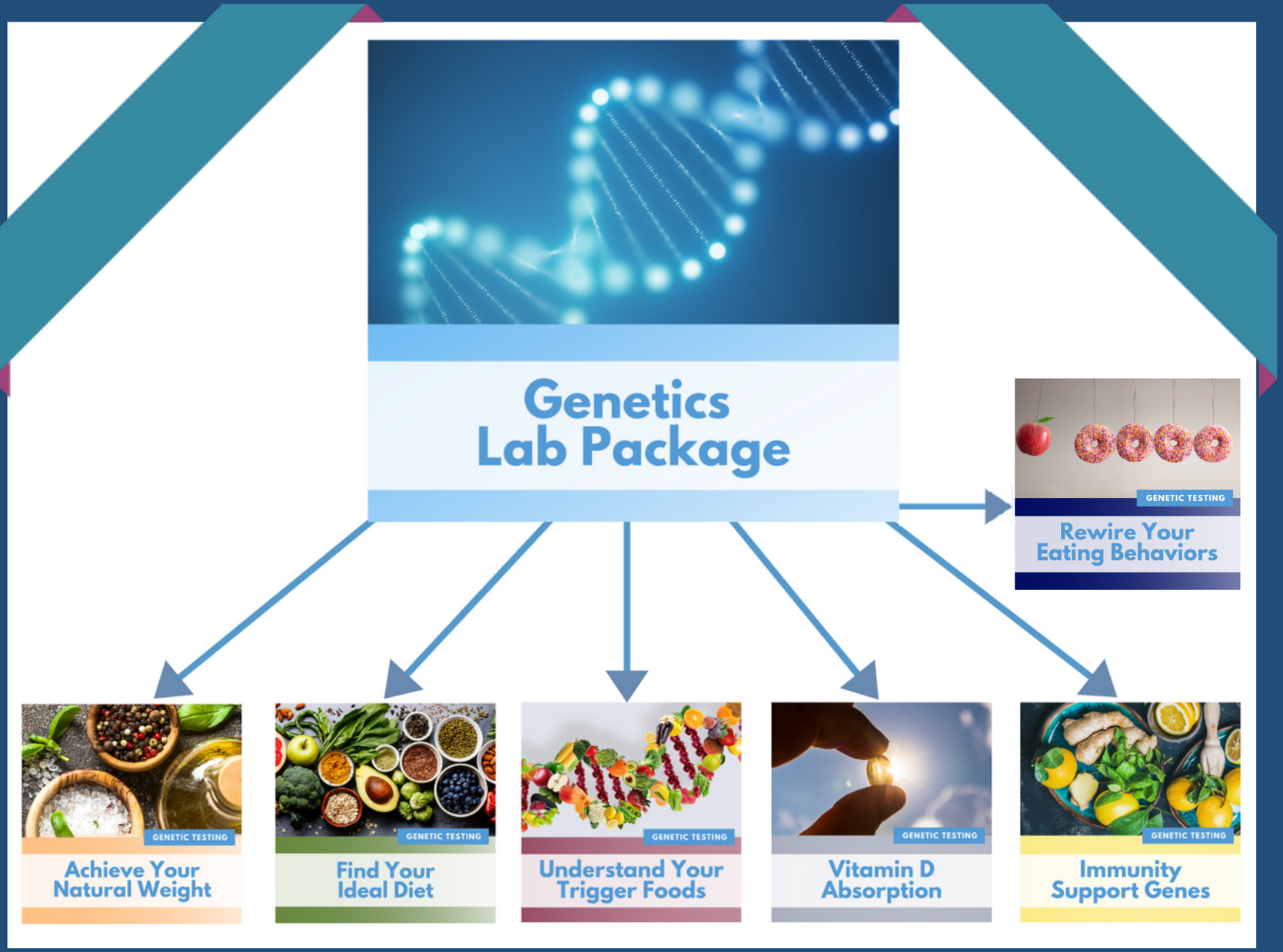
Curious about ordering genetics labs for yourself?



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What the investment covers

The confidence to know that you get your personalized and prioritized list of science-based lifestyle recommendations (nutrition, exercise, diet, supplements, and lifestyle) that are best suited for your genes.

What the investment covers:

- The test kits shipped to you
- The lab's analysis
- My professional time to interpret all the data
- The reports on each gene test
- My analysis of the reports
- Your customized written checklist of next steps to implement.
- Follow-up time to review all results: My professional time to go over the next steps for you to implement the changes.
- **Unlike functional tests, you don't need to repeat these genetics tests.**
  - **The amount of money you save in the longterm is enormous.**
  - **Amortized over 20 years (or more as you improve your longevity and quality of life), the investment is a no brainer.**

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What you walk away with

- A genetics-based diet with recipes, weekly planner, & shopping lists.
  - Clarity which diet your genetically best suited for: Keto, Paleo, Mediterranean, or High Carb.
  - How to handle higher-carb events like birthday parties, social events, or travel.
- Your customized & prioritized lifestyle recommendations for nutrients, exercise, and other lifestyle changes.
- How to manage your Trigger Foods
- How to best absorb and use Vitamin D
- How to support your immunity unique to your genes.
- How to reduce inflammation

Closing Thoughts

Genetics testing is one of the more recent tools available to help you identify your ideal diet, achieve your natural weight, and to "Stop-the-Clock" of the effects of aging.

You want longer *health* expectancy, not just life expectancy.

Test, don't guess.

Save yourself time, money, and effort to achieve your goals.

Invest in yourself today. Here's how…

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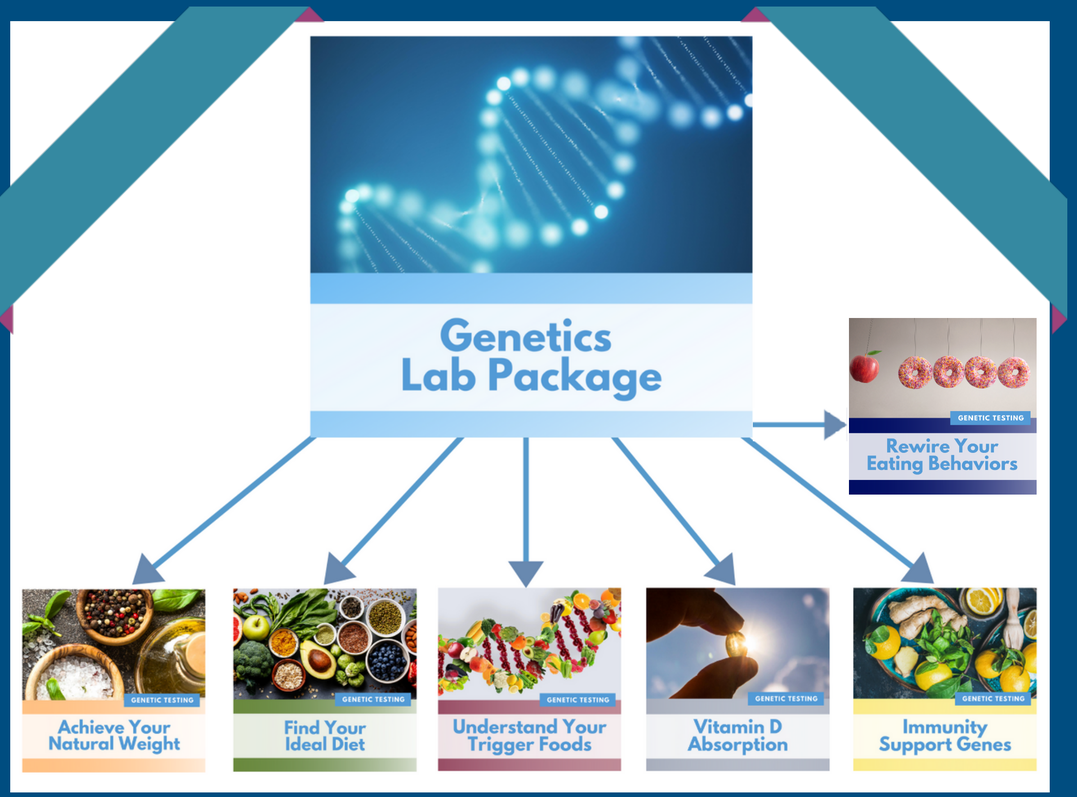
Contact Dr. Sam to harness your genetic potential



Click here to schedule your FREE 15-minute Health Strategy call with Dr. Sam

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