wild health.

CLARITY

PERSONALIZED HEALTH REPORT

Created Exclusively For

Clarity Example

June 28, 2021

DIET & NUTRITION

Macronutrients

There is no one ideal diet for all of us. We are all genetically different and have spent years modifying our epigenetics, training our bodies to turn specific genes on and off. This makes us all unique. At Wild Health, our goal is to help you find the right diet for you, based on your own preferences, your human operating system (your genes), and your current state of health. This section summarizes our assessment of a diet that will optimize your potential, fend off chronic disease, and promote longevity.

DIET & NUTRITION

MACRONUTRIENTS

Some recommendations are true for all, independent of your specific genomics:

- Eat mostly plants. Meat and grains should always be considered side items on your plate.
- Do not eat processed food. It's not real food if your great grandmother wouldn't recognize it.
- Avoid vegetable oils (soybean, canola). These cause inflammation and are unhealthy forms of fat. Use extra virgin olive oil or avocado oil instead.
- Do not eat all of the time. A daily 12-hour fasting window is considered the minimum. Fasting improves metabolic flexibility and allows for cellular regeneration.

SNPS *Your genetic blueprint (single nucleotide polymorphisms)*

YOUR DIET AND NUTRITION

Your genetic predisposition to fat, carbs, and saturated fats:

Fat Intolerance

PPAR gamma #1	0
PPAR gamma #2	0
TCF7L2	0
GIPR	0
IRS1	1
ADRB3	1
APOA5	0
PPM1K	2
ACSL5	0

Carb Intolerance

PPAR gamma #1	0
PPAR gamma #2	0
ADRB3	1
FTO #1	1
FTO #2	1
FTO #3	1
FTO #4	1
LEPR	2

Sat Fat Intolerance

PPAR Alpha #1	0
PPAR Alpha #2	1
PPAR gamma #1	0
PPAR gamma #2	0
TCF7L2	0
FTO #1	1
FTO #2	1
FTO #3	1
FTO #4	1
ApoA2	2
ApoC3	2
LPL	0

0 Risk Alleles 1 Risk Allele 2 Risk Alleles Missing SNP

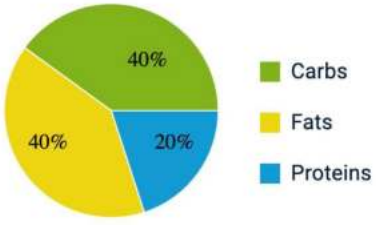
APO-E: Apo-ε3/ε3 *Derived from a polygenic algorithm and contributes to all three nutrition scores.*

CARB RELATED LABS

Hgb-A1c	5.4
Fasting Glucose	96
HOMA-IR	2.37
TRIG:HDL	0.73

LIPID PANEL

Total Cholesterol	333
HDL	116
LDL	99
TRIG	85



DIET & NUTRITION

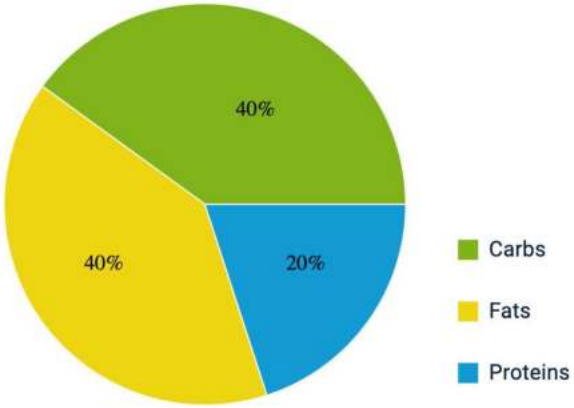
MACRONUTRIENTS

Macronutrient tracking can be extremely time intensive and overwhelming, but is essential to understand where your calories come from. Genetically, we are all different and may benefit from significant variations in our macronutrient profile. Furthermore, many people experience significant weight loss (or desired weight gains) through macronutrient tracking. There are extensive phone apps that assist in calorie and macronutrient counting.

To estimate your daily calories per gram of carbohydrate, fat, and protein use the following formula:

1 gram Carbohydrate = 4 calories
1 gram Protein = 4 calories
1 gram of Fat = 9 calories

Your recommended macros:



YOUR MACRONUTRIENTS

Your genetics show that you should tolerate fat well. Consuming fats such as olive and avocado oil are healthy for you.

Your are genetically sensitive to carbohydrates. This contributing to your higher insulin resistance (IR). We suggest lowering your overall carbohydrate intake, avoiding simple sugars and refined carbs found in processed foods.

Your genetics show that you should saturated fat fairly well. A modest reduction in the amount of saturated fat you consume may help lower your LDL cholesterol to the optimum range. Consider a trial reduction period prior to repeat labs.

Gene PPM1K:
This SNP is associated with BCAA concentrations. People with this polymorphism have higher BCAA levels and thus less weight loss with high fat, calorie restrictive diets. Avoid BCAAs supplementation as it may lead to insulin resistance and/or obesity.

DIET & NUTRITION

METABOLISM AND VITAMINS - METHYLATION

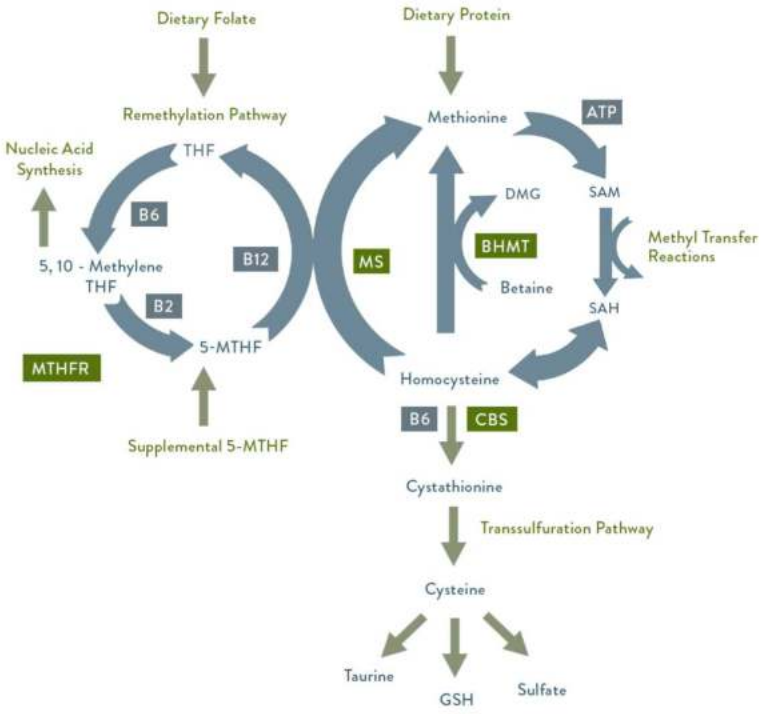
Methylation: Methylation is the process of "1 carbon metabolism," representing the body's ability to carry out the process of adding carbon atoms or methyl groups to compounds. The body has to do this to package DNA, regenerate muscle, make enzymes, degrade neurotransmitters and harmful chemicals, and much, much more. Methylation is performed via two pathways: the FOLATE pathway and the CHOLINE pathway. Both pathways must be optimized to promote adequate methylation and perform all of these processes at an appropriate level.

Folate (Vitamin B9) and other B vitamins are involved in the methylation pathway, most specifically Folate, B12, and P-5-P. There are multiple mutations in enzymes involved in the pathway, such as MTHFR, which can affect your ability to methylate using the B vitamins. B vitamins are found in numerous quantities in green leafy vegetables.

Choline is an essential nutrient important for multiple bodily functions including methylation, neurotransmitter development, fat packaging and excretion from the liver, and creatine production. Choline is found in greatest quantity in eggs, fish, dairy, meat, and to a lesser but notable amount in vegetables. Multiple SNPs are involved in the choline side of the methylation pathway and are noted below.

We can assess your methylation status by measuring your homocysteine levels. Homocysteine builds up when methylation is stressed. High homocysteine levels have been associated with cardiovascular disease and other chronic diseases. Elevated homocysteine levels appear to irritate the arterial walls. We will also test your B vitamin levels and your liver function levels as elevated liver function markers can indicate choline deficiencies.

TMAO: Unfortunately, when you are low in choline the answer isn't always as simple as take more choline. Some people are at risk of higher cardiovascular disease when they ingest choline and carnitine due to a compound made by some gut bacteria called TMAO. We can tell your risk for this response based on the function of a specific enzyme and your gut microbiome composition. The TMAO risk score calculates your risk, and if it is high we can supplement the choline system in different ways.



DIET & NUTRITION

MICRONUTRIENTS: METHYLATION

Your Methylation Genomics and Labs

METHYLATION STATUS:

POOR

Homocysteine:

10.4

Choline Risk Score

PEMT	
FADS 1	
MTHFD1	

Folate Risk Score

MTHFR #1	
MTHFR #2	
MTRR #1	
MTRR #2	
MTR	

TMAO Score

FMO3 #1	
FMO3 #2	

CHOLINE RELATED LABS

AST	32
ALT	29

FOLATE RELATED LABS

B12	1160
Folate	20

TMAO RELATED LABS

Total Cholesterol	333
TMAO	3.3

YOUR METHYLATION RECOMMENDATIONS

Methylation:
Your methylation is reduced based on your elevated homocysteine.
We suggest starting a product such as Methylguard for reduced methylation to boost your level of B vitamins to assist the Folate side of methylation: [Link](https://thor.ne/p8xQ).

DIET & NUTRITION

YOUR METHYLATION RECOMMENDATIONS

You also have an increased choline need.
Given your average risk for higher TAMO levels we suggest adding Betaine (TMG) to support the Choline side of methylation.
Instead of supplementing with choline, we advise increasing consumption of foods that contain high levels of choline which include eggs, fish, and green vegetables.

To conserve choline start creatine 2.5 grams twice per day: [Link](https://thor.ne/p8FV).

DIET & NUTRITION

METABOLISM AND VITAMINS - VITAMINS AND MICRONUTRIENTS

Genetic variation can significantly affect important vitamins and micronutrients. Some of these we can easily monitor with lab testing such as vitamin D and omega-3 levels. Some are less readily measured, but easy to increase intake based on your genetics. We'll cover the following vitamins and micronutrients here:

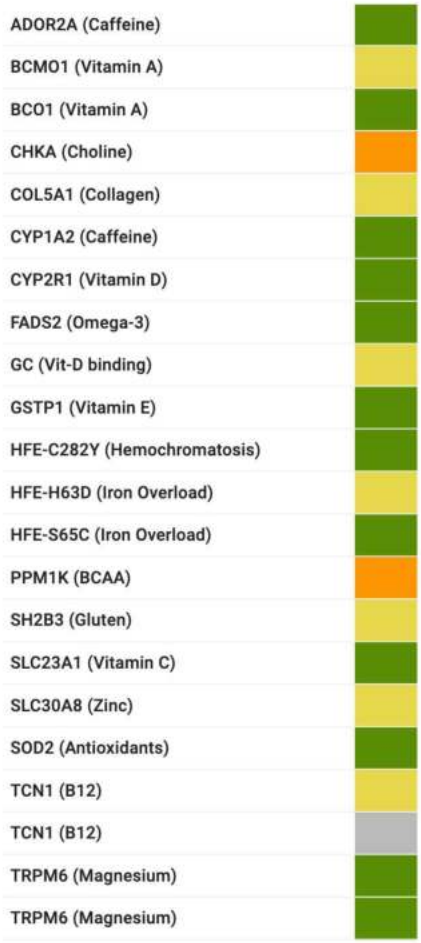
Omega 3s: These essential fatty acids cannot be produced in the human body. Omega 3s are active and beneficial as DHA and EPA. These are most readily found in fish oils, krill oil and algae. ALA, which can be converted to the active forms, DHA and EPA, by the body, is found in nuts and seeds and vegetable forms of omega 3s. The enzyme that is responsible for this conversion is a common SNP we will monitor. We'll also directly monitor your Omega 3 levels.

Vitamin D: Is an essential hormone (not really a vitamin) that the body makes using sunlight. Nearly all humans are now low or sub-optimal in vitamin D due to the nature of society. There are multiple SNPs associated with Vitamin D and we will directly monitor your levels.

Vitamin A: Important for eyesight and immune function. The vegetable form, beta-carotene, must be converted to the active form, retinol, by an enzyme BCMO1, which has common mutations. We'll review your genetic disposition and make recommendations.

Vitamin B12: Commonly reduced absorption in the stomach. Medications such as antacids and metformin can reduce absorption as well as genetics. We'll review your current level as well as your genetic predispositions.

Vitamin E: Can have either beneficial or anti-inflammatory effects depending on your genetics. We'll review your predispositions.



YOUR VITAMINS AND MICRONUTRIENTS RECOMMENDATIONS

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Gene SH2B3:
You have increased sensitivity to gluten and wheat. If you have symptoms such as abdominal
bloating, diarrhea, nausea or brain fog after consuming wheat or gluten, consider removing or
reducing these ingredients.

Gene CYP1A2:
You have faster caffeine metabolism, you may find improved athletic performance with caffeine
intake prior to exercise. Try to limit caffeine later in the day to prevent disruption in sleep.
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DIET & NUTRITION

YOUR VITAMINS AND MICRONUTRIENTS RECOMMENDATIONS

Gene TRPM6:
Magnesium related insulin resistance. You have a combination of snps associated with glucose homeostasis and magnesium metabolism. There is a 5x increased risk of diabetes if magnesium levels fall below 250 mg/day. We recommend magnesium supplementation. [LINK]

Gene CHKA:
Choline Kinase Enzyme: You have a slower version of the choline kinase enzyme and do not convert choline to phosphatidylcholine as easily. You may need to increase choline intake or supplement with creatine and or phosphatidylcholine.

Gene TCN1:
B12 Binding Protein: You have a polymorphism of your B12 binding protein affecting the ability to transport B12 into your cells. Check urinary MMA levels and consider supplementation with B12.

Gene GC:
Vitamin D Binding Protein. This SNP increases the likelihood of a vitamin D deficiency due to an altered vitamin D binding protein. Depending on vitamin D levels in the blood it may be necessary to use a supplement.

DIET & NUTRITION

KRYPTONITE FOODS

Kryptonite for you

Based on your genetics you should avoid these as much as possible:

Sugar is inflammatory and contributes to increased insulin resistance, accelerated aging, and poor body composition.

Wheat/gluten leads to inflammation and all the negative effects that come along with it.

Vegetable oils and processed foods are particularly deleterious to you and your DNA.

Gluten Sensitivity:
You are sensitive to wheat and gluten. Avoid wheat, gluten, bread, crackers. It's not recommended to replace gluten containing foods with gluten free foods. For example gluten free pretzels.

Gene FADS1:
Processed Foods: You would benefit from a whole foods diet. Avoid processed foods.

Gene MCM6:
Likely to be lactose intolerant as an adult.

SUPER FOODS

Optimal for you

Based on your genetics you should focus on adding or increasing the following in your diet:

Fish. SMASH fish. You have several snps that make sardines particularly ideal for you with their clean content of Omega 3's, collagen protein, and other key vitamins and nutrients.

Cruciferous vegetables. Broccoli, cauliflower, brussell sprouts, and other crucifers will greatly benefit your specific genetic makeup.

Gene CYP1A2:
Caffeine: You may have an athletic benefit from caffeine.

Vitamin A:
Increase your consumption of foods that contain higher levels of Vitamin A. Consider adding organ meats as they have higher levels of active form of Vitamin A. Other foods include eggs, hard Goat/Cheddar cheese, orange and yellow vegetables and fruits like sweet potatoes and carrots into your diet.

Collagen:
You have a genetic SNP associated with tendinopathies and may benefit from increased collagen consumption. Foods such as sardines and bone broth are great sources of collagen protein.

DIET & NUTRITION

YOUR SUPER FOODS RECOMMENDATIONS

High genetic choline need:

Increase foods high in choline such as eggs, fish, dairy, and green vegetables. It may be better to take TMG or creatine for this purpose if your TMAO level is high.

EXERCISE & RECOVERY

Personalized Exercise Plan

We use a combination of 3 major polygenic scores to help develop your personalized workout plan. These include Strength v Endurance, Recovery, and HIIT. Multiple genes are in play for each of these scores, so rather than go over each SNP individually, we will summarize them here. Specifics can be seen in the details section of the report.

Strength versus endurance is a simple measure of your potential. This does not mean that those with a genetic preference for endurance cannot perform strength activities, or that those with strength genetics cannot run marathons. It is simply a way of personalizing the optimal rep/weight schemes and regularity of exercise. Your genetics are always modifiable.

Recovery is simple, but there are a lot of genes at play. Some people can workout 7 days a week and perform at the top of their game, while others need days to recover between workouts. Although some of this is training related and thus epigenetic in nature, a great deal of your potential resides in your genes. We'll review your genes and create a recovery score, and thus help dictate how often you should workout. This can be paired with objective recovery metrics such as heart rate variability and resting heart rate to optimize your exercise plan.

HIIT training is beneficial for just about everyone. But the intensity and volume of HIIT training can be optimized for your genetics. We'll assess HIIT related genes and use those to build a report.

EXERCISE & RECOVERY

YOUR EXERCISE AND RECOVERY GENOMICS AND LABS

Your genetic predisposition to strength vs. endurance training, rate of recovery and intensity tolerance:

Strength

ACTN3
INSIG2
VEGFA
ACE 2
PPARG1A
PPARA
ADRB2 #1
ADRB2 #2
NRF #1
NRF #2
NRF #3
AGT
TRHR
BDKRB2

Intermediate

SOD2
IL-6
IL-6 R
CRP
TNF
SLC30A8

Unavailable

GABRG3
CRN1
LEPR

EXERCISE & RECOVERY

PERSONALIZED EXERCISE PLAN

In order to determine your genetic preference of exercise, we compiled all exercise related SNPs to produce a percentage of strength vs endurance preference. We also have taken into consideration multiple SNPs that can affect your recovery time between intense exercise classified as slow, moderate or fast. A longevity, genetic based exercise program has been developed with this in mind and is included in this document.

Interestingly your genetic training preference favors power and strength training at 80%.
This means you are likely to excel in sprint and power athletics such as weight training.
Furthermore, you may notice faster progress when you focus on this type of exercise.

Your recovery time is intermediate at 66.67%.
This means that you will likely need at least 1 or 2 days of recovery per week.
Be mindful of excessive soreness after intense efforts and use that time for active recovery.
These "recovery days" can consist of yoga, stretching, zone 2 cardio or a mindfulness practice.

Gene COL5A1:
You are at increased risk for tendinopathy, more specifically achilles tendinopathy.
Repetitive movements may increase this risk. Make sure to do some stretching or calf raises before exercise.
You should also avoid fluoroquinolone antibiotics due to increased risk of tendon rupture(Cipro, Levaquin).
Consider adding regular eccentric loading movements into your training program to help strengthen and protect your tendons.

Gene UCP1:
You are prone to having a lower resting metabolic rate and cardiorespiratory fitness due to decreased mitochondrial density.
This can be improved via cold exposure. Cold showers, cold plunge, cryotherapy or dunking your head in some ice water are options.
The cold receptors are most concentrated in your head/face and chest. You can also increase this through fasting and exercise.

Gene SLC30A8:
You are at increased risk for delayed onset muscle soreness (DOMS) related to impaired zinc transport. Supplemental or dietary intake of zinc can help through foods such as nuts, seeds, eggs, meat and shellfish.
If you regularly experience DOMS symptoms we also recommend 30mg of zinc daily with food.

EXERCISE & RECOVERY

YOUR EXERCISE AND RECOVERY RECOMMENDATIONS

Strength and endurance exercise can increase both testosterone levels and SHBG. High SHBG will reduce the amount of free testosterone that is active in circulation. Discontinue fasted training, add quality complex carbs before and after training session. Evaluate for adequate caloric intake to support activity.
Consider Boron supplementation 5 mg/d.

Gene IL6:
Improvements in Vo2 max and lower BMI with increased IL6. May experience moderate levels of inflammation after strenuous exercise, however may be adaptive. A longer rest period between training sessions may be required.

Gene CRP:
Although your C-reactive protein (CRP) is low your SNP can cause increased inflammation especially after intense exercise. Be mindful of your recovery speed in the exercise section of this report and CRP levels.

EXERCISE & RECOVERY

Week	Workout	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	Weight room	Full-body Circuit #1 +10 min HIIT	OFF	Full-body Circuit #2 +10 min HIIT	Core/mobility #2	OFF	Full-body Circuit #3 +10 min HIIT	Core/mobility #1
	Cardio	Post-lift: 20min Level 2 cardio	OFF	Post-lift: 20min Level 2 cardio	Cardio SIT intervals 6x 20 sec, 3 min rest	OFF	- PM: 20-30 min walk, swim, or ez spin for active recovery	30 min Z2 cardio
2	Weight room	Full-body Circuit #1 +10 min HIIT	OFF	Full-body Circuit #2 +10 min HIIT	Core/mobility #2	OFF	Full-body Circuit #3 +10 min HIIT	Core/mobility #2
	Cardio	Post-lift: 20min Level 2 cardio	OFF	Core #1	Cardio SIT Intervals 2- 3 x 3 min/ 3 min rest	OFF	- PM: 20-30 min walk, swim, or ez spin for active recovery	30 min Z2 cardio
3	Weight room	Full-body Circuit #1 +10 min HIIT	OFF	Full-body Circuit #2 +10 min HIIT	Core/mobility #2	OFF	Full-body Circuit #3 +10 min HIIT	Core/mobility #1
	Cardio	Post-lift: 20min Level 2 cardio	OFF	Core #1	Cardio Intervals pyramid: 1:00/:30, 1:30/:30, 2:00/ 1:00, 3:00/1:30, 2:00/1:00, 1:30/30, 1:00/30	OFF	- PM: 20-30 min walk, swim, or ez spin for active recovery	30 min Z2 cardio
4	Weight room	Full-body Circuit #1 +10 min HIIT	OFF	Full-body Circuit #2 +10 min HIIT	Core/mobility #2	OFF	Full-body Circuit #3 +10 min HIIT	Core/mobility #1
	Cardio	Post-lift: 20min Level 2 cardio	OFF	Core #1	Cardio SIT intervals 6x 20 sec, 3 min res	OFF	- PM: 20-30 min walk, swim, or ez spin for active recovery	30 min Z2 cardio
5	Weight room	Full-body Circuit #1 +10 min HIIT	OFF	Full-body Circuit #2 +10 min HIIT	Core/mobility #2	OFF	Full-body Circuit #3 +10 min HIIT	Core/mobility #1
	Cardio	Post-lift: 20min Level 2 cardio	OFF	Core #1	Cardio SIT intervals 3x 3 on/min rest	OFF	- PM: 20-30 min walk, swim, or ez spin for active recovery	Core/Mobility #1

PsGsR0

EXERCISE & RECOVERY

Training zones for cardio: Training levels can be based on Heart as a % of Estimated Max HR, % of Threshold HR, or RPE (rate of perceived exertion)						
Level	Training Zone	% of HRMax		"RPE (on 1-10 Scale)"	Effort Loads	Physiological Adaptations
1	Easy/ Recovery	50.00%	60.00%	1 - 2	Recovery. Should feel easy	Recovery. Improves fatigue and soreness
		104	124			
2	Endurance	60.00%	70.00%	2 - 3	Long slow distance workouts, strength workouts	Increases energy utilization, developing lactate clearance, promotes muscle cell adaptations and bulidng capilary beds
		124	145			
3	Endurance	70.00%	80.00%	4 - 5	Tempo efforts. Hard but comfortable	Increases oxygen utilization and transportation. Improves energy utilization
		145	166			
4	Threshold Intervals	80.00%	90.00%	6 - 7	Anaerobic threshold	Improvements in maximum fitness, lung capacity and high speed endurance. Short efforts paired with active recovery
		166	186			
5	Intensity Intervals	90.00%	100.00%	8 - 9	3-8 minute intervals, aerobic system, building VO2	Above your onset of blood lactate accumulation or "OBLA"., Improves speed and intensity tolerance.
		186	207			
6	Max Efforts	98.00%	110.00%	10	All out, short intervals (up to 3min), running/skiing economy, Speed sprints and strides.	Improves speed and economy of movement
		203	228			

Cardio Sprint Interval Training (SIT)	
SIT #1	6x 20 sec on 3 min active recovery between intervals
SIT #2	3 x 3 min on/3 min recovery
SIT #3	Cardio Intervals pyramid: (On/ Recovery) 1:00/:30 1:30/:30, 2:00/ 1:00, 3:00/1:30, 2:00/1:00, 1:30/30, 1:00/30
Program Notes: running, rowing, biking or swimming. Max effort for each interval with active recovery inbetween	

Calculate HR max			
Current Age	60	HRMax	165

EXERCISE & RECOVERY

Mobility/Core #1

Focus:body weight resistance training

Exercise		Set #1		Set #2		Notes
		Program	Variation	Program	Log	
Prone Plank Progression	reps	2		2		Progression: Elbows 15secs, 5 Rt arm Ext., 5 Lf arm Ext., 5 Rt leg Ext., 5 Lf leg Ext., 5 Rt/LF opposites, 5 Lf/Rt opposites, Elbows 15secs
Side Plank Progression	reps	2		2		Progression: Elbow 15secs, Lift upper leg 15secs, Adduction w/ 6 lower leg knee drives; Repeat on Rt and then Lf side
Supermans	15 reps	10		10		5 secs holds of Y, T, and W progression
Deadbug	30 reps alternating	20		20		total reps listed, divide evenly between sides
Hip Bridges	15reps	15	1 leg lift	15		Push-up and hold for 5 count
Hip Circles (hydrants)	reps	20		20		total reps listed, divide evenly between sides
Bird-Dogs	reps	10		10		total reps listed, divide evenly between sides
Hands overhead Body Weight Squat	reps	12		12		Hands extended overhead (can hold stick in hands if helps) Slow down, hold, slow up, hold (3,2,3,2)

Mobility/Core #2

Focus:body weight resistance training

Exercise		Set #1		Set #2		Notes
		Program	Variation	Program	Log	
Lunge - Reverse adn twsit to outside leg	12 reps	2	Add DB or OH hold to make harder	2		Progression: Elbows 15secs, 5 Rt arm Ext., 5 Lf arm Ext., 5 Rt leg Ext., 5 Lf leg Ext., 5 Rt/LF opposites, 5 Lf/Rt opposites, Elbows 15secs
Side Plank	30 sec/ side	2	Leg in hip abduction/ 15 sec	2		Progression: Elbow 15secs, Lift upper leg 15secs, Adduction w/ 6 lower leg knee drives; Repeat on Rt and then Lf side
Supermans	reps	10		10		5 secs holds of Y, T, and W progression
Band pull apart	reps	15		20		total reps listed, divide evenly between sides
Band good morning	reps	15		15		Light band, focus on form
Push up/ plank hold	10 reps	2		20		Hold 5 sec at low plank position
Scap retraction pullup hold	6-10 reps	10		10		Hold count of 3 at scap retraction

EXERCISE & RECOVERY

Full-body Circuit #1

Exercise	Genotype	Set x Rep
Bench/ Bent over row superset	Strength Genotype	10 x 2
Deadlift	Strength Genotype	5 x 2-3
Wt DB step up	Strength Genotype	3 x 20 alt

HIIT #1

	Name	Set x Rep
Tabata, 1 min rest between rounds	Air squat	20s on 10s off x 8
	KBS	20s on 10s off x 8
	Burpee	20s on 10s off x 8

HIIT #2

	Name	Set x Rep
1 min on 1 min off x 2 rds	DB thruster	1 min on 1 min off
	Burpee	1 min on 1 min off
	Renegade row	1 min on 1 min off
	DB lunge	1 min on 1 min off
	Sit up	1 min on 1 min off

Full-body Circuit #3

Exercise	Genotype	Set x Rep
Front squat	Strength Genotype	10 x 2
OH press	Strength Genotype	5 x 2-3
Broad jump	Strength Genotype	3 x 10

HIIT #1

	Name	Set x Rep
Tabata, 1 min rest between rounds	Air squat	20s on 10s off x 8
	KBS	20s on 10s off x 8
	Burpee	20s on 10s off x 8

HIIT #2

	Name	Set x Rep
1 min on 1 min off x 2 rds	DB thruster	1 min on 1 min off
	Burpee	1 min on 1 min off
	Renegade row	1 min on 1 min off
	DB lunge	1 min on 1 min off

Full-body Circuit #2

Exercise	Genotype	Set x Rep
Back Squat	Strength Genotype	10 x 2
Pull Up/ Dip Super set	Strength Genotype	Weighted x3-5 rep
Jump Squat	Strength Genotype	Weighted med ball x3- 5 rep. 30 sec/ 30sec rest x 2

HIIT #1

	Name	Set x Rep
Tabata, 1 min rest between rounds	Push press	20s on 10s off x 8
	KBS	20s on 10s off x 8
	Jump lunge	20s on 10s off x 8

HIIT #2

	Name	Set x Rep
1 min on 1 min off x 2 rds	KBS	1 min on 1 min off
	Burpee	1 min on 1 min off
	Push press	1 min on 1 min off
	Air squat	1 min on 1 min off
	Sit up	1 min on 1 min off

EXERCISE & RECOVERY

DETAILED EXERCISE & RECOVERY GENETICS AND LABS

GENETICS

PPARGC1A(rs8192678): Peroxisome Proliferator - PPARGC1A regulates energy through production of mitochondria, fat and carbohydrate metabolism and conversion from fast to slow twitch muscle fibers.

PPAR-α(rs4253778): Peroxisome proliferator - activated receptor alpha. PPARa is a key regulator of carbohydrate and fat metabolism, helping muscle burn fuel during endurance work.

PPAR-α(rs135549): Peroxisome proliferator-activated receptor alpha is a master regulator of lipid, carbohydrate and amino acid metabolism. PPAR-α is found primarily in brown adipose tissue and the liver, and, to a lesser extent, the kidneys, skeletal muscle, heart and both the small and large intestines. PPAR-α plays an essential role in the process of ketogenesis (the production of ketone bodies from the oxidation of fat, which typically occurs during carbohydrate restriction or fasting). Activation of PPAR-α promotes the uptake, utilization and catabolism of fatty acids by activating genes involved in fatty acid transport, binding, activation and oxidation. PPAR-α is activated primarily through the binding of polyunsaturated fatty acids. The G allele reduces activation and function of PPAR-a and leads to lipid abnormalities with high SFA and low PUFA intake.

ADRB3(rs4994): Adrenergic beta - 3 receptor. The protein encoded by this gene belongs to the family of beta adrenergic receptors, which mediate catecholamine-induced activation of adenylate cyclase through the action of G proteins. This receptor is located mainly in the adipose tissue and is involved in the regulation of lipolysis and thermogenesis.

NRF(rs7181866): Nuclear Respiratory Factor 2. NRF improves respiratory capacity and cellular energy mobilization.

AGT(rs699): Angiotensinogen. AGT (Angiotensinogen) is associated with blood vessel constriction and blood pressure control.

TRHR(rs16892496): Thyrotropin - releasing hormone receptor. TRHR (thyrotropin-releasing hormone receptor) helps to regulate metabolic rate, leading towards growth of lean body mass and release of stored fuel during exercise.

BDKRB2(rs1799722): Bradykinin Receptor B2.BDKRB2 helps to regular blood pressure through vasodilation, and has effects on cell hydration and muscular contraction.

CRP(rs1205): C - Reactive Protein. C-Reactive Protein: CRP is an acute phase reactant increased in states of inflammation.

SLC30A8(rs13266634): Zinc transporter protein member 8. Zinc transporter involved in the accumulation of zinc in the cell and related to insulin secretion and storage.

COL5A1(rs12722): Collagen 5 Alpha 1. COL5A1 is a structural component (the alpha-1 chain) of type V collagen.

TNF(rs1800629): Tumor Necrosis Factor. Tumor Necrosis Factor: A controller of immune cells and inflammation.

ACTN3(rs1815739): Alpha - actinin - 3. ACTN3 (Alpha-actinin-3) is an essential structural component exclusively present in fast twitch muscle fibers.

LABS

DHEA	**105**
iGF	**138**
CRP	**0.41**
Testosterone, Free	**6.8**
SHBG	**96.6**

SLEEP

Personalized Sleep Plan

If your sleep suffers, your performance suffers. We place such an emphasis on sleep because great sleep means a great mood, energy levels and mental clarity.

A couple of easy tweaks can be made and you'll see a tremendous positive impact:

1) One of the ways our coaches and doctors track sleep is through the Oura ring. If you get one, we can invite you to our Oura cloud account so we can monitor your sleeping trends and see any potential needs for intervention. https://ouraring.com/partners/wildhealth

2) The foundation of good sleep is proper sleep hygiene. This includes reducing exposure to blue light after dark, think LED lights, screens and devices. When exposure to blue light is unavoidable we recommend using blue light blocking glasses. Reduced exposure to blue light after dark supports natural melatonin production and parasympathetic nervous system activation.

3) In our opinion these are the two best books that provide evidence based insight into why sleep is so important and how to improve yours! By the way, reading before bed is a great way to reduce screen time and blue light exposure.

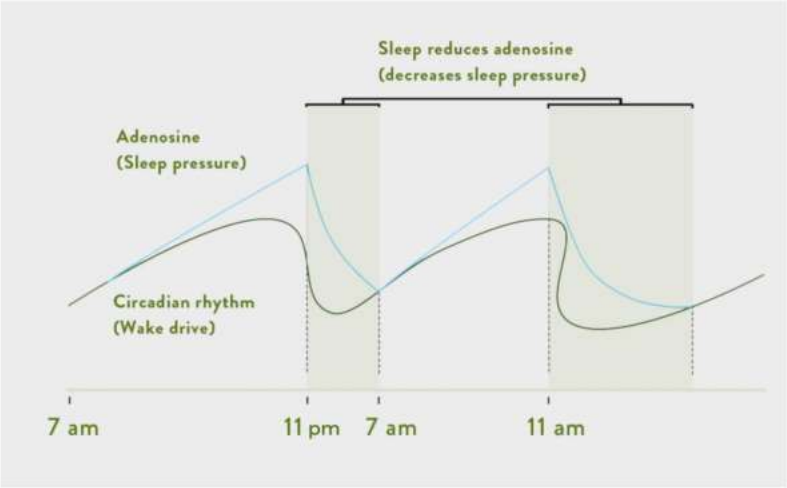
-The Power of When

-Why We Sleep by Matthew Walker

SLEEP

YOUR CIRCADIAN GENETICS

MTNR1B	
ADORA2A	
MTNR1A	
NPAS2	
ADA	



Gene MTNR1B:
Due to a SNP in your melatonin receptor you may have impaired glucose tolerance with a late dinner time and increased risk for type 2 diabetes. We recommend you stop eating at least 3 hours before you go to bed.

SLEEP

YOUR SLEEP RECOMMENDATIONS

Gene NPAS2:

You have increased cancer risk associated with alterations in circadian rhythm. Don't eat when it's dark. Fast for at least 12 hours every night.

Personalized Mindfulness Plan

Stress and anxiety are real and have a physical effect on the body and mind. Mindfulness can help stabilize cortisol and helps the overall balance of hormones in our body. Mindfulness has even been shown to lower blood pressure by 10-15mm Hg.

Mindfulness practices are one tool in your toolbox to calm your body intentionally.

Aim for 10-15 minutes per day to calm the mind.

Here are some tools to consider:

Simple "Gratefulness Journals" have been shown to improve mood, joy and decrease stress. Keeping this in your car between appointments might be beneficial. Click here to see a simple option.

Meditation apps like "Head Space" or "Calm" can guide you as well.

Music can have an incredible effect on your mood. Use it intentionally.

NEUROBEHAVIORAL

YOUR NEUROBEHAVIORAL GENETICS

COMT	
BDNF	
AKT1	
FAAH	

Gene AKT1:
You have genetic predisposition for increased risk for cannabis associated psychosis. Consider avoiding THC especially with a family history of psychosis.

Gene FAAH:
You have normal Fatty Acid Amide Hydrolase function and slower breakdown of cannabinoids, CBD and THC. Better anxiety response with CBD or THC. Slower THC and CBD metabolism. 5x greater addictive potential towards CBD and THC. Usually, CBD won't improve your sleep.

Gene COMT:
Less effective COMT enzyme leading to more dopamine in prefrontal cortex but not as low as patients with two COMT variant alleles. These patients have intermediate dopamine levels in the prefrontal cortex. These patients may have symptoms of high or low dopamine. Symptoms of high dopamine include: ADD/ADHD, anxiety, mania, insomnia, addiction, excessive energy. Symptoms of low dopamine include depression, lack of motivation, fatigue, constipation, GERD, muscle cramps.

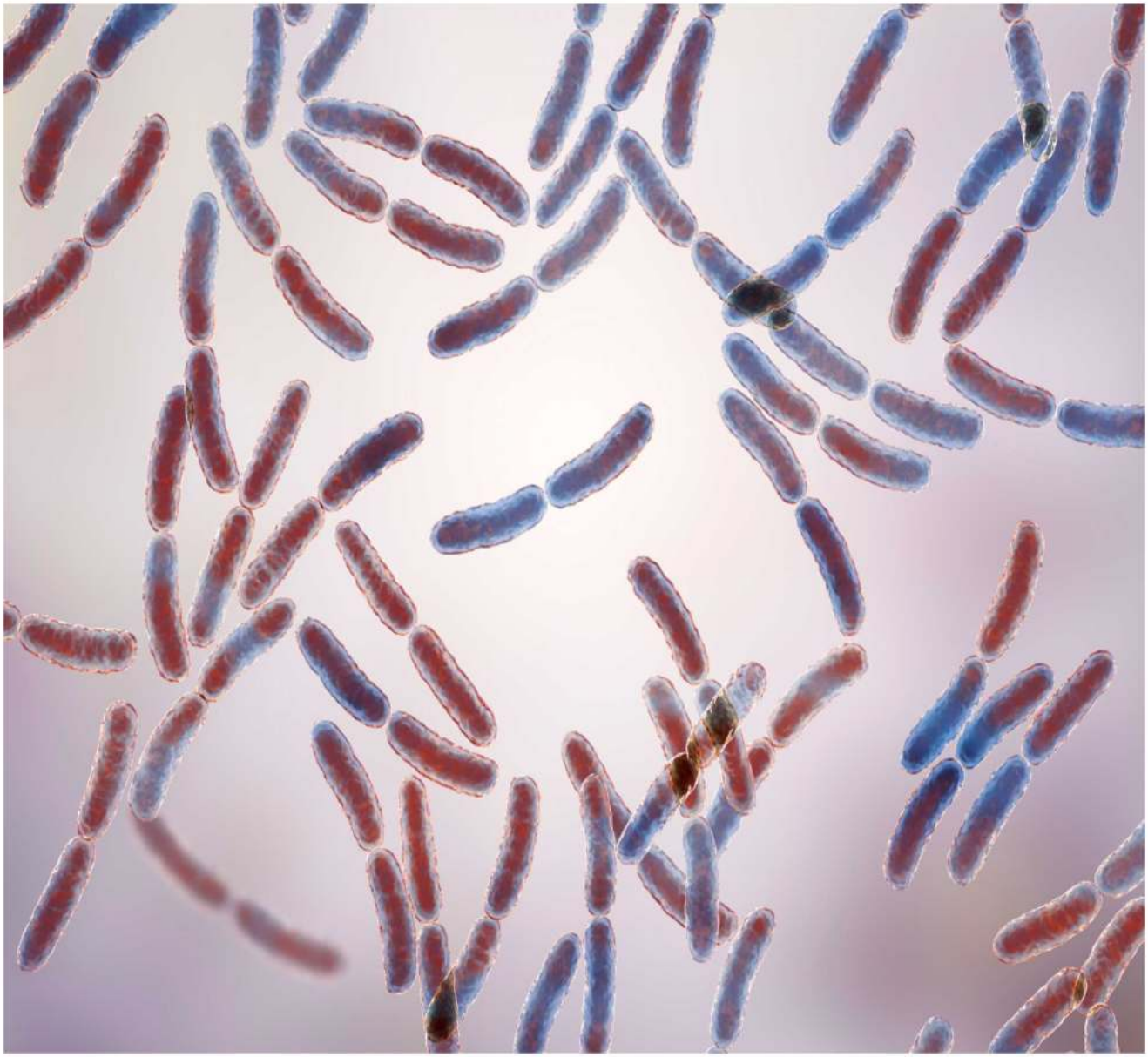
MICROBIOME

Inflammation and Diversity

Your microbiome is part of you. The bacteria in your gut affect your risk of chronic disease like heart disease and dementia. They make B vitamins and other nutrients our bodies use to function. They make neurotransmitters like serotonin and have been linked to depression and mental health. They even buffer and use lactic acid and can make us better athletes.

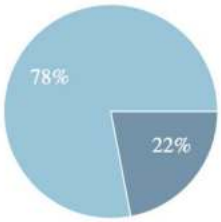
We use your microbiome data to compile an inflammation score which may alter your risk of chronic disease as well as a diversity score, which has been linked to longevity.

Finally, we'll review some specific bacteria and how they may be important to optimize and identify some actions to improve them.



MICROBIOME

INFLAMMATION AND DIVERSITY



Inflammation Score: 78%

Diversity Score: 97%

Inflammation Score

Increase fiber in diet, Add Enteromend, Add Glutamine. Glutamine for healing effect.

Diversity score

No intervention necessary.

IMPORTANT FLORA

Veillonella

Increase HIIT exercise and lactate training. Athletic performance benefit.

Akkermansia muciniphila

No intervention necessary.

Faecalibacterium prausnitzii

No intervention necessary.

Prevotella

No intervention necessary.

Bifidobacteriaceae

No intervention necessary.

Methanobacteria

No intervention necessary.

Proteobacteria

No intervention necessary.

Firmicutes to Bacteroidetes ratio

No intervention necessary.

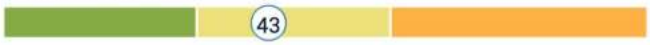
MICROBIOME

TMAO-PRODUCING BACTERIA

Eubacterium

Desulfovibrio

Escherichia coli



Lachnoclostridium phytofermentans

Dorea

Deltaproteobacteria

Clostridium sp AT4

No data provided. Not Calculated.

Gammaproteobacteria

Klebsiella

Inflammation Score:
Increase dietary fiber to increase predominance of healthy bacteria. Increase dietary fiber/inulin for prebiotics. Helpful sources: artichokes, asparagus, garlic, onion, leeks, greenish bananas.
Soluble fiber: sweet potatoes, brussels sprouts, lima beans.
Start Thorne Enteromend Probiotic 1 scoop per day for two months. [Link](https://thor.ne/p8Vq)
After completion of Enteromend consider ongoing Thorne Fibermend Probiotic 1 scoop per day. [Link](https://thor.ne/p8eW).

Diversity score:
No intervention needed due to good gut diversity.

MICROBIOME

YOUR MICROBIOME RECOMMENDATIONS

Methanobacteria:
No intervention.

Prevotella:
No intervention.

Faecalibacterium prausnitzii:
No intervention.

Akkermansia muciniphila:
No intervention.

Bifidobacteriaceae:
No intervention.

Proteobacteria:
Decrease IBS, mood disorders, metabolic syndrome, autoimmune disease.
Increase prebiotics, helpful sources: artichokes, asparagus, garlic, onion, leeks, greenish bananas. Soluble fiber: sweet potatoes, brussels sprouts, lima beans.
Increase probiotics: Thorne FloraMend 1 capsule per day with food. [Link] (https://thor.ne/pAV5N)
Start Thorne berberine: 2 capsules per day with food. Supports beneficial bacterial balance in the gut. [Link] (https://thor.ne/50YTa).

Veillonella:
Athletic performance benefit through improved lactate clearance.
Increase high intensity interval training (HIIT) exercise and lactate training.

CHRONIC DISEASE

Cardiovascular Disease
Dementia
Insulin Resistance
Inflammation

CHRONIC DISEASE

CARDIOVASCULAR DISEASE

Your Cardiovascular Disease Risk

10 YEAR CVD RISK **3.1%**

How your medical history affects your cardiovascular risk according to MESA. [1]

YOUR CARDIOVASCULAR GENETICS AND LABS

Genetic CVD Risk

CVD Risk [2]

This genetic risk assessment is based on 27 different genes identified in a 2015 study from Harvard of over 48,000 patients identifying a 31-72% increase in cardiovascular disease risk based on these genetic factors alone. The orange quintile is associated with a 72% increase in risk, but also a 48% risk reduction with statin therapy.

LIPIDS

Total Cholesterol	**333**
LDL	**99**
HDL	**116**
Triglycerides	**85**
LDL(p)	**653**
Lp(a)	**8.4**

INFLAMMATION

LP PLA2	**101**
CRP	**0.41**
Omega 3	**6.4**
Coq10	**2.49**

CHRONIC DISEASE

CARDIOVASCULAR DISEASE RECOMMENDATIONS

Your SNPs put you at a higher risk for CVD but your lifestyle, diet and exercise are keeping your lab values near optimum. We suggest you follow the dietary guidelines offered earlier to lower your total LDL cholesterol.

Gene ACE:
You have an angiotensin converting enzyme SNP associated with an increased risk of high blood pressure, a greater risk for diabetes, and increased CVD risk. This risk seems to be mitigated by reducing saturated fat intake.

Gene NOS3:
Effects NOS enzyme and blood pressure: You have reduced function of nitrous oxide synthase. This puts you at greater risk for preeclampsia and ischemic heart disease. Monitor blood pressure closely and consider supplementation with polyphenols, L-arginine, and nitrate donors.

CHRONIC DISEASE

DEMENTIA

Your genetics and Labs

There are many, many causes of Alzheimers. However, some of the most common causes are easily managed. First, we need to assess your risk. That is best assessed by looking both at genetics, such as Apo-ε status, as well as TNF and SIRT1. But we also have to evaluate your current health, as metabolism and inflammation are common contributors as well. This summary will help assess your risk, and identify specific interventions you can follow to help mitigate that.

Insulin Resistance Score: 33%

TROPHIC SUPPORT

Homocysteine	**10.4**
Testosterone	**675**
Estrogen	**16.8**
Progesterone	**0.2**
TSH	**2.26**
T4	**1.38**
Vitamin D	**95**

INFLAMMATION

CRP	**0.41**
A/G ratio	**2**
Omega 3	**6.4**
Co q10	**2.49**

TNF C857T	
TNF	
BDNF	

YOUR APOE STATUS: Apo-ε3 / ε3

You have a normal risk for dementia associated with Apo-ε compared to the rest of the population.
Your estimated lifetime risk of dementia is 9%.

DEMENTIA RISK

Gene SIRT1:
More mental decline with aging.

CHRONIC DISEASE

DEMENTIA DISEASE RECOMMENDATIONS

Gene CRP:
You may be at heightened risk of inflammation. Monitor CRP and A:G ratio closely and treat causes of inflammation to help prevent dementia.

You have evidence of reduced methylation which has been linked to dementia risk. See diet methylation report for necessary interventions.

You have evidence of reduced thyroid function. Appropriate thyroid function is important to reduce dementia risk. Speak with your doctor about possible interventions.

If post menopausal, you may want to consider hormone replacement therapy for the protective cognitive benefit. Please speak with your doctor.

Gene IL1B:
Effects Ketosis and cognitive performance: You have an interleukin 1-B polymorphism that is associated with higher neuroinflammation and less cognitive benefit from ketosis in dementia.

CHRONIC DISEASE

INSULIN RESISTANCE

Your Genetics and Labs

Insulin is a hormone made by the pancreas and is responsible for transporting glucose from your blood stream into your cells. Insulin resistance is the reduced effectiveness of insulin at transporting glucose- the cells become "resistant to it." There are many theories. At Wild Health we believe in the suitcase theory: if your cells are full of glucose, it becomes harder to fit glucose in them and the insulin doesn't work as well. Thus the treatment is reducing glucose, ie consumption. If insulin resistance goes unchecked it will lead to pre-diabetes, and often full blown type 2 diabetes.

Although there are many facets to fixing insulin resistance, the basics are:

1. Diet: low carb and fasting to reduce glucose in the cells
2. Exercise. Increase glucose utilization
3. Sleep and hormonal optimization- to optimize insulin effectiveness.

Carb Intolerance: 23%

INSULIN RESISTANCE LABS

Fasting Glucose	96
Fasting Insulin	10
HOMA-IR	2.37
Ferritin	70
TRIG:HDL	0.73
Hgb-A1c	5.4

PPAR gamma #1	
PPAR gamma #2	
ADRB3	
FTO #1	
FTO #2	
FTO #3	
FTO #4	
LEPR	

INSULIN RESISTANCE SCORE: 33%

YOUR INSULIN RESISTANCE RECOMMENDATIONS

Intermittent fasting and quarterly 3-day water only fast are very effective means of restoring insulin sensitivity.

Gene IRS1:
You have an increased risk for insulin resistance and diabetes in response to a diet high in fat.

CHRONIC DISEASE

INSULIN RESISTANCE RECOMMENDATIONS

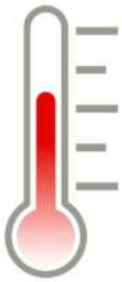
Gene ADRB3:
You have reduced thermogenesis resulting in increased risk for obesity. Can be improved through regular exercise and by reducing trans-fat intake in the diet.

Dietary changes to reduce insulin resistance as outlined previously. Continue regular fasting and time restricted feeding. Consider Metformin 500-1000mg daily, Magnesium 500mg every night before bed. This will help with IR and sleep as well. Consider continuous glucose monitor with goal of keeping Glucose <150 and average Glucose <115.

CHRONIC DISEASE

INFLAMMATION

Your Genetics and Labs



Inflammation kills.

Chronic low grade inflammation is at the root of cardiovascular disease, Alzheimer's, cancer, and autoimmune disease. Chronic inflammation can be treated with supplements, an anti-inflammatory diet, sleep, and healthy exercise, but the most important action is to identify the source.

Some common sources include:

1. Microbiome - "leaky gut"
2. Overtraining - too much exercise, not enough recovery
3. Inflammatory diet
4. Poor sleep
5. Insulin resistance
6. High cholesterol
7. Chronic infections

CRP = 0.41

LOW INFLAMMATION — HIGH INFLAMMATION

0 — 5.0

INFLAMMATION LABS

CRP	**0.41**
A/G ratio	**2**

YOUR INFLAMMATION RECOMMENDATIONS

```
You have a normal CRP, suggesting low inflammation. Nice work!


Gene GSTP1:
Decreased activity of glutathione transferase enzyme. This may lead to increased inflammation
levels. Supplemental vitamin E may be beneficial. Start Thorne Ultimate-E, 1 capsule per day.
[Link](https://thor.ne/szFMH).
```

CHRONIC DISEASE

INFLAMMATION RECOMMENDATIONS

Gene CRP:

The C-reactive protein (CRP) SNP can cause increased inflammation especially after intense exercise. Be mindful of your recovery speed in the exercise section of this report and CRP levels.

LONGEVITY

Your Personalized Longevity Report

There is no single secret to longevity. Longevity comes both from genetics and how you live your life. Every aspect of this entire health report is aimed at longevity. Sleep, exercise, diet, fasting, medications, supplements, reversing chronic disease, all of these matter. But there are some specifics we can focus on here. First, it helps to know your baseline. In this case, your baseline is your biological age and how it compares to your chronological, or birth age. You biological age is a measure of how your DNA is packaged. As we age, our cells make mistakes methylating DNA and repackaging it. These errors confuse cells and make them start behaving like different types of cells. This is part of what begins to increase our biologic age. Your DNA methylation test will estimate your biological age to the year. If your biological age is older, we have a lot of work to do. If your biological age is lower, we've got a good start. Your aggressiveness with this protocol can be directed and to some degree dictated by your biological age. The following protocol is broken into lifestyle and supplement interventions, as well as possible peptide interventions. What you choose to apply to your routine is up to you, but we recommend discussing these decisions with your precision medicine physician.

LONGEVITY

YOUR BIOLOGICAL AGE: 58

Oxidative Stress

GSTM1	
GSTM1	
GSTM1	
GSTM1	
SOD3	

Telomeres

TERT	
TERC	
RTEL1	
ACYP2	
OBFC1	
SIRT1	

LONGEVITY LABS

DHEA	105
iGf	138
TSH	2.26
T4	1.38
Testosterone, Free	6.8
Hgb-A1c	5.4

Cancer Risk

ADIPOQ	
ADIPOQ	
BRCA1	
BRCA1	
BRCA1	
BRCA1	
BRCA2	
JAK2	
NPAS2	

Dementia Risk

Apo-ε: Apo-ε3/ε3

TNF C857T	
TNF	
BDNF	

Metabolism

PGC1a	
PPARa #1	
PPARa #2	

LONGEVITY

YOUR PERSONALIZED LONGEVITY REPORT

Fasting

Using one or all of the following fasting methods will be beneficial for just about anyone. Time Restricted Feeding. A lot of people call this intermittent fasting. But since there is no caloric restriction, it is not truly fasting, you are just restricting the time window within which you eat, ideally the same number of calories as if you didn't restrict the time. So, consume the same amount of food/calories you typically do in a day but just consume it in a smaller feeding window.

For example:

A. 12 hour fast/12hour feeding window: eat between 7am and 7pm. You can of course adjust the times.

B.16 hour fast/8 hour feeding window: eat between 11am and 7pm. Now you are only eating in an 8 hour window.

As your body becomes used to this you can even narrow the feeding window more if you wish so you'll be eating within a 7 or 6 hour window. Time restricted feeding has been shown to reduce insulin levels and increase insulin sensitivity, as well as reduce blood pressure.

Intermittent Fasting. This is truly fasting, meaning you will restrict calories for 1-5 days. First option is a 0 calorie fast. You are allowed to only consume coffee or water for 1-3 days. Don't put food in your mouth. Second option is a Fasting-mimicking diet. Day 1- consume about 1100 calories, day 2-5 consume about 800 calories. Low protein. You can consume vegetables, extra virgin olive oil, nuts, seeds, soups, salads, but no meat and no junk. Benefit: prolonged fasting or calorie restriction greater than 24 hours results in autophagy (where the body eats itself) and apoptosis (programmed cell death) allowing your body to clean up damaged proteins, old cells that have lost their programing, and even pre-cancerous cells.

YOUR LONGEVITY LIFESTYLE RECOMMENDATIONS

Gene UPC1:
You have a genetic SNP in Uncoupling Protein 1, a protein found in brown fat and involved in thermogenesis and heat production. This gene is associated with a reduced resting metabolic rate. You can increase your metabolic rate through cold exposure, exercise and increased consumption of Omega 3s.

Gene HSP70:
You have a genetic SNP in a Heat Shock Protein. Your genetics correlate to a lower cellular production of Heat Shock Proteins and therefore a slight increase of cardiovascular risk. Monitor cardiovascular risk and consider ways to increase Heat Shock Proteins. Frequent exercise and consuming foods such as: broccoli sprouts/sulforaphane, extra virgin olive oil, curcumin, blueberry and Lion's Mane mushrooms will possibly increase your body's concentration of Heat Shock Proteins.

Gene JAK2:
Jak2 is associated with a 2 to 4 fold increased risk for blood cancers. It's an increased risk compared to the general population. The risk in the general population is 1 or 2%. An easy ways to mitigate this risk is by fasting for 12-16 hours per day and including quarterly 3 day water fasts.

LONGEVITY

YOUR LONGEVITY RECOMMENDATIONS

At risk for shorter telomere length.
Reduce sources of inflammation such as processed foods, simple sugar, smoking, and alcohol.
Focus on optimizing sleep and eating a healthy diet.

Gene SIRT1:
At increased risk for more mental decline with aging. Start NAD precursor with resveratrol : [Link](https://thor.ne/p8SC) Can consider adding additional Resveratrol up to 1000mg total per day.

Gene ADIPOQ:
Higher risk for colon cancer and 2x increased risk for breast cancer. Fasting regularly helps to improve cellular autophagy. Quarterly 3-day water fasts and regular time restricted feeding with 12 hours of fasting per day will mitigate the risk.

Gene NPAS2:
Increased risk of breast and (if applicable) prostate cancer with alterations in circadian rhythm and diet. This risk can be improved by fasting for at least 12 hours each night and not eating after dark.

Gene PGC1a:
You are prone to having a lower resting metabolic rate and cardiorespiratory fitness due to decreased mitochondrial density. This can be improved with regular exercise, fasting and cold exposure. Cold showers, cryotherapy or dunking your head in some ice water are options. The cold receptors are most concentrated in your head/face and chest.

Gene HSPA1L:
Reduced Heat Shock Proteins. Recommend regular sauna, nitrates and polyphenols, for improved nitric oxide production.
Sauna: 20-40 minutes per session for 3 - 7 days per week.
Nitrates: Beet juice powder: Humann Superbeets: [Link](https://tinyurl.com/tb5kwkp)
Polyphenols: Superfood Reds: [Link](https://tinyurl.com/tpetvgu).

HEALTH REPORT SUMMARY

RECOMMENDED SUPPLEMENTS

Client's Goals:

1. Longevity - Improving your sleep, methylation and insulin resistance, all while lowering your risk for CVD are essential first steps toward enhancing your longevity. Along with the interventions outlined below we recommend sauna use. There is strong evidence for reduced mortality with regular use. When your diet, exercise and sleep are optimized and mortality risks reduced you may want to consider Wild Health's Longevity Track advanced program.
For now we recommend this supplement for longevity:
- NAD precursor with Resveratrol: [Link](https://thor.ne/p8SC)

2. Performance / Strength - Your genetics play to your desire of better strength and performance. Based on your SNPs, following the suggested exercise program provided will help you gain strength while enhancing endurance as well. Not working out fasted and adding in foods high in nitrates such as beets will improve performance as well as lowering CVD risks.
We suggest supplementing with the following:
- Creatine Monohydrate - 2.5g twice daily (for strength and methylation) [Link] (https://www.thorne.com/products/dp/creatine)
- Zinc 30mg daily - Reduce DOMS symptoms and will help with testosterone levels [Link] (https://thor.ne/xEPDK).

3. Sleep - For multiple reasons stated prior, avoid eating at least 3 hours prior to bed. Establish a relaxing, non-stimulating routine for the hour prior to sleep. Given time these practices should help your sleep. We highly recommend a Oura ring or Whoop wrist band to track your deep, REM and total times. We can then analyze your prior evening's events with sleep improvements. Recommend:
- Magnesium - 500mg each night at bedtime. [Link] (https://www.thorne.com/products/dp/magnesium-citramate)

HEALTH REPORT SUMMARY

RECOMMENDED SUPPLEMENTS SUMMARY

Lab testing revealed:

1. Insulin Resistance - Fasting and diet are great ways to tackle IR and improve sensitivity. Also, wearing a Continuous Glucose Monitor (CGM) will offer insights to foods to avoid eating and optimum eating patterns to keep blood glucose levels down.

Interventions:

- You are relatively carb intolerant. Eliminate simple, refined sugar products.
- Your SNPs reveal that you will benefit from intermittent and quarterly 3-day water fast.
- Start Thorne Berberine: 2 capsules per day with food. Also supports beneficial bacterial balance in the gut. [Link] (https://thor.ne/50YTa).
- Consider wearing a CGM for two weeks with the goal of keeping glucose <150 and average glucose <115.

2. Poor Methylation - Your SNPs and microbiome results suggest the following interventions to improve methylation with higher TAMO level.

Recommended:

- Start MethylGuard as indicated: [Link](https://thor.ne/p8xQ)
- Start Bedine (TMG) [Link] (https://www.amazon.com/BulkSupplements-Betaine-Anhydrous-Trimethylglycine-Powder)

3. Gut Inflammation - Microbiome test revealed significant inflammation in your gut. Follow interventions followed by a retest in 4 to 6 months.

Suggest:

- Thorne Enteromend Probiotic 1 scoop per day for two months. [Link](https://thor.ne/p8Vq).
- After completion of Enteromend consider ongoing Thorne Fibermend Probiotic 1 scoop per day. [Link](https://www.thorne.com/products/dp/fibermend-trade).

4. Elevated SHBG and low DHEA - Raising DHEA levels will help with overall heath and performance:

- Consider Boron supplementation 5 mg/d. [Link] (https://www.pureencapsulations.com/boron.html)
- Consider Life Extension DHEA 50mg daily [Link](https://www.life extension.com/DHEA

HEALTH REPORT SUMMARY

LABORATORY RESULTS

LIPIDS

Sitosterol (< 5 mg/L)	6
LDL Cholesterol (< 100 mg/dl)	99
Lathosterol (0.5 - 3 mg/L)	–
HDL Cholesterol (> 50 mg/dl)	116
Desmosterol (0.5 - 2 mg/L)	–
Campsterol (< 7 mg/L)	8
Apolipoprotein B (< 90 mg/dL)	68
Cholestanol (< 7 mg/L)	–
Small LDL-p (< 527 nmol/l)	90
Lp(a) (< 75 nmol/l)	8.4
LDL- P (< 1000 nmol/l)	653
Triglycerides (< 150 mg/dl)	85
Total Cholesterol (< 200 mg/dL)	333

METHYLATION

TMAO (< 5 uM)	3.3
Folate (12 - 25 ng/ml)	20
ALT (< 20 U/l)	29
Homocysteine (< 7 umol/l)	10.4
Folate RBC (> 280 ng/ml)	1248
B12 (500 - 1500 pg/ml)	1160
Uric Acid (< 5 mg/dL)	3.6
AST (< 20 U/l)	32

VITAMINS AND MICRONUTRIENTS

Omega 3 (> 5.4 % by wt)	6.4
Linoleic Acid (18 - 29 %)	22.5
Ferritin (Iron) (30 - 400 ng/mL)	70
Vitamin D (50 - 100 ng/m)	95
CoQ10 (> 0.75 ug/ml)	2.49

HORMONES

Testosterone, Free (6.6 - 18.1 pg/mL)	6.8
SHBG (10 - 50 nmol/L)	96.6
Free T4 (0.82 - 1.77 ng/dL)	1.38
Cortisol (10 - 18 mcg/dl)	21.3
Progesterone (< 0.5 ng/dl)	0.2
iGF (100 - 250 ng/ml)	138
FSH (1.5 - 12.4 mIU/mL)	7.4
Free T3 (2 - 4.4 pg/mL)	3.2
LH (1.6 - 8 mIU/ml)	9.2
Estradiol (7.6 - 42.6 pg/ml)	16.8
DHEA (200 - 500 mcg/dl)	105
Testosterone Total (250 - 1100 ng/dl)	675
TSH (0.4 - 4 uIU/ml)	2.26

INFLAMMATION

A:G ratio (> 1)	2
OxLDL (< 60 U/l)	–
CRP (< 1 mg/l)	0.41
LpPLA2 (< 200 nmol/min/ml)	101

INSULIN RESISTANCE / METABOLISM

Hgb-A1c (< 5.5 %)	5.4
Fasting Insulin (< 5 uIU/ml)	10
Fasting Glucose (< 100 mg/dl)	96
HOMA-IR	2.37

APPENDIX

[1] RL McClelland, PhD; NW Jorgensen, MS; M Budoff, MD; MJ Blaha, MD, MPH; WS Post, MD, MS; Richard A. Kronmal, PhD; DE Bild, MD, MPH; S Shea, MD, MS; K Liu, PhD; KE Watson, MD, PhD; AR Folsom, MD; A Khera, MD; C Ayers, MS; AA Mahabadi, MD; N Lehmann, PhD; K Jöckel, PhD; S Moebus, PhD; JJ Carr, MD, MS; R Erbel, MD, PhD; GL Burke, MD, MS. 10-Year Coronary Heart Disease Risk Prediction Using Coronary Artery Calcium and Traditional Risk Factors: Derivation in the MESA (Multi-Ethnic Study of Atherosclerosis) With Validation in the HNR (Heinz Nixdorf Recall) Study and the DHS (Dallas Heart Study). J Am Coll Cardiol. 2015 Oct 13;66(15):1643-53. PMID:26449133. PMCID:4603537.

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GENOMIC GLOSSARY

ACE(rs4343): Angiotensin - Converting Enzyme.

ACE(rs4646994): Angiotensin converting enzyme. ACE (angiotensin-converting enzyme) is the gene with the greatest evidence supporting its role in athletic performance. It affects both blood pressure and the fluid/salt balance in our blood.

ACTN3(rs1815739): Alpha - actinin - 3. ACTN3 (Alpha-actinin-3) is an essential structural component exclusively present in fast twitch muscle fibers.

ACYP2(rs11125529): Acylphosphatase 2.

ADORA2A(rs5751876): Adenosine A2a receptor (Caffeine antagonizes).

ADRB2(rs1042713): Adrenoceptor Beta 2. ADRB2 is a regulator of epinephrine function and helps mobilize macronutrients for fuel during training.

ADRB2(rs1042714): Adrenoceptor Beta 2. ADRB2 is a regulator of epinephrine function and helps mobilize macronutrients for fuel during training.

ADRB3(rs4994): Adrenergic beta - 3 receptor. The protein encoded by this gene belongs to the family of beta adrenergic receptors, which mediate catecholamine-induced activation of adenylate cyclase through the action of G proteins. This receptor is located mainly in the adipose tissue and is involved in the regulation of lipolysis and thermogenesis.

AGT(rs699): Angiotensinogen. AGT (Angiotensinogen) is associated with blood vessel constriction and blood pressure control.

AKT1(rs2494732): Alpha Serine/Threonine Kinase 1. Response to Cannabis associated psychosis risk

BCMO1(rs12934922): Beta - carotene monooxygenase.

BCMO1(rs7501331): Beta - carotene monooxygenase.

BDKRB2(rs1799722): Bradykinin Receptor B2.BDKRB2 helps to regular blood pressure through vasodilation, and has effects on cell hydration and muscular contraction.

BDNF(rs6265): Brain - derived neurotrophic factor. BDNF is a neurotrophin that is involved in neuronal health, growth of new neurons and proliferation of existing neurons.

COL1A1(rs1800012): Collagen 1 Alpha 1. Collagen 1 Alpha 1: Produces Type 1 Collagen, the fibrillar collagen found in most connective tissues and primary collagen that comprises tendons, ligaments and cartilage.

COL5A1(rs12722): Collagen 5 Alpha 1. COL5A1 is a structural component (the alpha-1 chain) of type V collagen.

COMT(rs4680): catechol - Omethyltransferase breaks down dopamine (requires methylation). AKA Worrier Vs. Warrior gene.

COQ2(rs4693596): Coenzyme Q10.

CRP(rs1205): C - Reactive Protein. C-Reactive Protein: CRP is an acute phase reactant increased in states of inflammation.

CRY2(rs11605924): Cryptochrome circadian regulator.

CYP1A2(rs762551): Caffeine metabolism.

CYP2R1(rs2060793): Vitamin D hydroxylase.

FAAH(rs324420): Fatty Acid Amidee Hydrolase.

FADS1(rs174548): Fatty acid delta - 5 - desaturase. Phosphatidylcholine is important for production of cellular membranes, neurotransmitters, and plays a role in methylation, including the reduction of dopamine and generation of creatine.

FADS1(rs174550): Fatty acid desaturase 1.

FADS2(rs1535): fatty acid delta - 6 desaturase. The fatty acid delta-6 desaturase (FADS2) enzyme is responsible for elongating the polyunsaturated fatty acid alpha- linolenic acid (ALA) and converting it into the omega-3 fatty acid eicosapentaenoic acid (EPA).

GENOMIC GLOSSARY

FTO(rs1121980): Fat Mass and Obesity associated Protein. The FTO gene plays a major role in genetic risk for obesity. Multiple SNPs of the FTO gene lead to risk of obesity and insulin resistance especially in the setting of a high saturated fat diet and low PUFAs.

FTO(rs1421085): Fat Mass and Obesity associated Protein. This FTO SNP is associated with reduced thermogenesis and less brown adipose tissue. The C allele is the risk allele.

FTO(rs1558902): Fat Mass and Obesity associated Protein. The FTO gene plays a major role in genetic risk for obesity. Multiple SNPs of the FTO gene lead to risk of obesity and insulin resistance especially in the setting of a high saturated fat diet and low PUFAs.

FTO(rs17817449): Fat Mass and Obesity associated Protein. The FTO gene plays a major role in genetic risk for obesity. Multiple SNPs of the FTO gene lead to risk of obesity and insulin resistance especially in the setting of a high saturated fat diet and low PUFAs.

FTO(rs8050136): Fat Mass and Obesity associated Protein. The FTO gene plays a major role in genetic risk for obesity. Multiple SNPs of the FTO gene lead to risk of obesity and insulin resistance especially in the setting of a high saturated fat diet and low PUFAs.

FTO(rs9939609): Fat Mass and Obesity associated Protein. The A allele is associated with higher ghrelin levels and less satiety. This increases appetite and leads to obesity risk. The first meal of the day affects ghrelin levels. Eat a complete meal full of fiber and protein to help reduce ghrelin level later in the day.

FUT2(rs601338): fucosyltransferase 2.

FUT2(rs602662): fucosyltransferase 2.

GDF5(rs224329): Growth Differentiation Factor 5. Growth Differentiation Factor 5: Expressed in the CNS and coupled to the healing and development of bones, cartilage and neurons.

GIPR(rs2287019): Gastric inhibitory polypeptide. The C allele is associated with greater insulin secretion for the same amount of food. GIPR is also involved in glucose and fat uptake by fat cells. This seems to be mitigated by a high carb, low fat diet.

GSTP1(rs1695): Glutathione transferase enzyme most active. Glutathione is one of the most potent antioxidant systems that the body has and is orders of magnitude more powerful than supplemental Vitamin E (alpha tocopherol). Supplemental Vitamin E has been shown to have a negative impact on individuals with A alleles by raising the levels of pro-inflammatory cytokines in the blood. However, people that have the less active version of GSTP1, may possibly have an anti-inflammatory benefit from a low dose (75 IU) supplemental Vitamin E.

HFE(rs1800562): Hemochromotosis SNP.

HMGCR(rs17238540): hydroxy - methylglutaryl coenzyme A reductase.

HSP70(rs1008438): Heat Shock Protein HSP1A1.

HSP70(rs1043618): Heat Shock Protein HSP1A1.

HSP70(rs2075800): Heat Shock Protein HSP1AL.

IL6(rs1800795): Interleukin 6. IL6 is a cytokine immune modulator that regulates the inflammatory process involved in repair from a training stimulus.

IL6R(rs4129267): Interleukin - 6 Receptor. The receptor for immune messenger Interleukin-6 (IL-6). IL-6 stimulates the immune response to training and is involved in the inflammatory repair process.

IRS1(rs2943641): Insulin receptor substrate 1 (IRS1).

Jak2(rs12340895): Jak2 gene and blood cancer.

MTHFD1(rs2236225): methylenetetrahydrofolate dehydrogenase.

HEALTH REPORT SUMMARY

GENOMIC GLOSSARY

MTHFR(rs1801131): 5 - methylenetetrahydrofolate reductase. MTHFR converts homocysteine to methionene in a critical step in the methylation pathway. The MTHFR gene is well studied. 5 different SNPs alter it's function from 15%-100% effectivity. Presence of one or more variants of this enzyme may warrant Methylfolate, methy-B12, P-5-P, tri-methylglycine, or choline supplementation if there is evidence or reduced methylation which is often identified by homocysteinemia.

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MTNR1A(rs12506228): Melatonin Receptor. Melatonin receptor mediated Alzheimer's risk.

MTNR1B(rs10830963): Melatonin Receptor. Melatonin receptors are found on the pancreas and may influence insulin secretion.

MTRR(rs1801394): Methionine synthase reductase. MTRR activates the enzyme methionine synthase (requiring Vitamin B2) . MTR remethylates homocysteine to methionine using B12 as a cofactor. This reaction is critical to folate metabolism and methionine cycling for the methylation pathway.

NPAS2(rs2305160): Circadian associated transcriptional activator. Transcriptional activator which forms a core component of the circadian clock. Risk allele is associated with alterations in metabolism especially related to the circadian rhythm. Risk seems to increased by loss of sleep and eating late meal. Patients with this risk allele may see increases in CRP and insulin resistance with late meals. The risk may be reduced by longer fasting periods at night. For example, breast cancer risk has been reduced in studies by 36% simply by fasting for 12+ hours overnight.

NRF(rs7181866): Nuclear Respiratory Factor 2. NRF improves respiratory capacity and cellular energy mobilization.

OBFC1(rs9420907): OBFC1enzyme involved in telomere maintenance.

PCSk9(rs11591147): Proprotein convertase subtilisin/kexin type 9. PCSK9 loss of function variant allele T, 1-3% of population, results in less LDL receptor reduction and thus increased LDL clearance from the blood.

PEMT(rs7946): Phosphatidylethanolamine - N - methyltransferase (PEMT). PEMT is responsible for choline production in the liver and thus important for methylation, acetylcholine production, lipid transport out of the liver and may be associated with fatty liver disease.

PGC-1a(rs8192678): Peroxisome Proliferator - PPARGC1A regulates energy through production of mitochondria, fat and carbohydrate metabolism and conversion from fast to slow twitch muscle fibers.

PPAR-α(rs135549): Peroxisome proliferator-activated receptor alpha is a master regulator of lipid, carbohydrate and amino acid metabolism. PPAR-α is found primarily in brown adipose tissue and the liver, and, to a lesser extent, the kidneys, skeletal muscle, heart and both the small and large intestines. PPAR-α plays an essential role in the process of ketogenesis (the production of ketone bodies from the oxidation of fat, which typically occurs during carbohydrate restriction or fasting). Activation of PPAR-α promotes the uptake, utilization and catabolism of fatty acids by activating genes involved in fatty acid transport, binding, activation and oxidation. PPAR-α is activated primarily through the binding of polyunsaturated fatty acids. The G allele reduces activation and function of PPAR-a and leads to lipid abnormalities with high SFA and low PUFA intake.

PPAR-α(rs4253778): Peroxisome proliferator - activated receptor alpha. PPARa is a key regulator of carbohydrate and fat metabolism, helping muscle burn fuel during endurance work.

PPARG(rs1801282): Peroxisome proliferator - activated receptor gamma. PPARG activates genes that stimulate lipid uptake and adipogenesis by fat cells. It also stimulates insulin sensitivity in muscle cells and increases gluconeogenesis in the liver. People with the G allele have increased obesity and diabetes risk with high SFA diet and low PUFA and MUFA. PUFAs directly activate the PPARG expression.

HEALTH REPORT SUMMARY

GENOMIC GLOSSARY

PPARG(rs3856806): Peroxisome proliferator - activated receptor gamma. PPARG activates genes that stimulate lipid uptake and adipogenesis by fat cells. It also stimulates insulin sensitivity in muscle cells and increases gluconeogenesis in the liver. People with the G allele have increased obesity and diabetes risk with high SFA diet and low PUFA and MUFA. PUFAs directly activate the PPARG expression.

PPARGC1A(rs8192678): Peroxisome Proliferator - PPARGC1A regulates energy through production of mitochondria, fat and carbohydrate metabolism and conversion from fast to slow twitch muscle fibers.

RTEL1(rs755017): regulator of telomerase elongation helicase 1).

SH2B3(rs3184504): SH2B adaptor protein 3.

SLC01B1(rs4149056): Solute carrier organic anion transporter

SLC01B1(rs4363657): Solute carrier organic anion transporter

SLC23A1(rs10063949): Vitamin C Transporter. Risk of Crohn's, IBD.

SLC23A1(rs33972313): Vitamin C transporterintestional cells. Reduced function of primary Vitamin C transporter in intestines. Requires increased Vitamin C levels as well as focus on Glut 1 transporters which requires glucose for Vitamin C transport. Each A allele is associated with a 5 micromol/L reduction in Vitamin C serum levels.

SLC30A8(rs13266634): Zinc transporter protein member 8. Zinc transporter involved in the accumulation of zinc in the cell and related to insulin secretion and storage.

SOD2(rs4880): Super Oxide Dismutase 2. Associated with: Scavenging of free radicals in the cells, especially within the mitochondria. It is therefore an antioxidant protector of cellular health.

TCF7L2(rs7903146): Transcription Factor 7 - like 2. A cellular transcription factor influencing several genes related to glucose metabolism and thus associated with risk of diabetes.

TERT(rs2736100): telomerase reverse transcript as a part of Telomerase, an enzyme capable of lengthening telomeres.

TNF(rs1800629): Tumor Necrosis Factor. Tumor Necrosis Factor: A controller of immune cells and inflammation.

TRHR(rs16892496): Thyrotropin - releasing hormone receptor. TRHR (thyrotropin-releasing hormone receptor) helps to regulate metabolic rate, leading towards growth of lean body mass and release of stored fuel during exercise.

UCP1(rs1800592): Uncoupling protein 1. UCP1 is a protein found in mitochondria in brown fat and involved in thermogenesis and heat production. The risk allele is associated with reduced protein and thus reduced thermogenesis, heat production and resting metabolic rate. Thermogenesis may be improved by exercise and cold exposure.

VDR(rs731236): Vitamin D receptor. VDR reflects serum Vitamin D3 levels, which regulate calcium and phosphorus concentration, helping to support the immune system.

VEGF(rs2010963): Vascular endothelial growth factor. Associated with: New blood vessel growth to support exercise activities. Regular exercise and progressive training programs can create a 4-fold increase in levels of VEGF.

Vit D Binding Protein(rs2282679): Vitamin D Binding Protein. Vitamin D binding protein is important for transport of the inactive and active forms of Vitamin D to the tissues and organs.

VitDBindingProtein(rs7041): Vitamin D Binding Protein.