OWM Nutrition Genome

**Mood / Memory**

*Gene:*

5HT2A, homo/heterozygous

*Significance:*

Low Serotonin production- higher stress perception, IBS, depression and compromised episodic memory.

Include:

* Moderate intensity aerobic exercise
* Green or black tea
* Tryptophan, prebiotics, probiotics, B2, B6, B12, and folate
* Meditation
* Ginkgo biloba

Avoid:

* Minimize chronic stress
* poor gut flora
* high-dose lithium
* cannabis use
* excessive smartphone use

*Gene:*

FUT2 homozygous:

*Significance:*

Lower Gaba production: sleep/ calm hormone

Include:

*Lifestyle*

* Intermittent fasting
* Endurance exercise, yoga, meditation, deep sleep

*Nutrition*

* DHA, Green tea, Low glycemic diet

*Supplements*

* B6
* Taurine
* Mg
* Vitamin C
* Lithium
* Lion’s Mane Mushroom
* Acetylcholine
* Bifidobacterium longum
* Progesterone
* Healthy testosterone + estradiol

Avoid:

* Poor gut flora
  + Dramatically disrupts serotonin and GABA

*Gene*

GAD1: hetero and homozygous:

Significance

Lower GABA-sleep/calm hormone

Include:

*Lifestyle*

* Endurance exercise, yoga, meditation, deep sleep
* Intermittent fasting
* Healthy testosterone + estradiol

*Nutrition*

* DHA, Green tea, Low glycemic diet

*Supplements*

* B6, Taurine, Mg, Vitamin C, Lithium
* Lion’s Mane Mushroom
* Acetylcholine
* Bifidobacterium longum
* Progesterone, Turmeric

Avoid:

* Aspartame and MSG

*Gene*

**SHBG rs6258 women: hetero/homozygous**

*Significance:*

Associated with depression

Include:

*Lifestyle*

* Weightlifting

*Nutrition*

* Higher healthy fat intake

*Supplements*

* Magnesium
* Zinc
* Vitamin D
* Omega-3
* Boron

Avoid:

* high fructose, corn syrup, agave, crystalline fructose,

**Brain Health**

Gene

FAAH, Wild Type

*Significance*

Lower cannabinoid levels:

Higher anxiety and stress perception. Less “ blissful”

Include:

*Lifestyle*

* Endorphins 🡪 enhance cannabinoids
  + Running and biking >30 minutes
  + Strenuous hiking at high altitude
* Stress reduction techniques
  + Meditation, Yoga, Deep breathing

*Nutrition*

* Red clover tea (women)
* Kaempfero: **green leafy vegetables, including spinach and kale, and herbs such as dill, chives, and tarragon**
* Cacao
* Genistein: Soy milk, soy flour, soy protein isolates, textured soy protein, Tempe
* Echinacea tea
* 7-hydroxyflavone (parsley, onions, berries, tea, and citrus fruits)
* Beta-caryophyllene (cloves, rosemary, hops)

Avoid:

* Pesticides
* CBD oil
* Phthalates

*Gene*

BDNF heter/homozygous

*Significance*

Compromises neuroplasticity & cognitive function

Include:

*Lifestyle*

* Running
* Sauna

*Nutrients*

* Diet with low saturated fat
* DHA
* Green tea

*Supplements*

* Lithium
* Acetylcholine
* Bifidobacterium longum

Avoid:

Chronic stress

*Gene*

CYP2C9: heterzygous/homozygous

*Significance*

Poor THC metabolism

Avoid:

Avoid or minimize THC (especially edible and vegetable oils)

*Gene*

CYP2D6 hetero/homozygous

*Significance*

poor metabolizer for antidepressants

Avoid:

Antidepressants

*Gene*

ANKK1 heterozygous/ homozygous: low dopamine receptors.

*Significance*

Associated with addictive behavior , restlessness, compulsive eating, ADHD.

Include:

Lifestyle

* Meditation
* 8 hours of sleep
* High intensity exercise

Nutrition

* Fiber
* Omega 3 fatty acids,

Supplements

* Vitamin D
* Fish oil

Avoid:

* High media exposure
* Refined sugar
* Low iron
* Elevated lead levels

*Gene*

DI02, homozygous

*Significance*

Associated with mild hypothyroidism in the brain and potential link to bipolar disorder

Include:

*Supplements*

* Selenium
* Zinc

*Gene*

FADS2 hetero/homozygous

*Significance*

Omega3 needed for cognition and mood

Include:

*Supplements*

* Animal based EPA and EHA

*Gene*

HNMT, Wild Type

*Significance*

Poor histamine clearance due to food dyes and preservatives

Include:

*Nutrients*

* *Fennel*
* *Ginger*
* *Wild oregano*
* *Egg yolk*
* *Chamomile tea*
* *Basil*
* *Echinacea tea*

*Supplements*

* Vitamin C
* Choline
* Folate
* Mg
* Stinging nettle

Avoid:

Food dyes and sodium benzonate

*Gene*

MTHFR:

**1298** Homozygous

H667 Heterozygous

677/1298 homozygous

677/1298 heterzygous

*Significance*

* + Associated with mental health due to low levels of serotonin, melatonin, dopamine, NE, and epi

Include:

* methyl folate helps NO2 production for cognitive function
* Methyl folate,
* Vit C, Selenium,
* Mg, B6,
* L-arginine
* BH4 supplement

Avoid

* High protein diet due to methionine sensitivity
* PPIs
* OCPs
* NSAIDS
* Antibiotics

NBPF3, hetero/homozygous: poor B6 processing

Associated with anxiety, anorexia, PMS, depression, anxiety

Include:

B6 supplement

Avoid:

Minimize sugar, stress, alcohol, refined carbohydrates, antibiotics, and OCPs

*Gene*

NOS1 Homo/heterozygous

*Significance*

depression. Increased stress

Include:

* Carotenoids, polyphenols, and DHA
* BH4 supplement

*Gene*

NOS2 Homo/ heterozygous

*Significance*

depression. Increased stress

Include:

* L-arginine, seaweed, whey protein, cordyceps

*Gene*

*PEMT, hetero/homozygous*

Associated anxiety, poor memory

Include:

* Betaine and choline
* Vitamin C

Avoid:

* nighttime pain relievers, antihistamines, sleep aids, antidepressants, incontinence drugs, and narcotic pain relievers

**Heart Health**

*Gene*

9P21

*Significance*

Higher incidence of heart disease and heart attacks

Include:

* Increase intake of fruit and vegetables

*Gene*

ACE1 wild type

*Significance*

Blood pressure dysregulation due to poor saturated fat processing

Include

*Nutrients*

* bilberry, grapes, allicin (raw garlic), cinnamon, and jasmine

Lifestyle

* Total fat intake below 37%
* Limiting saturated fat to 22g per day

Supplements

* Potassium
* Vitamin D
* Resveratrol
* Curcumin

Avoid:

* Minimize high saturated fat diet over 37% of total calories

*Gene*

ACE2 Homozygous

*Significance*

Blood pressure dysregulation due to poor saturated fat processing

Include:

* Potassium
* Vitamin D
* Resveratrol
* Curcumin

Avoid:

* Minimize smoking and a high saturated fat diet of over 50% of total calories

*Gene*

CYP2R1

*Significance*

Higher need for optimal vitamin D levels for heart disease prevention

Include

* Vit D levels between 60-80

*Gene*

ADIPOQ Hetero/homozygous

*Significance*

higher risk of heart disease

Include:

Nutrients

* Coffee, blueberries, mulberries, cranberries, raw almonds, strawberries, chili peppers, and ginger, rose hips

Supplements

* curcumin
* berberine

Avoid:

* Avoid red meat and processed meat

*Gene*

AGTR1 Homozygous MEN

*Significance*

Higher BP and high fat diet

Include:

Lifestyle

* Decreasing overall fat intake
* Improve Nitric Oxide: Nose breathing,

Nutrients

* phytoestrogens found in hummus, peanuts, miso soup, tahini sauce, and cruciferous vegetables

Supplements

* Beet Root extract wafers

Avoid:

High fat diets

Gene

AGTR1 WOMEN

Significance

Higher BP and high fat diet

Include:

Nutrients

* Increasing vitamin C, folate
* leafy green vegetables

Supplements

* L-arginine, magnesium, Vitamin D, DHA,

Avoid:

High fat diets

*Gene*

FADS2 hetero/homozygous

*Significance*

Critical in CV health

Include

Nutrients

* Animal based EPA and EHA
* Omega-3 fatty acids 🡪 most important dietary measures for CV health

Supplements

* Fish oil

*Gene*

**MTHFR** 677/1298 homozygous

*Significance*

**associated with high homocysteine – cardiovascular inflammation/ spasm**

Include:

* Methyl folate,
* Vit C, Selenium,
* Mg, B6,
* L-arginine
* BH4 supplement

Avoid

* High protein diet due to methionine sensitivity
* PPIs
* OCPs
* NSAIDS
* Antibiotics

*Gene*

MTHFR A128C

1298/677 heterozygous

*Significance*

elevated homocysteine levels associated with blood vessel inflammation and heart attacks

Include

* Methyl folate
* B2

Avoid

* Aspartame
* Chronic stress
* Folic acid
* High protein diets

*Gene*

NOS3, homo/heterozygous

*Significance*

poor control blood pressure, atherosclerosis

Include:

Nutrients

* seaweed

Supplements

* L-arginine,
* Cordyceps
* whey protein

*Gene*

SOD3 r213G, hetero/homozygous

*Significance*

Superoxide dismutase dysfunction, reduced ability to reduce inflammation in the blood vessels

Include:

* Zinc:Copper 8:1-12:1
* Choline (protect cell membrane)
* Vitamin C and Vitamin E
* CoQ10
* Carotenoids

*Gene*

VOKRC1\*2, homo/heterozygous

*Significance*

Associated with arterial calcification

Include:

Nutrients

* + MK7 found in natto, certain cheese, and goose liver

Supplements

* MK7

Avoid:

* long-term use of anticoagulants and statin drugs

**Hormones:**

*GENE*

SHBG rs6258 MEN, hetero/homozygous

*Significance*

high fructose intakelowers testosterone

Include:

*Nutrients*

* Omega-3

*Supplements*

* Magnesium
* Zinc
* Vitamin D
* Fish oil
* Boron

*Life style*

* Higher healthy fat intake
* Weightlifting

Avoid:

* high fructose, corn syrup, agave, crystalline fructose

*GENE*

SHBG rs6258 women, hetero/homozygous

*Significance*

high fructose intakelowers estrogen levels

Include:

*Nutrients*

* Omega-3

*Supplements*

* Magnesium
* Zinc
* Vitamin D
* Fish oil
* Boron

*Life style*

* Higher healthy fat intake
* Weightlifting

Avoid:

* high fructose, corn syrup, agave, crystalline fructose

**Gut Health:**

*Gene*

BCMO1 hetero/homozygous

*Significance*

Associated with digestive lining repair, oral health, eye health, iron mobilization, mitochondrial health, skin health, lung function, and lowering immunity

Include:

Vitamin A

*Gene*

FTO homozygous:

*Significance*

Associated with increased appetite and over eating

More prone to obesity from saturated fat

Include:

*Lifestyle*

* Breakfast: protein and fiber-rich carbohydrates (especially pre-biotic fiber) = most effective at suppressing ghrelin levels throughout the day
* 7-8 hours of sleep per night
* High-intensity or >1-hour aerobic exercise

Nutrients

* Prebiotic fiber
* Poly and monosaturated fats

Supplements

* Vitamin D
* Bifidobacterium probiotic

Avoid:

* Minimize poor sleep
* refined carbohydrate breakfast
* high saturated fat intake

*Gene*

HLADQ2.5/ HLADQ8heterozygous/ homozygous

*Significance*

Associated with celiac disease

Avoid:

Gluten if testing positive for celiac

*Gene*

SOD2 homozygous

*Significance*

associated with colitis

Include:

Supplement

* Lactobacillus

*Gene*

TCN2, homozygous

*Significance*

Associated with ulcerative colitis

Include:

Supplement

* Lithium

Avoid:

* High B12 blood levels

**Master metabolism gene**

*Gene*

Apoe: E3/3

*Significance*

* Most common ApoE in agricultural communities
* Extended cognitive fitness and enhanced expression of anti-aging sirtuins
* Improved HDL and LDL profile
* Improved ability to repair synapses and neural protection
* Higher viral protection

*Gene*

Apoe e2/3, e2/2

*Significance*

* 7.2% of the world population
* Newest ApoE variant
* More protective against cognitive decline and heart disease
* Greater probability of survival to an advanced age

*Gene*

Apoe e4, e3/4, E4/4

*Significance*

Associated with Alzheimer’s, Parkinson’s, Huntington’s, depression, bipolar, migraines, and anxiety

Oldest hunter-gatherer allele

Include:

*Lifestyle*

* Hunter gatherer diet
  + focuses on neural repair and preservation
  + Animal based protein, Creatinine, polyphenols, diversified plant fiber, nuts, seeds, antioxidants, high potassium, low salt, low carbohydrates
  + Modified version: Low carb, may include alcohol and dairy
* 30 min cardio 5x / week
* 8 hours sleep
* Intermittent fasting (13-16 hours)

*Supplements*

* Promote neurite outgrowth: Lion’s mane mushroom, reishi, tiger milk mushroom, Ganoderma neo-japonicum, and Cordyceps militaris
* Vitamin B, C, E 🡪 improved memory
* Selenium, Lithium
* Phospholipid-based EPA and DHA instead of fish oil
* Ashwagandha, Polyphenols (piceatannol, fisetin, querecetin, and resveratrol)

Avoid:

Mediterranean diet, Alcohol

**Stress Response:**

*Gene*

ADRB2 Increased adrenaline production

*Significance*

Elevated stress response, associated with IBS, anxiety, chest pains,

Include:

*Lifestyle*

* Deep breathing methods( box breathing),
* Stress reduction techniques( meditation, Brain Spa by OWM, yoga)

*Supplements*

* Adaptogens( Ashwagandha, Cordyceps, Reishi)
* Magnesium
* Vitamin C

Gene

COMT FAST

Significance

* Fast metabolizer of estrogen, dopamine and adrenaline
  + Better response to high pressure situations with the ability to be more emotionally resistant and calm in a crisis
  + Thrive in response to certain stressors with enhanced cognitive performance due to elevation of dopamine and adrenaline
  + Perform well on tasks demanding cognitive flexibility, but not demanding focused attention
  + Lower dopamine can affect executive function and problem-solving abilities

Include:

*Lifestyle*

* + High-intensity exercise, low media exposure
  + Meditation
  + Balanced Blood Sugar,

*Nutrients*

* Increasing catecholamine intake
  + Coffee, black tea, green tea, red wine, chocolate, citrus, bananas, berries, vanilla 🡪 slow down enzyme
  + Fiber

*Supplements*

* + Vit D, Omega-3-Fatty Acid

Gene

COMT Intermediate

*Significance*

* Intermediate metabolizer of dopamine, estrogen and adrenaline: Body may overreact to stress and pressure : Associated with anxiety, depression, impulsiveness, obsessive behavior, irritability, ADHD, and abnormal behavior

Include:

*Lifestyle*

* + Weight training and sprint-based activities Weight training and sprint activities 🡪 increase testosterone 🡪 COMT speeds up and calms the brain by assisting dopamine, adrenaline, and estrogen metabolism

*Nutrition*

* Medium to low catecholamine intake
  + 1-2 cups of coffee or green tea

*Supplements*

* Vitamin C
* Magnesium
* Copper

*Gene*

COMT SLOW:

*Significance*

* Slow metabolizer of dopamine, estrogen, adrenaline

Higher IQ, creativity, better memory, drive, reading comprehension, and overall cognitive function

Body overreacts to stress 🡪 Anxiety impulsiveness, obsessive behavior, irritability (especially under stress), ADHD, abnormal behavior

*Include*

Lifestyle

* Lower dosages of catecholamines, quercetin, resveratrol … “Less is more”
* Weight training and sprint activities 🡪 increase testosterone (speeds up COMT) and calms brain by assisting dopamine, adrenaline, and estrogen metabolism
* Low fiber
* Eliminate xenoestrogen exposure

*Nutrients*

* Green tea for breast cancer protection (retaining polyphenols longer)

*Supplements*

* Magnesium
* Vitamin C
* Balanced Copper

**Tissue/ Genetic function and repair :**

*Gene*

ACTN3 Homozygous

*Significance*

Fewer type 2 fast twitch. Higher muscle damage

Include:

*Lifestyle*

* More rest days
* Cold therapy post-workout
* Hamstring and ankle strengthening

Avoid:

* Heavy training without enough recovery days

*Gene*

COL1A1 Wild Type

*Significance*

Slower collagen repair / turn over

*Lifestyle*

* Cryotherapy

*Supplements*

* Vitamin C and **B6**
* Zinc, Copper
* Glycine, proline, lysine

Poor processing capacity of betablockers, antidepressants and opioids.

Lower Vo2Max( tissue oxygenation)

* Ashwagandha
* Eluethero root
  + Adapten-All supplement contains both
* Cold exposure

*Gene*

COQ2 homozygous

*Significance*

Associated with statin induced myopathy

Include:

*Supplements*

* CoQ10

Avoid:

* Statins

*Gene*

DHFR hetero/homozygous:

*Significance*

Associated with Folic acid sensitivity. Decreased gene repair function

Include:

*Supplements*

* Methyl folate

Avoid:

* Folic acid

*Gene*

F5 heter/homozygous

*Significance*

Increased incidence of blood clots

Include:

*Supplements*

* Vitamin E supplement
* Omega-3s (natural anticoagulant)

Avoid:

* Avoid NuvaRing and OCPs

*Gene*

PPARGC1A, heter/homozygous

*Significance*

Associated with lower VO2 Max-poor tissue oxygenation, lower life-span

Include:

*Lifestyle*

* Cold exposure

*Supplements*

* Ashwagandha
* Eluethero root

*Gene*

**SCL23A1, homo/heterozygous:** Associated with higher Vitamin C requirements for collagen formation and recovery.

Include:

*Supplements*

* Vitamin C supplement

Avoid:

* Minimize smoking, excess alcohol,
* sugar,
* antibiotics,
* cortisone, aspirin,
* environmental toxins
* heavy metals
* chemotherapy

Gene

SIRT1,homo/heterozygous when associated with APOE e4

*Significance*

Reduced genetic repair

Include:

*Lifestyle*

* Regular exercise
* Weight loss

*Supplements*

* NAD supplement

*Gene*

CYPR21 heter/homozygous

*Significance*

Associated with Vit D deficiency linked to muscle weakness, suboptimal muscle function, and stress fractures

Include:

*Lifestyle*

* Keep vitamin D levels between 60-80

*Supplements*

* *Vitamin D*

**Immune System:**

*Gene*

GPX1

*Significance*

Associated with Hashimoto’s

Include:

*Lifestyle*

* Cold immersion post workout

*Supplements*

* Supplemental Selenium

Avoid

* selenium deficiency, statin drugs, iron deficiency, and excess heat exposure

*Gene*

PPCDC, heter/homozygous

*Significance*

Reduced immune function

Include:

*Supplements*

* Zinc

*Gene*

SELENBP1, hetero/homozygous

*Significance*

Associated with low immunity

Include:

*Supplements*

* Copper supplement

**General Inflammation :**

*Gene*

**CAT heterozygous/homozygous:**

*Significance*

Poor processing of oxidative stress( cellular inflammation) from environmental toxins, plastics, etc.

Include:

*Lifestyle*

* Deep breathing relaxation techniques (yoga, meditation, prayer) 🡪 assist catalase
* Monitor iron levels

*Nutrients*

* higher need for flavonoids, selenium, ginger, cumin, anise, fennel, caraway, cardamom
* Boron, lutein, holy basil

*Supplements*

* Lion’s Mane mushroom

Avoid:

Oxidative stress

BPA plastic

*Gene*

CTH, homozygous

*Sigificance*

Poor Glutathione production- lower antioxidant capacity- higher need for precursor Cysteine.

Include:

*Nutrients*

* Animal foods (because they’re high in cysteine)( lean cuts only due to poor saturated fat processing)

*Supplements*

* Lutein
* Zeaxanthin
* Bilberry
* Lingonberry
* Vitamin C & Vitamin E Supplements
* DHA
* Zinc

*Gene*

*MTHFR 1298 Homozygous*

*Significance*

Higher need for folate for healthier Nitric Oxide production( inflammation reduction, blood pressure control, brain function, and cancer protection)

Include:

Supplements

* Methyl folate
* Vit C
* Selenium
* Mg
* B6
* L-arginine
* BH4 supplement Mood Assist from OWM

Gene

MTHFR 667 homo/heterozygous

*Significance*

Higher need for folate for healthier Nitric Oxide production( inflammation reduction, blood pressure control, brain function, and cancer protection)

Include:

Supplements

* Methyl folate
* Vit C
* Selenium
* Mg
* B6
* L-arginine
* BH4 supplement Mood Assist from OWM

Gene

ABCG2

*Significance*

Poor uric acid processing: Associated with higher risk for gout

Include:

*Lifestyle*

* Hydration, Cold Immersion,

*Nutrients*

* bioflavonoids, anthocyanins, flavonoids, olive oil, vitamin C

*Supplements*

* *Vitamin C*

Avoid: Minimize sugar, high fructose corn syrup, dehydration, high lead levels

*Gene*

**APB1 ( DAO) Homozygous**

*Significance*

Excessive histamine release- poor gut histamine break down

Associated with histamine-related digestive disorders, nasal congestion, headaches, anxiety, arrhythmia, HTN, diarrhea, urticaria

Associated with migraines

Include:

*Nutrients*

* Vitamin C
* Choline
* folate
* chamomile tea
* basil
* echinacea tea
* fennel, ginger, wild oregano

Supplements:

* Magnesium
* Stinging nettle and Vitamin C( D-Hist supplement)

Avoid :

* NSAIDs
* aged foods/drink
* poor gut flora
* Antidepressants
* H2 blockers, antihistamines,
* antiarrhythmics

*Gene*

CBS ( B6) Homo/heterozygous

*Significance*

Associated with elevated Ulcerative colitis, Alzheimer’s, cardiovascular inflammation

Include:

*Supplements*

B6

Avoid:

* Minimize antibiotics
* BCP
* ACE inhibitors
* antacids, PPI,
* hormone replacement therapy, estradiol
* MAO inhibitors, St. John’s Wort

*Gene*

\*\*GPX1 Homozygous:

Significance

Lower glutathione- lower protection against oxidative stress of mitochondria

Include:

Lifestyle

* HIIT training
* Optimal testosterone and estrogen levels
* Cold exposure

*Nutrients*

* Herbs, spices

*Supplements*

* Melatonin
* Vitamin C and Vitamin E

*Gene*

HFE Homozygous

*Significance*

**A**ssociated with hemochromatosis

Include :

*Lifestyle*

* Cold therapy

*Nutrients*

* Low iron diet

Avoid:

* Vitamin C with meals
* Alcohol with meals

*Gene*

**IL6 Wild Type**

*Significance*

Targets muscle inflammation and accelerated muscle breakdown

Include:

Supplements

* Whey protein

**DIET:**

*Gene*

PPAR Alpha, homo/heterozygous

*Significance*

Inability to go into ketosis

Include:

*Lifestyle*

* Lower fasting times
* Consistent intake of foods that stimulate the PPAR-alpha gene
* 3 meals and snacks throughout the day
* Decreasing saturated fat and increasing polyunsaturated fats,

*Nutrients*

* astaxanthin, pterostilbene
* genistein
* tomatoes
* cinnamon

*Supplements*

* zinc
* Lion’s Mane

**Inflammation and Cancer :**

*Gene*

CYP2E1 homo/heterozygous

*Significance*

Higher association with colon cancer

Include:

*Nutrients*

* Garlic, Watercress, Ellagic acid, Dandelion
* Green tea

*Supplements*

* Vitamin C
* N-acetyl cysteine
* MCT oil

Avoid

* Minimize benzene, sodium benzoate
* fried foods

*Gene*

**CYP2R1 homo/heterozygous Men**

*Significance*

Higher need for Vitamin D as protection against prostate cancer

Include:

*Lifestyle*

* Keep D levels between 60-80

*Supplements*

* Vitamin D

*Gene*

**CYP2R1 homo/heterozygous Women**

*Significance*

Higher need for Vitamin D as protection against breast cancer

Include:

*Lifestyle*

* Keep D levels between 60-80

*Supplements*

* Vitamin D

*Gene*

CYP3A4 homo/heterozygous Men

*Significance*

*Estrogen metabolism*

*Associated with prostate cancer*

Include:

*Lifestyle*

* *Infrared sauna*
* *Meditation*

*Nutrients:*

* *Cruciferous vegetables*

*Supplements:*

* *FemGuard plus Balance supplement*
* *CDG estrodim supplement*

Avoid*:*

* Minimize drugs that inhibit CYP3A4 and grapefruit juice combinations

*Gene*

**ESR2 Men homo/heterzygous**

*Significance*

Higher sensitivity to estrogen-higher risk of prostate cancer

Include:

*Nutrients*

* Apigenin (e.g., celery, parsley)
* phytoestrogens (berries, beans, and sourdough bread)

Avoid:

* Minimize obesity, BPA, plastic, atrazine, dioxins, phthalates

*Gene*

**ESR2 Women homozygous**

*Significance*

Higher sensitivity to estrogen-higher risk of breast cancer

Include:

*Nutrients*

* Apigenin (e.g., celery, parsley)
* phytoestrogens (berries, beans, and sourdough bread)

Avoid:

* Minimize obesity, BPA, plastic, atrazine, dioxins, phthalates

Higher association with colon and lung cancer:

* Diet rich in antioxidants and vitamins (especially folate)

*Gene*

ADIPOQ Hetero/homozygous Colon cancer

*Significance*

Higher risk of colon cancer

Include:

*Nutrients*

* Coffee, blueberries, mulberries, cranberries, raw almonds, strawberries, chili peppers, and ginger, rose hips,

*Supplements*

* Curcumin
* berberine

Avoid:

* Avoid red meat and processed meat

*Gene*

ADIPOQ Hetero/homozygous Breast cancer

*Significance*

Higher risk of breast cancer

Include:

Lifestyle

* Swimming 4x/week

*Nutrients*

* Coffee
* blueberries, mulberries, cranberries
* raw almonds, strawberries
* chili peppers, and ginger, rose hips,
* Omega 3

*Supplements*

* Curcumin
* Berberine
* Fish oil
* 750mg Ginger
* Rose hip extract ( 1mg)

Avoid:

* Avoid red meat and processed meat

*Gene*

CAT heterozygous/homozygous:

*Significance*

Impaired reduction of oxidative stress( inflammation in the cell)

Highest correlation to prostate, breast, liver, and blood cancer

Include:

*Lifestyle*

* Deep breathing relaxation techniques (yoga, meditation, prayer) 🡪 assist catalase
* monitoring iron levels

*Nutrients*

* higher need for flavonoids
* ginger, cumin, anise, fennel, caraway, cardamom

*Supplements*

* Lion’s Mane mushroom,
* Boron
* Lutein
* holy basil
* Selenium

Avoid:

* Minimize Oxidative stress
* BPA plastic

*Gene*

CYP181 L432V estrogen metabolismWild type (GG):Men

*Significance*

Associated with elevated 4-hydroxyestradiol, potentially cancerous growth prostate

Include:

*Nutrients*

* Rooibos tea
* Celery
* Parsley

*Supplements*

* Quercetin
* Resveratrol

Avoid:

* Dioxins
* OCPs, cigarette smoke
* burning coal and vegetable oils

*Gene*

CYP181 L432V estrogen metabolismWild type (GG):Women

*Significance*

Associated with elevated 4-hydroxyestradiol, potentially cancerous growth breast

Include:

*Nutrients*

* Rooibos tea
* Celery
* Parsley

*Supplements*

* Quercetin
* Resveratrol

Avoid:

* Dioxins
* OCPs, cigarette smoke
* burning coal and vegetable oils

*Gene*

**CYP1A1 heterozygous/homozygous Men**

*Significance*

Associated with prostate cancer, and lung cancer

Include:

*Nutrients*

Iodine

Green tea

*Supplements*

Resveratrol

Avoid:

* Minimize cigarettes, burning coal, and vegetable oils

*Gene*

**CYP1A1 heterozygous/homozygous Women**

*Significance*

Associated with breast cancer, and lung cancer

Include:

*Nutrients*

Iodine

Green tea

*Supplements*

Resveratrol

Avoid:

* Minimize cigarettes, burning coal, and vegetable oils

*Gene*

CYP1A2 wild/ heterozygous: Women

*Significance*

Determines if an individual is slow, intermediate metabolizer of caffeine

* + - Oral contraceptives prolong caffeine half-life (6.2 hours to 10.7 hours)
    - Elevated fasting blood sugar from caffeine
    - Over 4 cups of coffee may lower bone density in males
    - Increased risk of nonfatal heart attacks
    - Protective with BRCA variants
    - Improved performance with caffeine for long duration events

Avoid

OCPs

*Gene*

CYP1A2 wild/ heterozygous: Men

*Significance*

Determines if an individual is slow, intermediate metabolizer of caffeine

* + - Elevated fasting blood sugar from caffeine
    - Over 4 cups of coffee may lower bone density in males
    - Increased risk of nonfatal heart attacks
    - Improved performance with caffeine for long duration events

*Gene*

CYP1A2 MEN

Fast : homozygous

Coffee more protective against prostate cancer with increased survival

Associated with improved performance with caffeine for events under 1 hour

Avoid

Minimize charred and fried meat, dioxins, nitrates

*Gene*

CYP1A2 Women

Fast : homozygous

*Significance*

Coffee more protective against ER-positive breast cancer with increased survival

Associated with improved performance with caffeine for events under 1 hour

Avoid

Minimize charred and fried meat, dioxins, nitrates

*Gene*

CYP1B1 L432V wild type Women

Significance

Elevated 4-hydroxyestradiol, potentially cancerous growth for the breast and prostate

Include:

*Nutrients*

* Rooibos tea
* Celery, parsley,

*Supplements*

* Quercetin
* resveratrol

Avoid:

* Minimize high dose biotin, dioxins

*Gene*

CYP1B1 L432V wild type Men

Significance

Elevated 4-hydroxyestradiol, potentially cancerous growth for prostate

Include:

*Nutrients*

* Rooibos tea
* Celery, parsley,

*Supplements*

* Quercetin
* resveratrol

Avoid:

* Minimize high dose biotin, dioxins

*Gene*

CYP2C19 heterozygous/ homozygous

*Significance*

Lower overall estrogen due to fast break down

Lower ER positive breast cancer

DI01 Wild Type:

*Significance*

Associated with higher conversion of T4 to T3, hyperthyroid.

Associated with pre-eclampsia, lung cancer, breast cancer, glioblastoma

Associated with blood clots

Include:

*Supplements*

* Zinc/ Selenium

Avoid :

* Organochlorine pesticides

Gene

FADS2, hetero/homozygous Men

*Significance*

Omega-3 Fatty Acids processing.

Low levels are associated with prostate cancer.

Include:

*Nutrients*

* Animal based EPA and EHA
* Omega-3 fatty acids

*Supplements*

* *Fish oil*

Avoid:

High Omega 6

Gene

FADS2, hetero/homozygous Women

Omega-3 Fatty Acids processing.

Low levels are associated with breast cancer.

Include:

*Nutrients*

* Animal based EPA and EHA
* Omega-3 fatty acids

*Supplements*

* Fish oil

Avoid:

High Omega 6

*Gene*

GATA3 Heter/homozygous

*Significance*

Associated with lower first line of defense immune T cell production and tumor suppressor gene- Related to colon cancer for those eating processed meat compared to those with a normal genotype

Avoid :

Processed meat

*Gene*

GSTM1 Wild Type( Null)

*Significance*

High frequencies in patients with lung cancer, breast cancer, bladder cancer, colorectal cancer, skin cancer

Include:

*Nutrients*

* Cruciferous vegetables
* Green tea and white tea

*Supplements*

* Vitamin C, A, and E
* Resveratrol
* Curcumin

Avoid:

* smoking, burning wood or trash, asphalt, coal, diesel, exhaust, gas cooking, dioxins, and grilled or charred meat

GSTP1 rs 1695 Homozygous MEN

*Significance*

Associated with prostate, urinary, esophagus, and skin cancer

Include:

*Supplements*

* Glutathione precursors,
* Holy Basil,
* Alpha Lipoic Acid
* Vitamin C,
* Vitamin E,
* Magnesium

Avoid:

* Glyphosates
* High mercury and cadmium levels

GSTP1 rs 1695 Homozygous Women

*Significance*

associated with breast, urinary, esophagus, and skin cancer

Include:

*Supplements*

* Glutathione precursors,
* Holy Basil,
* Alpha Lipoic Acid
* Vitamin C,
* Vitamin E,
* Magnesium

Avoid:

* Glyphosates
* High mercury and cadmium levels

*Gene*

MLH1Homozygous

*Significance*

Associated with colon cancer, endometrial cancer, glioblastoma, and lung cancer

Include:

Nutrients

* Diet rich in antioxidants and vitamins (especially folate)

Supplements

* Methylfolate

Avoid:

* Minimize high fructose corn syrup, artificial sweeteners, MSG, caramel coloring, and other food dyes, phosphoric acid, sodas, sugar, white flour, and corn oil

Gene

MTR/MTRR ,homozygous:

*Significance*

Generally associated with cancer

Include:

*Supplements*

* Betaine
* Choline
* B6
* B12
* Folate

Avoid:

* Minimize excess alcohol excess.
* sugar
* anesthesia
* BC
* heavy metals
* Antacids
* Antibiotics
* proton pump inhibitors
* Metformin
* Anticonvulsants
* psychiatric medications
* yeast overgrowth

Gene

NAT2, homozygous: Men

Significance

poor clarence of carcinogens from smoke

Associated with breast, bladder, and prostate cancer

Include:

Nutrition

* Cruciferous Vegetables
* Unfiltered fermented drinks
* Meat and fish marinades
* Parsley

Supplements

* Vitamin C

Avoid:

smoking, commercial hair dyes, industrial and manufacturing plants, charred meat, and diesel exhaust

Gene

NAT2, homozygous: Women

Significance

poor clarence of carcinogens from smoke

Associated with breast, bladder cancer

Include:

Nutrition

* Cruciferous Vegetables
* Unfiltered fermented drinks
* Meat and fish marinades
* Parsley

Supplements

* Vitamin C

Avoid:

smoking, commercial hair dyes, industrial and manufacturing plants, charred meat, and diesel exhaust

Gene

SOD2 ,Homozygous

*Significance*

aggressive prostate cancer

Include:

*Lifestyle*

* Cryotherapy
* Reverse osmosis water filters

*Nutrients*

* Red fruit and vegetables
* Lutein, Zeaxanthin, Carotenoids

*Supplements*

* Manganese
* Vitamin A, C, + E,
* Omega-3, Fatty Acids
* Cordyceps
* Reishi help protect mitochondria
* Boron
* Holy Basil

Avoid:

* Minimize low lycopene intake
* Heavy training without enough recovery days

Gene

TMPRSS2, homozygous

*Significance*

prostate cancer

Include:

*Nutrients*

* Lycopene- red fruits and vegetables
* Phytoestrogens: soy beans, tofu, tempeh, soy beverages, linseed (flax), sesame seeds, wheat, berries, oats, barley, dried beans, lentils, rice, alfalfa, mung beans, apples, carrots, wheat germ, ricebran, and soy linseed bread

*Supplements*

* Curcumin

Avoid

* Smoking

*Gene*

Tp53, homo/heterozygous

*Significance*

Tumor suppression gene suppression

Include:

*Supplements*

* Vitamin C
* Niacin
* Reishi
* Zinc
* Selenium

Avoid

* + Excessive sun exposure in females

*Gene*

VOKRC1\*2, homo/heterozygous:

*Significance*

breast cancer risk

Include:

*Nutrients*

* + MK4 found in pastured eggs, grass-fed butter, meat, and numerous cheeses

*Supplements*

* Vitamin K2 MK4

Avoid:

* Minimize long-term use of anticoagulants and statin drugs

***Cholesterol / Glucose Management/ metabolic syndrome***

*Gene*

ACLSL1: Wild Type

*Significance*

Elevated glucose and insulin due to poor saturated fat processing:

Include:

Nutrients

* Monosaturated or polyunsaturated fats to replace saturated fat

*Supplements*

* Fishoil
* Algae EPA/DHA

Avoid:

Fat intake of greater than 35% of total calories

*Gene*

APOA2 GENE: Homozygous

*Significance*

increased cholesterol due to poor saturated fat processing

Include:

*Lifestyle*

* Standing desks / constant movement 🡪 stimulate LPL

*Nutrients*

* Less than 22g of saturated fat per day

Avoid:

* Minimize Saturated fat (mainly from dairy)
* sedentary lifestyle

*Gene*

MTNR18 homo/heterzygous

Glucose effected by meal timing through melatonin metabolism:

Include:

*Lifestyle*

* Dinner before 7pm
* No late night snacks
* Breakfast after 7:30am

Gene

ADIPOQ Hetero/homozygous:

*Significance*

higher levels of obesity, insulin resistance

Include:

*Nutrients*

* Coffee
* blueberries, mulberries, cranberries, raw almonds, strawberries, chili peppers, and ginger, rose hips,

*Supplements*

* curcumin, berberine

Avoid:

* Avoid red meat and processed meat

Gene

FTO: Homozygous

*Significance*

Associated with overeating, obesity from saturated fat intake

Include:

*Lifestyle*

* 7-8 hours of sleep per night
* High-intensity or >1-hour aerobic exercise

*Nutrients*

* Breakfast: protein and fiber-rich carbohydrates (especially pre-biotic fiber) = most effective at suppressing ghrelin levels throughout the day
* Prebiotic fiber and bifidobacterial
* If prone to overeating + abdominal weight gain, decrease saturated fat intake & increase polyunsaturated fat intake

*Supplements*

* Vitamin D

Avoid:

* Minimize poor sleep
* refined carbohydrate breakfast, high saturated fat intake

*Gene*

LP(a) Homo/heterozygous

*Significance*

increases plaque growth and formation

Include:

*Supplements*

* L-Carnitine
* Niacin

Gene

PPAR-Alpha, homo/heterozygous

*Significance*

Altered fatty acid metabolism causing altered lipid metabolism

Include

*Nutrients*

* Increasing poly and monounsaturated fats
* astaxanthin, pterostilbene, genistein
* tomatoes
* cinnamon
* Gynostemma tea

*Supplements*

* PPAR-Alpha agonist drugs
* Lion’s Mane mushroom
* L-carnitine
* Zinc

Avoid:

Saturated fat

SHBG rs women, homo/heterozygous

*Significance*

Alters estrogen levels and increases insulin and obesity

Include:

Lifestyle

* Cardio exercise

Nutrients

* Low-fat
* high-fiber diet

Gene

TC7FL2, hetero/homozygous:

*Significance*

strongest indicator of type 2 diabetes

Include:

*Nutrition*

* higher protein intake
* Omega 3s
* Dark Coffee
* Healthy microbiome
  + Fermented products

*Supplements*

* Cordyceps
* Fish oil

Avoid:

* Sugar
* Refined carbs