NutriGen™

Professional Nutrigenomic Advice

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Fagron genomics us

Disclaimer

METHODOLOGY AND LIMITATIONS: Testing for genetic variation/mutation on listed genes was performed using RealTime PCR with TaqMan® allele-specific probes on the QuantStudio 12K Flex. All genetic testing is performed by GX Sciences, 807 Las Cimas Pkwy, Suite 145, Austin TX, 78746. This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Test results do not rule out the possibility that this individual could be a carrier of other mutations/variations not detected by this gene mutation/variation panel. Rare mutations surrounding these alleles may also affect our detection of genetic variations. Thus, the interpretation is given as a probability. Therefore, this genetic information shall be interpreted in conjunction with other clinical findings and familial history. Patients should receive appropriate genetic counseling to explain the implications of these test results. The calculations and supplement recommendations presented in this report are not suitable for children under the age of 16. The analytical and performance characteristics of this laboratory developed test (LDT) were determined by GX Sciences' laboratory pursuant to Clinical Laboratory Improvement Amendments (CLIA) requirements. CLIA #: 45D2144988 Laboratory Director: James Jacobson, PhD DISCLAIMER: This test was developed, and its performance characteristics were determined by GX Sciences. It has not been cleared or approved by the FDA. The laboratory is regulated under CLIA and qualified to perform high-complexity testing. This test is used for clinical purposes. It should not be regarded as investigational or for research. rsIDs for the alleles being tested were obtained from the dbSNP database. DISCLAIMER: Report contents and report recommendations are created based on the consultation, advice, and direction of Dr. Kendal Stewart, Medical Director for GX Sciences. Sole responsibility for the proper use of the information on the GX Sciences report rests with the user, or those professionals with whom the user may consult. Report contents and report recommendations are intended to be informational only. Report contents and report recommendations are not intended and should not be interpreted to make claims regarding the use, efficacy, or safety of products, formulas, and/or services listed herein. Only a doctor or other appropriately licensed health care professional, as a learned intermediary, can determine if a formula, product, or service described herein is appropriate for a specific patient. Sole responsibility for the proper use of the information on the GX Sciences report rests with the user, or those professionals with whom the user may consult. DISCLAIMER: These products are not approved by the Food and Drug Administration and are not intended to diagnose, treat, cure, or prevent disease. These recommendations are for informational purposes only and an individual is not required to use such products. These are recommendations only and do not replace the advisement of your healthcare practitioner. This test is NOT for diagnostic purposes. It may identify general health risks that are associated with genetic variations but does NOT indicate a propensity for or susceptibility to any illness, disease, impairment, or other disorders, whether physical or mental.

Patient name	**William Wellness**
Date of birth	**08-08-2000**
Sample code	**NUT16919AA**
Doctor's name	**Development Testing**
Collection date	**02-10-2023**
Reception date	**02-17-2023**
Results date	**02-20-2023**

How to read and use the report

This report is structured into the following sections:

I. General information

Summary of your health habits, including the various factors related to your weight, exercise, metabolism, and key parameters, all related and analyzed by our diagnostic platform.

II. Results overview

An overview of the genetic analysis, vitamin deficiency risk, and the recommended diet and supplements.

III. Personalized Diet Plan

Compiled from your genetic and health/behavior data. List of foods to avoid and enhance: the nutritional description of 629 foods, beverages and sauces, classified into 17 general categories for easy interpretation and daily use. Food is suggested from the results of the test performed and professional nutritionists.

IV. Complete genetic results

A complete description of all the analyzed SNPs within the NutriGen™ analysis both at gene and SNP level with detailed descriptions to get the maximum from the test.

Before proceeding with your nutritional and dietary modifications, please read this report carefully and consult your specialist.

I.
General Information

Summary of your health habits, including the various factors related to your weight, exercise, metabolism, and key parameters, all related and analyzed by our diagnostic platform.

Fagron Nutrigen™ studies 109 top-informative DNA variations in 59 different categories summarized in 15 macro categories

1. Morphological genetics in overweight predisposition
2. Behavioral genetics in food intake
3. Efficacy of exercise
4. Fat metabolism
5. Carbohydrate metabolism
6. Lipid metabolism
7. Glucose metabolism
8. Flavor Sensitivities
9. Detoxification imbalances
10. Supplementation
11. Intolerance
12. Matching Diet Type
13. Hormones
14. Inflammation
15. Vitamin deficiency risk

Analyzed genetic variations in the Fagron Nutrigen test[1]

ABOUT

Your personalized diet plan and suggested food habits are carefully selected in order to enhance individual strengths and minimize localized genetic deficiencies.

[1] The plot represents a global and not individualized genetic map for informative purposes. Please note that the genes that are analyzed are the same for everyone (men or women), however the results shown in part II may be different. Chromosome Y is not analyzed, therefore the test is useful both for men and women.

Weight related variables

Gender	Male
Age	23 years
Height	6 ft 1 ins
Current weight	190 lbs
Goal weight	180 lbs
Current BMI	25.06
Goal BMI	23.74
Weight type	Pre-obesity

ABOUT

* In case of underweight, Obesity Type I, II, III, IV and/or existing pathologies, the results of this test should be evaluated and implemented by a professional.

Physical exercise and metabolism related factors

Daily sport activity	Moderate

- Basal metabolism -

Current (cal)	1,910
Target (cal)	1,865

- Current daily energy expenditure -

Current (cal)	2,961
Target (cal)	2,891
Variation (cal)	-71

II.
Results overview

Which includes an overview of the genetic analysis, the optimal type of diet, vitamin deficiency risk and the recommended supplements, allowing for a quick and easy global interpretation of the patient's nutrigenomic profile.

Sample code	NUT16919AA
Reception date	02-17-2023
Results date	02-20-2023
Passed quality control	YES
Passed genotyping quality	YES
Final quality control	YES

Efficacies

CATEGORY	DESCRIPTION	RESULTS
Morphological genetics in overweight predisposition	Medium-high genetic predisposition to being overweight. In case of overweight or obesity, it is caused mainly by inherited genetics. Following the recommendations of this DNA analysis will improve outcomes.	28.69%

Genetic risk of overweight	MEDIUM-LOW RISK	Pg. 68
Risk of rebound weight gain	HIGH REBOUND EFFECT	Pg. 69
Risk of increased BMI	MEDIUM-LOW RISK	Pg. 70
Basal metabolic rate (burn calories at rest)	LOW BURNER	Pg. 71
Weight loss capability during diet interventions	SLOW WEIGHT LOSS	Pg. 72

CATEGORY	DESCRIPTION	RESULTS
Behavioral genetics in food intake	Medium-low dysregulation of food intake behavior. Slight predisposition to being overweight. In case of excessive quantity or compulsive intake, strategies to reduce anxiety should be considered.	63.57%

Appetite and anxiety risk	INCREASED	Pg. 73
Satiety: Feeling Full	NORMAL SATIETY	Pg. 74

CATEGORY	DESCRIPTION	RESULTS
Efficacy of exercise	Very low efficacy of exercise to reduce body fat and regulate cholesterol levels.	12.72%

Benefits from endurance exercise for improving HDL levels	VERY LOW EXPECTED BENEFITS FROM EXERCISE	Pg. 75
Exercise to reduce body fat	MEDIUM-LOW EXPECTED BENEFIT FROM EXERCISE	Pg. 76

INDICATIONS

75% - 100% High efficacy | 50% - 75% Medium-high efficacy | 25% - 50% Medium efficacy | 0% - 25% Low efficacy

Efficacies

CATEGORY	DESCRIPTION	RESULTS
Fat metabolism	Negative fat burning capacity. It would be recommended to decrease the general fat intake.	43.28%

Response to monosunsaturated fats (MUFAs)	VERY LOW MUFA METABOLISM	Pg. 77
Response to polyunsaturated fats (PUFAs)	FAST PUFA METABOLISM	Pg. 78
Response to fat intake to improve the HDL levels	MEDIUM-HIGH EXPECTED BENEFITS	Pg. 79

CATEGORY	DESCRIPTION	RESULTS
Carbohydrate metabolism	Negative carbohydrate metabolism: Carbohydrate intake will lead to dysregulation in cholesterol levels and also to increased calorie and fat intake. Eliminating refined carbohydrates is urgent; move to wholegrain carbohydrates and reduce the quantity.	37.38%

Capability to digest starchy food	REDUCED STARCH DIGESTION	Pg. 80
Refined carbohydrate sensitivity	NORMAL CARBOHYDRATE SENSITIVITY	Pg. 81
Carbohydrates and HDL levels predisposition	HIGH RISK OF DYSREGULATION	Pg. 82
Carbohydrates and LDL levels	HIGH RISK OF DYSREGULATION	Pg. 83

CATEGORY	DESCRIPTION	RESULTS
Lipid metabolism	Affected lipid metabolism. Cholesterol and triglyceride levels may show irregular results in blood analyses. Specific LDL or HDL treatments would be recommended. Increased cardiovascular risk.	38.95%

Predisposition to reduced HDL levels	REDUCED HDL LEVELS	Pg. 84
Predisposition to increased levels of triglycerides	HIGHLY INCREASED TRIGLYCERIDES	Pg. 85
Predisposition to increased oxidation of LDL	SLIGHTLY INCREASED LDL OXIDATION	Pg. 86
Risk of increased cholesterol LDL levels	INCREASED LDL LEVELS	Pg. 87
Risk of unbalanced Triglycerides/HDL ratio	SLIGHLTLY INCREASED TG/HDL RATIO	Pg. 88

INDICATIONS

75% - 100% High efficacy | 50% - 75% Medium-high efficacy | 25% - 50% Medium efficacy | 0% - 25% Low efficacy

Efficacies

CATEGORY	DESCRIPTION	RESULTS
Glucose metabolism	Medium-high dysregulation of glucose metabolism. Intake of refined sugar and carbohydrates will be dangerous. High risk of developing Type-II diabetes.	37.02%

Risk of increased glucose levels in plasma after fasting	HIGH RISK OF HIGH GLUCOSE LEVELS	Pg. 89
Risk of insulin resistance	MEDIUM-LOW INSULIN RESISTANCE	Pg. 90
Risk of Type-II diabetes	MEDIUM-LOW DIABETES TYPE-II RISK	Pg. 91

CATEGORY	DESCRIPTION	RESULTS
Flavor Sensitivities	Normal or average flavor sensitivity.	99.67%

Bitter taste sensitivity	NORMAL	Pg. 92
Salt sensitivity	LOW SALT SENSITIVITY	Pg. 93
Sweet flavor preference	NORMAL	Pg. 94

CATEGORY	DESCRIPTION	RESULTS
Detoxification imbalances	Average detoxification capacities.	79.81%

Antioxidant capability	NORMAL ANTIOXIDANT CAPABILITY	Pg. 95

INDICATIONS

75% - 100% High efficacy | 50% - 75% Medium-high efficacy | 25% - 50% Medium efficacy | 0% - 25% Low efficacy

Risks

CATEGORY	DESCRIPTION
Supplementation	Please find below the different analyzed categories related to food supplementation needs.

CATEGORY	DESCRIPTION
Intolerance	Please find below the different analyzed categories related to intolerances and sensitivities.

EFFECTIVENESS OF DIETS

- INTEGRATED NUTRITIONAL PLAN (LOW IN CARBOHYDRATES) -

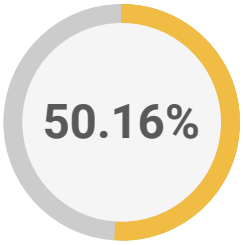
Depending on the specific needs of your body, the optimal type of nutritional plan is determined. It has been defined by our nutritional experts and based on the foods you are better able to metabolize, the genetic information and the available personal health data.

ABOUT

We analyzed 13 genetic variations related to the metabolism of various nutrients. This information can be helpful towards building your personalized plan to maintain a healthy weight and a balanced diet.

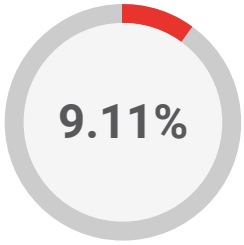
Efficacy of low carbohydrate diets

MARKER	RESULTS
KCTD10	
MMAB	



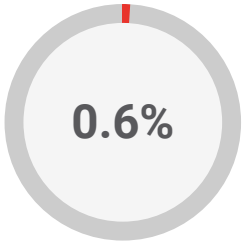
Efficacy of low calorie diets

MARKER	RESULTS
PPAR-Y	
ADIPOQ	
LEPR-1	
ACSL5	
ADRB2	



Efficacy of low fat diets

MARKER	RESULTS
PPAR-Y	
GHSR	
APOA2	
SH2B1-2	
TCF7L2-2	
FTO-1	



ABOUT

Knowing the type of diet that will be more effective to maintain a balanced and healthy diet.

Know the most effective type of diet to maintain your good metabolic balance

INDICATIONS

- High expected benefits from diet
- Medium-High expected benefits from diet
- Medium-Low expected benefits from diet
- Very Low expected benefits from diet

Vitamin deficiency risk

ABOUT

Major genetic variations related to the metabolism of each vitamin are analyzed. Possible deficiencies are determined so that our specialists are able to adapt your diet to improve your health .

VITAMINS	DESCRIPTION	RESULTS
Vitamin A	Low risk of vitamin A deficiency. Ensure daily recommended intake or slightly increase it.	
Vitamin B^6	High risk of vitamin B6 deficiency. Increase daily vitamin B6 intake. Supplementation should be evaluated.	
Vitamin B^9	Normal folate metabolism. Ensure daily recommended intake.	
Vitamin B^{12}	High risk of vitamin B12 deficiency. Increase daily vitamin B12 intake. Supplementation should be evaluated.	
Vitamin C	Normal vitamin C metabolism and levels. Ensure daily recommended intake.	
Vitamin D	Low risk of Viamin D deficiency. Ensure daily recommended intake.	
Vitamin E	Medium risk of Vitamin E deficiency. Ensure daily recommended intake. Supplementation strategies might be of interest.	

INDICATIONS

Normal metabolism of vitamin

Low risk of vitamin deficiency

Medium risk of vitamin deficiency

High risk of vitamin deficiency

Vitamin deficiency risk

Health Risks Generally Associated with Vitamin Deficiencies

Each vitamin is analyzed independently to facilitate their incorporation in the final diet if a genetic defect is detected. The high, medium or low results in this section correspond to a global view of the metabolic status of vitamins. Here we highlight the main consequences of a vitamin deficiency.

Vitamin A

- Infectious diseases
- Vision problems

Vitamin B^6

- Confusion
- Depression
- Canker on mouth and tongue
- Anemia

Vitamin B^9

- Fatigue
- Gray hair
- Oral stripes
- Poor growth
- Swelling of the tongue
- Anemia
- In severe cases, deficiency of white blood cells (defenses) and platelets
- It is essential for the development of the spinal cord and brain

Vitamin B^{12}

- Anemia
- Equilibrium loss
- Numbness or tingling in arms and legs

Vitamin C

- Anemia
- Bleeding gums
- Decreased ability to fight infections
- Decreased rate of wound healing
- Dry and splitting hair tufts
- Tendency to hematoma formation
- Gingivitis (gum inflammation)
- Nosebleeds
- Possible weight gain due to slow metabolism
- Rough, dry, scaly skin
- Pain and swelling in the joints
- Weakened enamel of the teeth
- Weakness

Vitamin D

- Osteoporosis
- Reduced cognitive function (mental process that allows us to carry out any task)

Vitamin E

- Neurological symptomes
- Muscular weakness
- Retinal degeneration with potential blindness

Inflammation

CATEGORY	DESCRIPTION
TNF-α	TNF-α is a pro-inflammatory cytokine, strongly linked to many inflammatory conditions, expressed in, and secreted by adipose tissues. Increased levels are associated with inflammatory conditions and increased health risks.

• TNF-α-1 — Predisposition to moderately increased levels of TNF-alpha. Pro-inflammation tendency.

CATEGORY	DESCRIPTION
IL-6	IL-6 is an interleukin with mainly pro-inflammatory functions and is commonly used as inflammatory marker. High levels of IL-6 are associated with inflammatory conditions and health risks.

• IL-6-1 — Predisposition to highly increased levels of IL-6. Pro-inflammation.

CATEGORY	DESCRIPTION
IL-10	IL-10 is a cytokine with potent anti-inflammatory properties.

• IL-10-1 — Predisposition to higher levels of the anti-inflammatory cytokine IL-10.

Hormones

CATEGORY	DESCRIPTION
Leptin	Leptin is a hormone which main function is sending a signal to the brain for food intake regulation. Leptin is commonly called the "satiety hormone". Low levels of leptin may imply problems of overeating and/or burning the stored fat. LEP-R is the gene coding for the cellular receptor of the leptin hormone. Its capability to bind leptin and start the cellular signalling is key for the satiety regulation function. Lower leptin binding capability may lead to high possibilities of leptin resistance, overeating and lower fat burning.

• LEP — **Predisposition to lower levels of leptin.**

CATEGORY	DESCRIPTION
Visfatin	Visfatin is an adipokine with an inflammatory and catabolic profile that has been associated with several metabolic risk factors.

• NAMPT-1 — **No predisposition to increased levels of circulating visfatin.**

CATEGORY	DESCRIPTION
Ghrelin	Ghrelin is a hormone produced in the gut, often termed "the hunger hormone", since it causes an increase in appetite through its effect in the brain. Imbalances in ghrelin are associated with appetite increase, increased calorie consumption and fat storage.

• GHSR — **Predisposition to normal ghrelin receptor (GHSR) expression.**

CATEGORY	DESCRIPTION
Adiponectin	Adiponectin is a hormone that regulates glucose levels and fatty acid breakdown. Low levels of adiponectin are associated with inflammation, lipid abnormalities and insulin resistance.

• ADIPOQ-2 — **High predisposition to lower adiponectin plasma levels.**

• ADIPOQ-3 — **High predisposition to lower adiponectin plasma levels.**

Supplements

DETOX I DETOXIFICATION (OXIDATION) LIVER

15-30 days

100 %	► Ubiquinol
100 %	► Taurine
92 %	► Vitamin B12 (Cianocobalamin)
75 %	► Magnesium
75 %	► Manganese
73 %	► Resveratrol
70 %	► Nicotinamide (niacinamide)
68 %	► Zinc gluconate
67 %	► Alpha-Lipoic Acid (ALA)
63 %	► Vitamin B9 (Methylfolate)

DETOX II DETOXIFICATION (CONJUGATION) LIVER

15-20 days

100 %	► Taurine
75 %	► Magnesium
67 %	► Alpha-Lipoic Acid (ALA)
63 %	► Vitamin B9 (Methylfolate)
60 %	► Vitamin D3 (Cholecalciferol)
58 %	► Acetylcysteine (N-Acetylcysteine)
44 %	► Glutathione (Reduced glutathione)
37 %	► Glutamine (levoglutamine)

Supplements

PHASE 2 (TRANSPORTATION/EXCRETION) KIDNEY OR GI TRACT

10-15 days

75 %	► Magnesium
37 %	► Glutamine (levoglutamine)

LONG TERM OPTIMIZATION PHASE

100 %	► Ubiquinol
100 %	► Taurine
92 %	► Vitamin B12 (Cianocobalamin)
75 %	► Magnesium
75 %	► Biotin
75 %	► Manganese
73 %	► Resveratrol
70 %	► Nicotinamide (niacinamide)
68 %	► Zinc gluconate
67 %	► Alpha-Lipoic Acid (ALA)

III. Personalized Diet Plan

Made from your genetic and health/behavior data. List of foods to avoid and enhance: the nutritional description of 629 foods, beverages and sauces, classified into 17 general categories for easy interpretation and daily use. Food is suggested from the results of the test performed by Fagron and professional nutritionists.

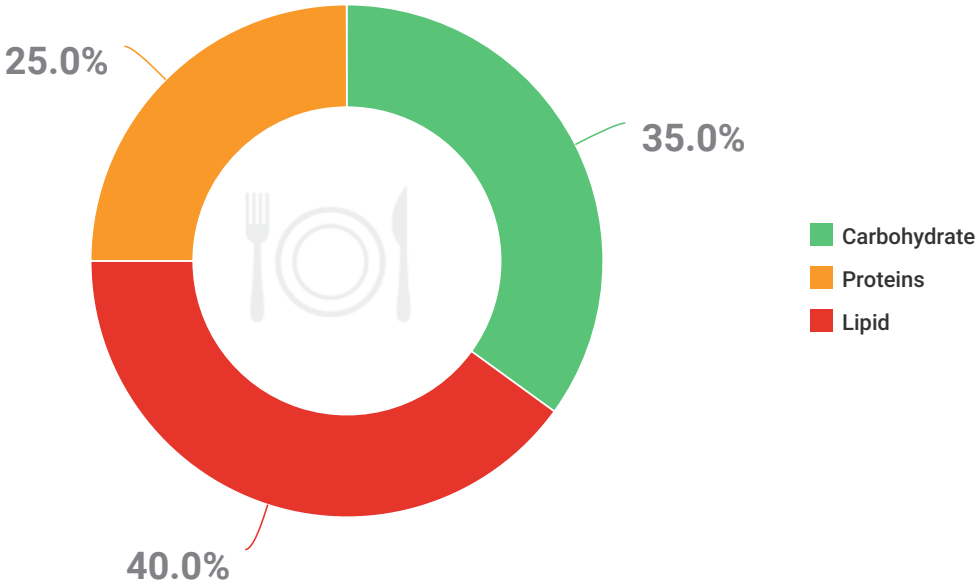
Daily food intake

- INTEGRATED NUTRITIONAL PLAN (LOW IN CARBOHYDRATES) -

Based on your genetic and other health information, we recommend the INTEGRATED NUTRITIONAL PLAN (LOW IN CARBOHYDRATES) for your general health and wellness.

Your nutritional plan includes the following types of food

1. Vegetables
2. Legumes and derivatives
3. Fruits and derivatives
4. Cereals and derivates
5. Fish and derivatives
6. Meats and derivatives
7. Nuts and seeds
8. Shellfish and derivatives
9. Eggs and derivatives
10. Milk and derivatives
11. Oils and fats
12. Tubers and derivatives
13. Sauces and condiments
14. Sugars and derivatives
15. Snacks
16. Non-alcoholic beverages
17. Alcoholic beverages



ABOUT

From the results obtained in the analysis, **your dietary habits** and your general information, our genetic and nutritionist adviser team have determined a **personalized plan** with **nutritional** and **dietetic** recommendations.

1. Make the 3 main meals of the day and in their hours
2. Make 2 small snacks of fruit and nuts according to recommendations: 11am - 5pm
3. Drink water 1.5 - 2 L / day before and between main meals

Daily food intake

Recommendation

- Allowed, adjusting the amounts and / or frequency *
- Allowed without raising the recommended quantities and / or frequency *
- Reduce the amount and / or frequency *
- Restrict, occasionally / in small quantities *

*Observations on recommended foods are a suggestion based on the genetic findings. The results should be evaluated by a professional and accurately adapted to the clinical history, blood analyses, fitness, eating habits, exercise, medication and psychological status.

Indications

On the food table, we have incorporated **specific symbols for the reported pathologies, intolerances or vitamin deficiencies based on the data included in the clinical questionnaires** . When several foods from a category have a similar level of recommendation, those symbols will help you decide whether they will have a positive effect or negative impact in the diet plan. Find below the list of the symbols.

Recommended Avoid consumption

- Caffeine intolerance
- Fructose intolerance
- Gluten intolerance
- Lactose intolerance
- Alcohol
- Carbohydrate
- Lipid
- Fat
- Asthaxanthin intolerance
- Carrot intolerance
- Egg intolerance
- Figs intolerance
- Galactose intolerance
- Ginger intolerance
- Tomato intolerance
- Monounsaturated Fatty Acids (MUFAs)
- Polyunsaturated Fatty Acids (PUFAs)
- Starch
- Glucose
- Salt
- Kiwi intolerance
- Nuts intolerance
- Papaya intolerance
- Pineapples intolerance
- Cow-milk protein intolerance
- Seafood intolerance
- Soya intolerance
- Pork allergy
- A Vitamin A
- B6 Vitamin B6
- B9 Vitamin B9
- B12 Vitamin B12
- C Vitamin C
- D Vitamin D
- E Vitamin E
- Antioxidant
- Satiety
- Fe Iron
- Mg Magnesium
- Ca Calcium
- Se Selenium

Vegetables

FOOD	Indications
Spinach, boiled	A B6 B9 E Fe Ca Mg
Turnip greens	A B6 B9 C E Ca
Red pepper	A B6 B9 C Ca
Chicory	A B9 C E Ca
Bamboo shoots	B6 B9 Ca
Mustard greens	A B9 C E Ca
Asparagus, green	B9 Fe Ca
Cilantro/Coriander	A B9 C E Ca
Red cabbage, boiled	B6 B9 C Ca
Leek, frozen	B6 B9 Ca
Mushroom, griddle	B9 Ca Se

FOOD	Indications
Endive	B9 Ca
Kohlrabi, raw	B9 C Ca
Leek	B6 B9 Ca
Chard, boiled	A B9 C E Fe Ca Mg
Spinach, canned	A B9 C E Fe Ca Mg
Radicchio	B9 E Ca
Courgette	B9 C Ca
Cauliflower, boiled	B9 C Ca
Bean Sprouts	B9 C Ca
Radish	B9 C Ca
Calabash	B9 Ca

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Vegetables

FOOD	Indications
Mushroom	B9 Ca Se
Brussels sprout, frozen	B9 C Ca
Savoy cabbage	B9 C Ca
Green bean, boiled	B9 Ca
Lettuce	A B9 Ca
Romaine lettuce	A B9 Ca
Pumpkin, boiled	A B9 Ca
Chive	A B9 C Ca
Palm heart, canned	Fe B9 Ca
Hearts of Palm	Fe B9 Ca
Jicama	B9 C Ca

FOOD	Indications
Squash, acorn, baked	B9 Ca
Water chestnut	
Garlic	B6 B9 C Ca Se
Chard	A B9 C E Ca Mg
Watercress	A B9 C Ca
Broccoli, boiled	B9 C Ca
Cabbage, white	B9 C Ca
Cabbage	B9 C Ca
Swiss Chard	A B9 C E Ca Mg
Scallion/Green onion	B9 C Ca
Corn, on the cob	B9 Ca

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Vegetables

FOOD	Indications
Turnip, peeled	B9 Ca
Cucumber	B9 Ca
Tomato	B9 C Ca
Onion	B9 Ca
Arugula	B9 C Ca
Celery, raw	B9 Ca
Ginger root, raw	B9 Ca
Tomato, ripe, peeled and ground, canned	B9 C Ca
Celery root	B9 Ca
Carrot	A B9 Ca
Sauerkraut	C B9 Ca

FOOD	Indications
Grape leaves, by Sera	Fe C Ca
Cardoon	Ca B9
Artichoke, frozen	Ca B9
Sweet pepper, canned	C B9 Ca
Celery	B9 Ca
Soybean, sprouts, canned	B9 Ca Mg
Squash, all varieties, baked, winter	B9 A Ca
Arrowroot powder	Fe
Green bean, canned	Ca B9
Pico de Gallo	Ca B9
Onion, roasted	Ca B9

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Vegetables

FOOD	Indications
Avocado, raw	B6 B9 E Ca FAT
Bok choy	Ca C
Edamame	Fe B9 Ca Mg FAT
Okra, cooked from fresh	B6 B9 C Ca Mg
Broccoflower	B9 B6 C Ca
Kale	A C Ca
Eggplant, cooked, no added fat	Ca B9
Asparagus, white, canned	C B9 Ca
Beetroot, raw	B9 Ca
Parsnips, cooked	C B9 Ca
Caper	Ca B9

FOOD	Indications
Beetroot, pickled, drained	Ca B9
Peas, green	C B9 Ca
Collard greens	A B9 C E Ca
Artichoke, tinned	Ca B9
Rutabaga	C B9 Ca
Aubergine	B9 Ca
Shallots	B9 C Ca
Olives, green	B9 E Ca FAT
Kohlrabi, cooked	C B9 Ca
Mushrooms, canned	Ca B9
Beets	B9 Ca

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Vegetables

FOOD	Indications
Fennel bulb, cooked	Ca, B9
Horseradish	C, B9, Ca
Horseradish, prepared	C, B9, Ca
Bitter melon/Bitter gourd	B9, C, Ca
Olives, black	Fe, Ca, FAT

FOOD	Indications
Escarole	B9, Ca
Tomato, roasted	B9, C, Ca
Bell pepper	C
Beetroot, cooked in unsalted water	Ca, B9
Pickled gherkin	B9, Ca

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Legumes and derivatives

FOOD	Indications
Lentil, boiled	B9 Fe Ca
Pinto bean, steeped, boiled	B6 B9 Ca
Broad bean, dried, steeped, boiled	B9 Ca
White bean, boiled	B9 Fe Ca Mg
Chickpea, canned	B6 B9 Ca
Chickpea, boiled	B9 Fe Ca
Pea, frozen, boiled	B9 Ca
Pea, canned	Ca B9
White bean, tinned	B9 Fe Ca Mg
Soybean, dry, soaked, boiled	B6 B9 Fe Ca Mg FAT
Chickpea flour	Fe Ca FAT

FOOD	Indications
Lentil, canned	B9 Fe Ca FAT
Tofu	B9 Fe Ca Se
Kidney Bean	B9 Fe Ca FAT
Black Bean	B9 Ca Mg FAT
Tahini paste	B9 Fe Ca Mg Se FAT
Broad bean, fried	B9 Ca FAT
Soy flour	B6 B9 E Fe Ca Mg FAT
Bar, Mind chocolate chip, high protein	B6 B12 C Fe Ca FAT
Bar, high protein, chocolate coconut	B6 B12 C Fe Ca FAT
Pea Protein	Fe
Bar, chocolate chip cookie dough protein bar	Fe Ca FAT

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Fruits and derivatives

FOOD	Indications
Raspberry	B9 C Ca
Black currant	C Ca
Cranberries, raw	B9 C Ca
Chayote	B9 Ca
Strawberry	B9 C Ca
Lime	B9 C Ca
Blackberries, raw	B9 E Ca
Lemon	B9 C Ca
American Persimmons	C Fe Ca
Avocado	B6 B9 E Ca FAT
Melon	B9 C Ca

FOOD	Indications
Custard apple	C Ca
Grapefruit	B9 C Ca
Watermelon	B9 Ca
Red grape	B9 C Ca
Coconut	B9 Fe Ca Se FAT
Apricot	B9 Ca
Orange	B9 C Ca
Nectarine	B9
White grapes	B9 C Ca
Olive	B9 E Ca FAT
Red currant	B9 C Ca

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Fruits and derivatives

FOOD	Indications
Pear	B9 Ca
Coconut, dried	B6 B9 Fe Ca Mg Se FAT
Yellow plum, with skin	B9 Ca
Peach	B9 Ca
Papaya, without skin	B9 C Ca
Pineapple	B9 C Ca
Olive, black, with pip	Fe Ca
Banana	B9 B6 Ca
Kiwi	B9 C Ca
Coconut flour	Fe Ca
Maracuja - Passion Fruit	B9 C Ca

FOOD	Indications
Litchis	C B9 Ca
Mango, without skin	C B9 Ca
Persimmon	Ca B9
Pomegranate	Ca B9
Pomegranate	Ca B9
Peach, dried	Fe Ca
Cherry	Ca B9
Figs	Ca B9
Fruit salad, canned in own juice	Ca B9
Tangerine	C B9 Ca
Apple	Ca B9

- Allowed, adjusting the amounts and / or frequency
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- Restrict, occasionally / in small quantities

Fruits and derivatives

FOOD	Indications
Pineapple, canned, in juice	Ca B9
Plum, canned	Ca B9
Jackfruit, raw	Ca B9
Blueberry	B9 Ca

FOOD	Indications
Plantain, yellow	B6 B9 C Ca
Date	B9 Ca
Raisin	Ca B9
Fruit paste	C B9 Ca

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Cereals and derivates

FOOD	Indications
Corn starch	B6 B9 Fe Ca Mg Se
Barley	B6 B9 Fe Ca Mg Se
Rye	B6 B9 Fe Ca Mg Se
Barley flour	B6 B9 Fe Ca Mg Se
Rye flour	B6 B9 Fe Ca Mg Se
Quinoa	B6 B9 E Fe Ca Mg Se FAT
Wheat, bran	B6 B9 Fe Ca Mg Se
Corn flour	B6 B9 Fe Ca Mg Se
Sorghum	B6 B9 Fe Ca Mg Se
Sorghum flour	B6 B9 Fe Ca Mg Se
Buckwheat	B6 B9 Fe Ca Mg Se

FOOD	Indications
Buckwheat flour	B6 B9 Fe Ca Mg
Millet	B6 B9 Fe Ca Mg
Brown rice	B6 B9 Ca Mg Se
Wholewheat flour	B9 Fe Ca Mg Se
Whole bread, toasted	B6 B9 Fe Ca Mg Se
Wheat flour	B9 Fe Ca Se
Tortilla-Flour	B6 B9 Ca Mg
Quinoa	B9 Ca Mg
Oat	B9 Fe Ca Mg Se FAT
Wholewheat bread	B6 B9 Fe Ca Mg Se
Teff flour	Fe Ca

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Cereals and derivates

FOOD	Indications
Crackers, melba toast, wheat	B9, Fe, Ca, Se
Amaranth flour	Fe, Ca
Oat flour	Fe, Ca
Casava (Tapioca) Flour	Ca
Corn flour	Fe
Pasta, homemade, made with egg, cooked	B9, Ca
Brown rice flour	Ca, Mg, Se
Gluten-free pizza crust	Fe, Ca
Rye bread	Fe, B9, Ca, Se
Tortilla- Gluten free brown rice	Ca, B6
Black rice	

FOOD	Indications
Pasta, whole, cooked	Ca, B9, Se
Flax, seeds	B6, B9, Fe, Ca, Mg, Se
Egg-free pasta	B9, Ca
Pasta, filled with meat, boiled	B9, B12, Ca, Se
Gluten-free crackers, plain	B6, B9, Fe, Ca, Mg, Se
Gluten-free crackers, multi-seeded, multigrain	B6, B9, Fe, Ca, Mg, Se
Gluten-free crackers, Multi-grain crisps	B6, B9, Fe, Ca, Mg, Se
Gluten-free lentil crackers, ancient grain	Fe, Ca
Gluten-free Classic white bread	Fe, B9, Ca
Rice, boiled	Ca, B9
Crackers	B9, Fe, Ca, Se

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Cereals and derivates

FOOD	Indications
Rice, brown, cooked, no added fat	Ca, B9
Bread, Gluten free	B9, Fe, Ca, FAT
Gluten-free Bread	B9, Fe, Ca, FAT
Gluten-free Sourdough bread	
Wheat germ	B6, B9, E, Fe, Ca, Mg, Se, FAT
Tortilla-Corn	B9, Fe, Ca, Se, FAT
Tortilla-Gluten free spinach toritllas- The Hain Celestial Group	Fe, Ca, FAT
Oat flour	B9, Fe, Ca, Mg, Se, FAT
Gluten-free crackers, organic	Fe, Ca, Mg, Se, FAT
Gluten-free rice, multi seed, thin crackers	Fe, Ca, FAT
Barley bread	Fe, B9, Ca, Se

FOOD	Indications
Gluten-free omega flax bread	Fe, Ca
Gluten-free pretzels, deli style, everything spice	FAT
Gluten-free bread crumbs	Ca, FAT
Breadcrumbs	B9, Fe, Ca, Se, FAT
Gluten-free crackers	Fe, Ca, FAT
Gluten-free pizza crust mix	
Gluten-free bread & pizza crust mix	Ca, Fe
Gluten-free pizza crust	Ca, FAT
Gluten-free flat bread pita	FAT
Gluten-free crackers, 6 whole grain & 4 seed, The Perfect 10	Ca, Mg, FAT
Gluten-free artisan baker 10 grains & seeds bread	FAT

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Cereals and derivates

FOOD	Indications
Gluten-free 7 grain bread	Ca
Pizza crust- cauliflower-Caulipower	C Ca
Almond flour	Fe Ca Mg
Gluten-free challah bread	Ca
Gluten-free pizza crust	Ca
Oat bread	Fe B9 Ca Se
Corn bread	B9 Fe Ca Se
Gluten-free crackers, table crackers	Ca
Gluten-free Entertainment crackers	
Gluten-free baked cheddar bunny tails baked crackers	Ca
Bar, "Clif bar"	B6 B12 C Fe Ca

FOOD	Indications
Cereal, GoLean Crunch	B9 Fe Ca Mg Se
Bar, dark chocolate mocha almond bar	B6 B12 C Fe Ca Mg
Cereal, Honey Vanilla Crunch organic gluten free	Fe Ca
Raisin pudding	B9 D Ca Se
Gluten-free multigrain sandwich bread	
Granola	B9 Fe Ca Mg Se
Bread- Gluten free Multigrain- Rudis	Ca
Gluten-free Whole grain bread soft & hearty	Ca
Bar, Z bar	B9 C Fe Ca Mg Se
Cereal, Apple Cinnamon	Ca
Bar, Fruit & Nut	Fe Ca Mg Se

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Cereals and derivates

FOOD	Indications
Gluten-free animal crackers	Fe, Ca, FAT
Gluten-free Original sandwich bread	Ca, FAT
Gluten-free White Soft & Delicious Sandwich Bread	B9, Ca, Se, FAT
Cereal, Honey Almond	Fe, Ca, FAT
Cereal, Dark chocolate almond	Fe, Ca, FAT
Cereal, Cranberry almond	Ca, FAT
Bar, Energy Bar	Ca, Mg, FAT

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Fish and derivatives

FOOD	Indications
Tuna	B6 B9 B12 D Ca Se
Cod	B6 B9 B12 D Ca Se
Halibut	B6 B9 B12 D Ca Se
Monkfish, grilled	B6 B9 B12 Ca Se
Tuna, canned in water	B6 B9 B12 D Ca Se
Pout	B6 B9 B12 Ca Se
Tuna, baked	B6 B9 B12 D Ca Se
Whiting, frozen	B9 B12 D Ca Se
Cod, smoked	B9 B12 D Ca Se
Grouper, griddle	B6 B9 Ca Se
Perch	B9 B12 D Ca Se

FOOD	Indications
Seabass	B6 B9 D Ca Se
Swordfish	B6 B9 B12 D E Ca Se FAT
Trout, smoked	A B6 B9 B12 D E Ca Se FAT
Pike, baked	B9 B12 D Ca Se
Salmon	B6 B9 B12 D Ca Se
Trout	B6 B9 B12 D E Ca Se FAT
Sardine in tomatoes	B6 B9 B12 D E Fe Ca Se FAT
Cod, fresh, baked	B12 B9 Ca Se
Sea bream	B6 B9 B12 D Ca Se
Perch, baked	B9 B12 D Ca Se
Sole, baked	B9 B12 D Ca Se

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Fish and derivatives

FOOD	Indications
Hake	B6 B9 B12 Fe Ca Mg Se
Smoked salmon	B6 B9 B12 D Ca Se
Mullet	B6 B9 D Ca Se
Sardine, roasted	B6 B9 B12 D E Fe Ca Mg Se
Anchovy cooked	B9 B12 D E Fe Ca Mg Se
Flounder, steamed	B9 B12 D Ca Se
Codfish, fried	B12 B9 Ca Se
Caviar	A B6 B9 B12 D E Fe Ca Mg Se
Anchovy	B9 B12 Fe Ca Se
Swordfish baked	B9 B12 D E Ca
Tuna, griddle	B6 B9 D Ca Se

FOOD	Indications
Carp, baked	B6 B9 B12 D Ca Se
Dogfish	B6 B9 B12 D Ca Mg Se
Salmon, griddle	B6 B9 B12 D Ca Se
Herring, salted	B6 B9 D E Fe Ca Mg Se
Mackarel	B6 B9 B12 D Ca Mg Se
Mackerel, canned in oil, drained	A B9 B12 D Ca Se
Sardine	B9 B12 D E Fe Ca Se
Mackerel, baked	B6 B9 B12 D E Ca Mg Se
Swordfish, griddle	B6 B9 B12 D E Ca Se
Ray	B6 B9 B12 Ca Mg Se
Herring, smoked	B6 B9 B12 D Ca Se

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Fish and derivatives

FOOD	Indications
Iridescent shark	B9 B12 Ca Se
Whiting	B6 B9 D Ca Se

FOOD	Indications
Sardine canned in tomato sauce	B9 B12 D Fe Ca Se

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Meats and derivatives

FOOD	Indications
Turkey, breast, without skin, grilled	B6 B9 B12 Ca Se
Liver, pork	A B6 B9 B12 C Fe Ca Se
Ostrich, sirloin	B6 B9 B12 Fe Ca Se
Turkey	B6 B9 B12 Ca Se
Beef, part n/s, roasted, with separable fat	B6 B9 B12 Fe Ca Se
Beef, rump steak, barbecued, lean	B6 B9 B12 Fe Ca Se FAT
Pork, loin	B12 B6 Ca Se FAT
Beef, heart, cooked	B6 B9 B12 Fe Ca Se
Liver, beef	A B6 B9 B12 D Fe Ca Se
Beef, rump steak, barbecued, lean and fat	B6 B9 B12 Fe Ca Se FAT
Heart, chicken	B6 B9 B12 Fe Ca FAT

FOOD	Indications
Liver, chicken	A B6 B9 B12 C Fe Ca Se FAT
Chicken luncheon meat	B9 B6 Ca Se
Pork, rib	B12 B6 Ca Se FAT
Pork, sirloin, roasted	B12 B6 Ca Se FAT
Ham, roasted	B12 B6 Ca Se FAT
Chicken, leg, with skin, roasted	B6 B9 B12 Ca Se FAT
Veal, rib, with separable fat	B6 B9 B12 Ca Se FAT
Quorn, pieces, as purchased	B9
Turkey, leg, with skin	B6 B9 Fe Ca Se FAT
Beef, sirloin steak, grilled rare, lean	B6 B9 B12 Ca Se FAT
Burger, beef, 98-99% beef, grilled	B6 B12 D Fe Ca Se FAT

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Meats and derivatives

FOOD	Indications
Vegetarian breakfast sausage links	B6 B12 Fe Ca
Vegetarian veggie burgers	B6 B12 Fe Ca
Mincemeat	B6 B9 B12 Fe Ca Se
Pork, chop	B6 B12 Ca Se
Chicken, breast, grilled	B6 B9 Ca Se
Oxtail	B6 B9 B12 Fe Ca Se
Veal, sirloin, roasted, with separable fat	B6 B9 B12 Ca Se
Beef, part n/s, stewed, with separable fat	B6 B9 B12 Fe Ca Se
Chorizo	B6 B9 B12 D Fe Ca Se
Heart, lamb	B9 B12 Fe Ca Se
Beef, sirloin, grilled	B6 B9 B12 Fe Ca Se

FOOD	Indications
Pork, loin, roasted	B6 B9 B12 D Ca Se
Cooked ham	B6 B9 B12 D Ca Se
Pork, shoulder, cooked, lean and fat eaten	B6 B9 B12 D Ca Se
Cured pork, loin	B6 B9 B12 Ca Se
Turkey, breast, with skin	B9 B6 Ca Se
Veal, loin, with separable fat	B6 B9 B12 Ca Se
Bacon, smoked, grilled	B6 B12 Ca Se
Quail, cooked	B6 B9 Fe Ca Se
Beef, sirloin steak, grilled rare, lean and fat	B6 B9 B12 Ca
Liver sausage, liverwurst, pork	A B9 B12 Fe Ca Se
Foie gras	A B9 B12 Fe Ca Se

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Meats and derivatives

FOOD	Indications
Turkey luncheon meat	B9 B6 Ca Se
Salami	B6 B12 D Ca Se
Vegetarian breakfast sausage patties, maple	B6 B12 Fe Ca
Bacon	B6 B12 Ca Se
Rabbit, stewed	B6 B9 B12 Ca Se
Cooked ham, canned	B6 B9 B12 Ca Se
Chicken, breast, with skin	B6 B9 Ca Se
Turkey or chicken sausage, reduced sodium	B6 B9 Se
Vegetarian burger spicy black bean	Ca
Pork sausage	B9 B12 D Ca Se
Chicken, wing, with skin	B6 B9 Ca Se

FOOD	Indications
Chicken, with skin, roasted	B6 B9 Ca Se
Sausage, smoked link sausage, pork	B9 B12 D Ca Se
Sausage, fresh	B6 B9 B12 Ca
Lamb, rib	B9 B12 Ca Se
Lamb, not specified part	B9 B12 Ca Se
Hen	B6 B9 Ca Se
Polish sausage, pork	B9 B12 Ca Se
Sausage	B9 B12 D Ca Se
Burger, beef, 62-85%, beef, grilled	B12 Fe Ca
Bologna	B9 B12 D Ca Se
Pork and beef sausage	B9 B12 D Ca Se

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Meats and derivatives

FOOD	Indications
Duck, roasted	B9 Fe Ca Se
Pork luncheon meat	B9 B12 Ca Se
Sausages, beef, grilled	B9 B12 Ca
Sausages, vegetarian, baked/grilled	B9 Fe Ca
Pork, not specified part	B9 Ca
Vegetarian burger "meat lovers"	Ca
Sausage, smoked, Chicken and bread	B9 B12 Ca
Chicken croquettes	B9 Ca Se

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- Restrict, occasionally / in small quantities

Nuts and seeds

FOOD	Indications
Lupin	B6 B9 Fe Ca Mg Se FAT
Brazil nuts, kernel only	B6 B9 E Fe Ca Mg Se FAT
Brazil nut	B6 B9 E Fe Ca Mg Se FAT
Hazelnut	B6 B9 E Fe Ca Mg FAT
Almond milk, sweetened	B9 D E Ca
Sesame, seed	B6 B9 Fe Ca Mg Se FAT
Walnut	B6 B9 Fe Ca Mg FAT
Macadamia Nut	B6 B9 Fe Ca FAT
Almond	B9 E Fe Ca Mg FAT
Almond, toast	B9 E Fe Ca Mg FAT
Peanut, unsalted	B6 B9 E Ca Mg FAT

FOOD	Indications
Peanut, toasted, salted	B6 B9 E Ca Mg Se FAT
Pumpkin seeds	B9 Fe Ca Mg Se FAT
Pine nut	B9 E Fe Ca Mg FAT
Pecan nuts, kernel only	B9 E Fe Ca Mg Se FAT
Almond milk, unsweetened	D B9 E Ca
Cashew nut	B6 B9 Fe Ca Mg Se FAT
Bar, Nuts over Chocolate	A B6 B9 B12 C D E Fe Ca Mg Se FAT
Peanut butter, smooth	B6 B9 E Ca Mg FAT
Pistachio nut	B6 B9 E Fe Ca Mg Se FAT
Chestnut	B6 B9 C Ca
Chestnut, roasted	B6 B9 C Ca

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Nuts and seeds

FOOD	Indications
Bar, Fruit, Nut & Veggie bar	C, Fe, Ca, Mg, FAT
Bar, Almond	E, Fe, Ca, Mg, FAT
Bar, Peanut Butter Dark Chocolate	Fe, Ca, Mg, FAT

FOOD	Indications
Cashew Milk	FAT
Almond creamer	FAT
Bar, Protein	Ca, Mg, FAT

- Allowed, adjusting the amounts and / or frequency
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Shellfish and derivatives

FOOD	Indications
Cuttlefish	A B6 B9 Fe Ca Mg Se
Octopus, boiled	B6 B9 B12 Fe Ca Se
Cockles	Fe Ca
Crab	B9 B12 E Ca Se
Lobster, boiled	B12 B9 Ca Se
Crayfish	B12 B9 Ca Se
Clams	B9 B12 Ca Se
Squid, roasted	B12 B9 Ca Se
Shrimp, boiled	B12 B9 Ca Se

FOOD	Indications
Scallop	B12 B9 Ca Se
Sea Mussel, cooked, moist heat	B9 B12 C Fe Ca Se
Mussel, canned in brine	B9 B12 C Fe Ca Mg Se
Mussel, boiled	B9 B12 C Fe Ca Mg Se
Snail	B9 B12 E Fe Ca Mg Se FAT
Oyster	B9 B12 Fe Ca Mg Se
Scampi or langoustine	Ca
Variegated scallop	B9 B12 Ca Mg Se FAT

- Allowed, adjusting the amounts and / or frequency
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- Restrict, occasionally / in small quantities

Eggs and derivatives

FOOD	Indications
Egg, duck	A B6 B9 B12 D Fe Ca Se
Egg, turkey	A B9 B12 Fe Ca Se
Egg, quail	A B9 B12 D Fe Ca Se
Egg, chicken, boiled	A B9 B12 D Ca Se

FOOD	Indications
Egg, chicken, white	A B9 B12 D Ca Se
Egg, chicken, fried	A B9 B12 D Ca Se
Omelette	A B9 Ca
Egg, chicken, poached	A B9 D Ca Se

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Milk and derivatives

FOOD	Indications
Milk, skimmed, pasteurized	B9 B12 D Ca
Soy Yogurt	Ca B9 Se FAT
Almond milk	B9 D E Ca
Milk, semi-skimmed, pasteurized	B12 B9 D Ca FAT
Cottage cheese	B12 B9 Ca Se
Yogurt, skimmed, vanilla flavour	B9 B12 D Ca
Milk	D B12 Ca FAT
Kefir	A B9 D Ca
Egg custard	B6 B9 B12 Ca Se FAT
Clarified butter	B6 D E Ca FAT
Brie cheese	A B6 B9 B12 Ca Se FAT

FOOD	Indications
Camembert cheese, 20-30% fidm	A B6 B9 B12 Ca Se FAT
Greek yogurt, plain	B12 B9 Ca Se FAT
Cheese Feta	A B6 B9 B12 Ca Se FAT
Coconut milk	D B12 Ca FAT
Cream cheese spread, fat free	B12 B9 Ca
Gouda cheese	A B9 B12 Ca Se FAT
Fresh cheese	A B9 B12 D Ca Se FAT
Yogurt, skimmed, plain flavour	B9 B12 D Ca
Cheese, fresh, queso fresco	A B9 B12 D Ca Se FAT
Gruyere cheese	A B9 B12 Ca Se FAT
Blue cheese	A B9 B12 Ca Se FAT

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Milk and derivatives

FOOD	Indications
Cheddar cheese	A B9 B12 Ca Se FAT
Mozzarella cheese	A B9 B12 Ca Se FAT
Parmesan cheese	A B9 B12 Ca Se FAT
Grated cheese, parmesan	A B9 B12 Ca Se FAT
Cheese fondue	A B9 B12 Ca Se FAT
Provolone Cheese	A B9 B12 Ca Se FAT
Goat's milk	D B9 Ca FAT
Sheep's milk	Ca B9 FAT
Yogurt mousse, plain	B9 Ca
Liquid yogurt	B9 B12 D Ca
Milk, goats, pasteurised	Ca B9 FAT

FOOD	Indications
Cheese, edam type	A B9 B12 Ca Se FAT
Cheese spread	A B9 B12 Ca FAT
Cream 18% fat	A B9 Ca FAT
Cream 30% fat	A B9 Ca FAT
Monterey Jack- Cheese	A B9 B12 Ca Se FAT
Pepper Jack - Cheese	A B9 B12 Ca Se FAT
Almond milk yogurt, Vanilla	Ca FAT
Coconut milk yogurt,	Ca B12 FAT
Nutritional drink or shake, liquid, soy-based	B6 B9 B12 C D E Ca FAT
Coconut creamer	FAT
Goat cheese, cured	A B9 Ca FAT

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Milk and derivatives

FOOD	Indications
Emmental cheese	A Ca
Goat cheese, uncured	A B9 Ca
Roquefort cheese	A B9 Ca Se
Yogurt parfait, low fat, with fruit and granola	B6 B9 B12 C Ca
Cheese, hard cheese, pecorino, sheep milk	A Ca
Sour cream	A B9 Ca
Asedero Cheese	B9 Ca Se
Yogurt , skimmed, flavoured n/e	B12 B9 D Ca
Milk, semi-skimmed, dried	A B6 B9 B12 D Ca Mg Se
Yogurt, skimmed, with fruits	B12 B9 D Ca

FOOD	Indications
Yogurt, NS as to type of milk, fruit (contain jams)	B12 B9 D Ca
Cream, half and half	B9 Ca
Yogurt mousse, with fruits	B9 D Ca
Cream cheese spread, light	A B9 B12 Ca
Almond milk yogurt, organic	Ca
Almond milk yogurt, blueberry	Ca
Yogurt, greek, strawberry, low fat	B12 B9 Ca Se
Swiss spread cheese	A B9 B12 Ca Se
Almond milk yogurt, strawberry	Ca

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Oils and fats

FOOD	Indications
Wheat germ oil	E
Olive oil	E
Extra virgin olive oil	E
Extra virgin olive oil, organic	E
Palm oil	E
Coconut oil	
Cod liver oil	A D

FOOD	Indications
Soya, oil	E
Flaxseed oil	
Pork lard	D
Walnut oil	
Mayonnaise light	B9 E
Butter with salt	A B9

- Allowed, adjusting the amounts and / or frequency
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- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Tubers and derivatives

FOOD	Indications
Red potato	B6 B9 C Ca
Potato, red	B6 B9 C Ca
Potato, russet	B9 B6 C Ca
Parsnip	B9 C Ca
Arrowroot flour	B9 Ca
Sweet potato	A B9 Ca
Tapioca flour	

FOOD	Indications
Sweet potato, baked	B9 B6 C Ca
Potato, cooked, fat added	B6 B9 C Ca Se
Potato, roast	B9 B6 C Ca
Potato, boiled	B9 B6 C Ca
Beetroot, canned	Ca B9
Sweet potato, flesh only, boiled in unsalted water	A B9 Ca
Sweet potato, baked	A B9 C Ca

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Sauces and condiments

FOOD	Indications
Mint, fresh	A B9 C Fe Ca Mg
Jalapeno Peppers, raw	B6 B9 C E Ca
Chili or hot pepper	B6 B9 C E Ca
Oregano, dried	B6 B9 E Fe Ca Mg
Garlic, powder	B6 B9 Fe Ca Mg Se
Cinnamon, powder	B9 E Fe Ca Mg
Parsley, fresh	A B9 C Fe Ca
Rosemary	A B6 B9 C Fe Ca Mg FAT
Black pepper	B6 B9 Fe Ca Mg
Basil	A B9 C Fe Ca Mg
Dill, dried	A B6 C Fe Ca Mg

FOOD	Indications
Apple vinegar	Ca
Wine vinegar	Ca
White pepper	B9 C Fe Ca Mg
Bay, leaf	A B6 B9 C Fe Ca Mg FAT
Ginger	B9 Ca
Thyme, dried	A B6 B9 C E Fe Ca Mg FAT
Fennel	B9 Ca
Chili pepper, red	B6 B9 C Ca
Chili pepper, green	B6 B9 C Ca
Sea salt	Ca
Iodized salt	Ca

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- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Sauces and condiments

FOOD	Indications
Saffron	B6 B9 C Fe Ca Mg
Sauce, peppers, hot, chili, mature red, canned	B9 C Ca
Soya, sauce	Ca B9 Mg
Curry	B9 E Fe Ca Mg Se
Bechamel sauce	A B9 B12 D Ca
Tahini	B9 Fe Ca Mg Se
Cumin	B6 B9 E Fe Ca Mg
Mustard	B9 Ca Se
Nutmeg	B9 Fe Ca Mg
Tabasco, sauce	B9 Ca
Bolognese sauce	A C

FOOD	Indications
Pesto sauce	B9 E Ca Mg
Curry sauce	B9 E Ca
Gomasio	B9 Fe Ca Mg Se
Peppers, hot chile, sun-dried	A B6 B9 C E Fe Ca Mg
Vanilla	Ca
Cheese sauce	B9 Ca
Fried green tomatoes	B9 Ca Se
Balsamic vinegar	Ca
Tomato chili sauce	B9 C E Ca
Paprika, powder	A B6 B9 E Fe Ca Mg
Sweet and sour sauce	Ca B9

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Sauces and condiments

FOOD	Indications
Ketchup	B9 Ca
Barbecue sauce	B9 Ca

FOOD	Indications
Vinaigrette sauce, with olive oil	E Ca FAT
Cheese sauce mix, dry	B9 B12 Ca FAT

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Sugars and derivatives

FOOD	Indications	FOOD	Indications
Honey	Ca B9	Gelatin Desserts	Ca B9

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Snacks

FOOD	Indications
Pop corn	B6 B9 E Ca Mg
Corn chips	B9 E Ca Mg

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Non-alcoholic beverages

FOOD	Indications
Carrot, fresh juice	A B6 B9 Ca
Tap water	Ca
Mineral water	Ca
Sparkling water, bottled	Ca
Coffee, seed or powder, decaffeinated	
Coffee, brewed, decaffeinated	
Coffee, substitute, instant	B6 B9 Fe Ca Mg Se
Infusion, tea, herbal	B9
Lemon juice, fresh	B9 C Ca
Tea - without sugar	
Tea - without sugar	B9 Ca

FOOD	Indications
Coffee, powder	Fe Ca Mg Se
Coconut Water	Ca
Coffee infusion, with milk	B9 Ca
Tomato, fresh juice	C B9 Ca
Sport drink	
Soluble coffee, powder	B9
Coffee, brewed	B9
Soy milk	B12 B9 D Ca FAT
Orange juice	B6 B9 C
Tea infusion, with milk	B9 Ca
Non-alcoholic beer	B9 Ca

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Non-alcoholic beverages

FOOD	Indications	FOOD	Indications
Carbonated drink, lemon		Grapefruit juice	B9 C Ca
Blackcurrant juice	C Ca	Cranberry juice	Ca C
Apple juice	Ca	Lemonade	B9
Pineapple juice	B9 C Ca	Fruit juice	Ca C

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

Alcoholic beverages

FOOD	Indications	FOOD	Indications
Cognac		Whisky	
Gin		Stout, Guinness	B9 Ca
Rum		Sparkling wine, cava type	B9 Ca
Tequila		Beer	B9 Ca
White wine	B9 Ca	Beer, low alcohol	B9 Ca
Wine, rose	B9 Ca	Sidra	B9 Ca
Red wine	B9 Ca	Sangria	B9 Ca
Vodka		Fruit liqueur	

- Allowed, adjusting the amounts and / or frequency
- Allowed without raising the recommended quantities and / or frequency
- Reduce the amount and / or frequency
- Restrict, occasionally / in small quantities

How to customize your diet

- Choose food to replace
- Look at the food table of the selected food group
- See the recommended amount of the new food in the Food equivalences
- Replace the target food with another kind of food in the same food group that is recommended in more amounts/frequency
- Continue enjoying your Nutrigen™ plan and be constant

You can do it.

IV.
Complete genetic results

A detailed description of all the analyzed SNPs within the NutriGen™ both at gene and SNP level with detailed descriptions .

Genetic risk of overweight

- MEDIUM-LOW RISK -

ABOUT

Key genetic predisposition genes to weight gain are analyzed. Weight is influenced by the interplay between environmental factors such as diet, physical activity level, and genetic factors. Genetic factors impact how the body metabolizes fats and processes nutrients, so understanding those factors can provide useful information to help maintain a healthy weight.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
MC4R-1	rs2229616	CC	HIGH	Higher risk of obesity. High predisposition to increased glycosylated hemoglobin (increased risk of type 2 diabetes) and decreased HDL-cholesterol levels.
SH2B1-2	rs7498665	AA	LOW	Normal risk of obesity.
FTO-1	rs9939609	TT	LOW	Normal risk of obesity.
FTO-2	rs1121980	GG	LOW	Normal risk of obesity.
MC4R-2	rs17700633	GG	LOW	Normal risk of obesity.

INDICATIONS

LOW RISK

Reduced risk of excess weight due to inherited genetic factors.

MEDIUM-LOW RISK

Medium-low risk of excess weight due to inherited genetic factors.

MEDIUM-HIGH RISK

Medium-high risk of excess weight due to inherited genetic factors. Other factors such as intake due to anxiety or low satiety may explain excess weight.

HIGH RISK

High risk of excess weight due to inherited genetic factors. Other factors such as intake due to anxiety or low satiety may explain excess weight.

Risk of rebound weight gain

- HIGH REBOUND EFFECT -

ABOUT

Individuals with certain genetic variants of the ADIPOQ gene were found to be more susceptible to regain weight after weight loss interventions (rebound effect).

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
ADIPOQ	rs17300539	GG	HIGH	Predisposition to regain weight after dieting.

INDICATIONS

LOW REBOUND EFFECT

Low risk of rebound weight after diet interventions. Normal weight loss capacity.

MEDIUM-LOW REBOUND EFFECT

Medium-low risk of rebound weight after diet interventions. Normal weight loss capacity.

MEDIUM-HIGH REBOUND EFFECT

Medium-high risk of rebound weight after diet interventions. Lower weight loss capability than normal during interventions.

HIGH REBOUND EFFECT

High risk of rebound weight after diet interventions. Lower weight loss capability than normal during interventions. It will require an extra effort to loose weight and keep it off afterwards.

Risk of increased BMI

- MEDIUM-LOW RISK -

ABOUT

The predisposition to increase waist circumference and body mass index (BMI) is analyzed. BMI is used to determine whether an individual is in a healthy weight range for the correspondent height. It is useful to consider BMI alongside waist circumference, as waist measurement helps to assess risk by measuring the amount of fat carried around the middle.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
MC4R-3	rs12970134	AG	MEDIUM	Increased risk of increased BMI, increased waist circumference, and insulin resistance.
MC4R-4	rs17782313	TC	MEDIUM	Increased risk of increased BMI, increased waist circumference, and insulin resistance.
SH2B1-1	rs4788102	GG	LOW	Normal risk of increased BMI.

INDICATIONS

LOW RISK

Reduced risk of increased BMI, waist circumference and insulin resistance due to genetics.

MEDIUM-LOW RISK

Medium-low risk of increased BMI, waist circumference and insulin resistance due to genetics.

MEDIUM-HIGH RISK

Medium-high risk of increased BMI, waist circumference and insulin resistance due to genetics.

HIGH RISK

High risk of increased BMI, waist circumference and insulin resistance due to genetics.

Basal metabolic rate (burn calories at rest)

- LOW BURNER -

ABOUT

The predisposition to an increase/decrease in energy expenditure while resting is analyzed. Some people have a higher tendency then others to expend less energy when not performing any physical activity.

MARKER	LOCUS	VARIANT	METABOLISM	DESCRIPTION
FABP2	rs1799883	CT	LOW	Predisposition to decreased resting metabolic rate.
LEPR-4	rs2025804	GG	LOW	Predisposition to decreased resting metabolic rate.

INDICATIONS

HIGH BURNER

HIGH ENERGY/CALORIE BURNING CAPACITY AT REST

MEDIUM-HIGH BURNER

MEDIUM-HIGH CAPACITY TO BURN ENERGY/CALORIES AT REST

MEDIUM-LOW BURNER

MEDIUM-LOW CAPACITY OF ENERGY/CALORIE BURNING AT REST

LOW BURNER

LOW ENERGY/CALORIE BURNING CAPACITY AT REST

Weight loss capability during diet interventions

- SLOW WEIGHT LOSS -

ABOUT

The predisposition to an increase/decrease in weight loss during diet interventions is analyzed. Some people have a higher tendency than others to lose weight when they follow a diet intervention. Lower capabilities will imply a longer time to accomplish the goals and may require a stricter intervention.

MARKER	LOCUS	VARIANT	CAPABILITY	DESCRIPTION
ACSL5	rs2419621	CC	LOW	Predisposition to slow diet-induced weight loss.

INDICATIONS

RAPID WEIGHT LOSS

Diet interventions should be successful due to a higher capability to reduce weight while on diet.

NORMAL WEIGHT LOSS

Diet interventions should be successful due to a normal capability to reduce weight while on diet. However it may take a minimum of 3-6 months to be effective.

SLIGHTLY SLOW WEIGHT LOSS

Standard diet interventions could not be successful due to a low capability to reduce weight while on diet. Specialized treatments would be recommended.

SLOW WEIGHT LOSS

Diet interventions should contain a complete approach for the patient, both nutritional and psychological, due to the lower capability to reduce weight while on diet. Specialised treatments will be recommended.

Appetite and anxiety risk

- INCREASED -

ABOUT

Genetic variations affecting appetite and anxiety related to eating are analyzed. Appetite is a phenomenon created by our nervous system which results in a desire to eat, either by necessity or by pleasure, and in which external factors (such as odors, flavors, appearance and presentation of food) are involved. It has been seen in numerous studies that the appetite or desire to eat can also have genetic causes that can determine inhibition of intake or reduced feeling of being full. Anxiety related to food intake can be caused by periods of stress, but it has also been seen that there is an important genetic component that makes us more prone to anxiety and translates into compulsive eating more easily. The main parameters related to genetic predisposition to deregulated levels of appetite and anxiety in food intake, increased risk of excess weight, increased food intake and reduced fullness are analyzed below. Knowing how these genetic processes affect your diet can assit you in your efforts to build healthy diet and habits

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
COMT	rs4680	GA	MEDIUM	Increased risk of overeating.
NMB	rs1051168	GG	LOW	Normal risk of eating disinhibition.
DRD2-1	rs1800497	AG	HIGH	Predisposition to emotional eating and obesity.
MC4R-1	rs2229616	CC	HIGH	Predisposition to binge eating.
DRD2-2	rs6277	AA	HIGH	Predisposition to binge eating.

INDICATIONS

NORMAL

Normal or well-balanced regulation of appetite and eating-related anxiety.

SLIGHTLY INCREASED

Medium-low dysregulation of the appetite, leading to some levels of anxiety affecting food intake.

INCREASED

Medium-high dysregulation of the appetite, leading to elevated levels of anxiety affecting food intake. Appetite suppressants may be helpful.

HIGHLY INCREASED

High dysregulation of the appetite, leading to high levels of anxiety affecting food intake. Appetite suppressants may be required and professional evaluation is recommended.

Satiety: Feeling Full

- NORMAL SATIETY -

ABOUT

The perception of feeling full and satisfied after food intake is different within individuals. This is particularly important as the longer it takes to reach this feeling, the more food intake will occur, contributing to weight gain.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
FTO-1	rs9939609	TT	LOW	Predisposition to normal satiety.

INDICATIONS

NORMAL SATIETY

Normal perception of satiety after eating, activated after 15-20 minutes of the start of the meal.

SLIGHTLY LOWER SATIETY

Slighlty reduced perception of satiety after eating a meal. Try to eat slower to allow the satiety center to be activated.

LOWER SATIETY

Reduced perception of satiety after eating a meal. Eat slower to allow the satiety center to be activated.

VERY LOW SATIETY

Very low perception of satiety after eating a meal. Eat very slow to allow the satiety center to be activated. Incorporate satiating food in your daily diet.

Benefits from endurance exercise for improving HDL levels

- VERY LOW EXPECTED BENEFITS FROM EXERCISE -

ABOUT

The predisposition to improving the HDL cholesterol levels via exercising is analyzed. The expected efficacy of exercise on cholesterol regulation differs between individuals and is influenced by your genetics.

MARKER	LOCUS	VARIANT	BENEFIT	DESCRIPTION
PPARD	rs2016520	TT	LOW	No predisposition to increase HDL cholesterol levels in response to endurance exercise.

INDICATIONS

HIGH EXPECTED BENEFITS FROM EXERCISE

Exercise will be strongly beneficial for cholesterol regulation (HDL increase).

MEDIUM-HIGH EXPECTED BENEFITS FROM EXERCISE

Exercise will be beneficial for cholesterol regulation (HDL increase).

MEDIUM-LOW EXPECTED BENEFITS FROM EXERCISE

Exercise alone will not be enough for cholesterol regulation.

VERY LOW EXPECTED BENEFITS FROM EXERCISE

Exercise alone will not be enough for cholesterol regulation.

Exercise to reduce body fat

- MEDIUM-LOW EXPECTED BENEFIT FROM EXERCISE -

ABOUT

The efficacy of physical activity to reduce body fat is different among all of us. This is the reason why some people, even exercising daily tend to lose less weight than others exercising a couple of times a week. In this category, the genes related to the efficacy of exercise to reduce body fat are analyzed.

MARKER	LOCUS	VARIANT	BENEFIT	DESCRIPTION
FTO-1	rs9939609	TT	LOW	No predisposition to lose fat during physical exercise.
FTO-2	rs1121980	GG	LOW	Predisposition to not lose fat during physical exercise.
LIPC	rs1800588	CT	MEDIUM	Slight predisposition to benefit from physical exercise to increase HDL cholesterol levels.
LEP	rs7799039	GA	HIGH	Normal predisposition to exercise-induced fat loss.

INDICATIONS

HIGH EXPECTED BENEFIT FROM EXERCISE

An exercise strategy will be a very good option for weight loss. Exercise 3-4 times per week at medium-high intensity will be beneficial for slimming. Introduce also some diet restrictions.

MEDIUM-HIGH EXPECTED BENEFIT FROM EXERCISE

An exercise strategy may be a good option for weight loss. Exercise 2-3 times per week at medium-high intensity will be beneficial for slimming. Also introduce some diet restrictions.

MEDIUM-LOW EXPECTED BENEFIT FROM EXERCISE

An exercise strategy may not be the best option for weight loss. Rather introduce diet restrictions and institute healthy sport-related habits (walking, swimming at low intensity).

VERY LOW EXPECTED BENEFIT FROM EXERCISE

An exercise strategy may not be the best option for weight loss. Rather introduce diet restrictions and institute healthy sport-related habits (walking, swimming at low intensity).

Response to monosunsaturated fats (MUFAs)

- VERY LOW MUFA METABOLISM -

ABOUT

The predisposition to a higher/lower capacity to metabolize monounsaturated fatty acids (MUFAs) is analyzed. MUFAs are a class of fatty acids found in foods such as olive oil, nuts and avocados. The beneficial effects of MUFAs on cardiovascular disease risk and blood lipid profiles have been extensively studied: dietary MUFAs decrease oxidized LDL, LDL cholesterol, total cholesterol, and triglyceride concentrations, without the concomitant decrease in HDL typically seen with low-fat diets.

MARKER	LOCUS	VARIANT	METABOLISM	DESCRIPTION
ADIPOQ	rs17300539	GG	LOW	No predisposition to reduce BMI and decrease obesity risk in response to monounsaturated fatty acids (MUFA) intake.

INDICATIONS

FAST MUFA METABOLISM

Normal capability of burning monounsaturated fat (MUFA). Increased capability to intake and metabolize MUFA with low weight gain.

MEDIUM MUFA METABOLISM

Medium capability of burning monounsaturated fat (MUFA). MUFA intake may lead to low weight gain unless a high-fat diet is followed.

LOW MUFA METABOLISM

Low capability of burning monounsaturated fat (MUFA). Direct correlation of high-MUFA intake and weight gain due to fat accumulation.

VERY LOW MUFA METABOLISM

Very low capability of burning monounsaturated fat (MUFA). Direct correlation on high-MUFA intake and weight gain due to fat accumulation.

Response to polyunsaturated fats (PUFAs)

- FAST PUFA METABOLISM -

ABOUT

The predisposition to a higher/lower capacity to metabolize polyunsaturated fatty acids (PUFA) and to improve the lipidic profile (decreased LDL-levels) with PUFA intake is analyzed. Polyunsaturated fatty acids are necessary to build cell membranes and nerve coverings as well as for proper blood clotting, muscle movement and inflammation. There are two main types of polyunsaturated fats: omega-3 fatty acids and omega-6 fatty acids. Both types provide health benefits.

MARKER	LOCUS	VARIANT	METABOLISM	DESCRIPTION
PPAR-Y	rs1801282	CC	HIGH	Predisposition to improve lipid profile (LDL and total cholesterols) and reduce BMI in response to a PUFA-rich diet.
FADS1	rs174547	CT	MEDIUM	Age-related predisposition to slightly reduced PUFA biosynthetic capacity and lower plasma omega 3 concentration.

INDICATIONS

FAST PUFA METABOLISM

Normal capability of burning polyunsaturated fat (PUFA). Increased capability to intake and metabolize PUFA with low weight gain. Improved lipidic profiles with PUFA intake.

MEDIUM PUFA METABOLISM

Medium capability of burning polyunsaturated fat (PUFA). PUFA intake may lead to low weight gain unless a high-fat diet is followed. Improved lipidic profiles with PUFA intake.

LOW PUFA METABOLISM

Low capability of burning polyunsaturated fat (PUFA). Direct correlation of high-PUFA intake and weight gain due to fat accumulation.

VERY LOW PUFA METABOLISM

Very low capability of burning polyunsaturated fat (PUFA). Direct correlation of high-PUFA intake and weight gain due to fat accumulation.

Response to fat intake to improve the HDL levels

- MEDIUM-HIGH EXPECTED BENEFITS -

ABOUT

The predisposition to have increased or reduced levels of HDL is analyzed according to the genetic situation of liver lipases. With this category, we understand if a low fat diet is a good strategy to regulate cholesterol levels.

MARKER	LOCUS	VARIANT	METABOLISM	DESCRIPTION
LIPC	rs1800588	CT	MEDIUM	Slight predisposition to improve HDL cholesterol levels in response to low fat diet.

INDICATIONS

HIGH EXPECTED BENEFITS

A low fat diet should aid in increasing HDL levels.

MEDIUM-HIGH EXPECTED BENEFITS

A low fat diet should be a good support to increase HDL levels.

MEDIUM-LOW EXPECTED BENEFITS

Low fat diet could not be enough to increase HDL levels.

VERY LOW EXPECTED BENEFITS

Low fat diet could not be enough to increase HDL levels.

Capability to digest starchy food

- REDUCED STARCH DIGESTION -

ABOUT

The capability to break down starch from food is analyzed. Amylase is an enzyme that catalyzes the hydrolysis of starch into sugars. Amylase is present in the saliva of humans and some other mammals, where it begins the chemical process of digestion. When starch is not properly processed, it can be benefical to consider reducing its consumption.

MARKER	LOCUS	VARIANT	CAPABILITY	DESCRIPTION
AMY1-AMY2	rs11577390	CC	LOW	No predisposition to increased expression of the amylase gene.
AMY1	rs4244372	TT	HIGH	Predisposition to increased expression of the amylase gene which is likely to enable more efficient starch digestion.

INDICATIONS

INCREASED STARCH DIGESTION

Increased capability to digest starch from food due to an increase in the expression and the activity of amylase enzyme. It is expected that reducing calories will be beneficial.

MEDIUM STARCH DIGESTION

Moderate capability to digest starch from food due to an increase in the expression and the activity of amylase enzyme. It is expected that reducing calories will be beneficial.

REDUCED STARCH DIGESTION

Reduced capability to digest starch in food due to a decrease in amylase enzyme activity. It may be beneficial to decrease starch intake.

HIGHLY REDUCED STARCH DIGESTION

Highly reduced capability to digest starch in food due to a decrease in amylase enzyme activity. It may be beneficial to decrease starch intake.

Refined carbohydrate sensitivity

- NORMAL CARBOHYDRATE SENSITIVITY -

ABOUT

Carbohydrate consumption initially produces a slight euphoria, followed by a sugar low, this is then replaced by tiredness. This adverse feeling causes a desire to snack more, perpetuating this unhealthy cycle, without ever feeling satisfied. In carbohydrate sensitive people, the carbohydrate-insulin-serotonin connection has malfunctioned, or become desensitized and the amount of calories extracted by the consumption of refined carbohydrates is higher than average, also due to a continuous increase of its consumption.

MARKER	LOCUS	VARIANT	SENSITIVITY	DESCRIPTION
FABP2	rs1799883	CT	NORMAL	Predisposition to normal sensitivity to refined carbohydrates.

INDICATIONS

NORMAL CARBOHYDRATE SENSITIVITY

Normal calorie extraction from carbohydrate consumption.

MEDIUM CARBOHYDRATE SENSITIVITY

Moderate calorie extraction from carbohydrate consumption. Medium risk of weight gain.

HIGH CARBOHYDRATE SENSITIVITY

Increased calorie extraction from carbohydrate consumption. Higher risk of weight gain.

VERY HIGH CARBOHYDRATE SENSITIVITY

Highly increased calorie extraction from carbohydrate consumption. Very high risk of weight gain.

Carbohydrates and HDL levels predisposition

- HIGH RISK OF DYSREGULATION -

ABOUT

Carbohydrate intake has an implication on the regulation of cholesterol levels. We analyze the predisposition to increase or decrease the HDL cholesterol levels depending on carbohydrate intake.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
KCTD10	rs10850219	GG	HIGH	Predisposition to reduce HDL cholesterol levels in response to a carbohydrate-rich diet.

INDICATIONS

LOW RISK OF DYSREGULATION

High carbohydrate consumption should not lead to a cholesterol dysregulation.

MEDIUM-LOW RISK OF DYSREGULATION

High carbohydrate consumption may lead to slightly increased LDL and decreased HDL levels.

MEDIUM-HIGH RISK OF DYSREGULATION

High carbohydrate consumption may lead to increased LDL and decreased HDL levels.

HIGH RISK OF DYSREGULATION

High carbohydrate consumption will lead to highly increased LDL and decreased HDL levels.

Carbohydrates and LDL levels

- HIGH RISK OF DYSREGULATION -

ABOUT

Effect of carbohydrate intake in the regulation of cholesterol levels.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
MMAB	rs2241201	GG	HIGH	High risk to increase LDL-cholesterol levels and decrease HDL-cholesterol levels in response to high intake of carbohydrates.

INDICATIONS

LOW RISK OF DYSREGULATION

High carbohydrate consumption will not lead to cholesterol dysregulation.

MEDIUM-LOW RISK OF DYSREGULATION

High carbohydrate consumption will lead to very slight increased LDL and decreased HDL levels.

MEDIUM-HIGH RISK OF DYSREGULATION

High carbohydrate consumption will lead to increased LDL and decreased HDL levels.

HIGH RISK OF DYSREGULATION

High carbohydrate consumption will lead to highly increased LDL and decreased HDL levels.

Predisposition to reduced HDL levels

- REDUCED HDL LEVELS -

ABOUT

Although environmental factors play a role, variation in HDL levels are at least 50% genetically determined. In this category the main genes involved in the predisposition to higher or lower HDL levels are analyzed.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
APOA5	rs662799	AA	LOW	Predisposition to normal levels of HDL cholesterol.
CETP	rs5883	CC	HIGH	Predisposition to decreased HDL cholesterol levels.

INDICATIONS

NORMAL HDL LEVELS

Normal regulation of HDL levels. No increased risk of cardiovascular risk.

SLIGHTLY DECREASED HDL LEVELS

Slightly lower HDL levels leading to increased cardiovascular risk.

REDUCED HDL LEVELS

Lower HDL levels leading to increased cardiovascular risk.

HIGLY REDUCED HDL LEVELS

Very low HDL levels leading to increased cardiovascular risk.

Predisposition to increased levels of triglycerides

- HIGHLY INCREASED TRIGLYCERIDES -

ABOUT

Triglycerides are a type of fat (lipid) found in your blood. When you eat, your body converts any calories it doesn't need to use right away into triglycerides. The triglycerides are stored in your fat cells. Later, hormones release triglycerides for energy between meals. If you regularly eat more calories than you burn, particularly from high-carbohydrate foods, you may have high triglycerides (hypertriglyceridemia). In this category we analyze the genes related to the predisposition of having increased levels of triglycerides.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
PPAR-Y	rs1801282	CC	HIGH	Predisposition to increased levels of triglycerides.

INDICATIONS

TRIGLYCERIDES NOT INCREASED

No predisposition to increased triglyceride levels.

SLIGHTLY INCREASED TRIGLYCERIDES

Slight predisposition to increased triglyceride levels.

INCREASED TRIGLYCERIDES

Medium-high predisposition to increased triglyceride levels.

HIGHLY INCREASED TRIGLYCERIDES

High predisposition to increased triglyceride levels

Predisposition to increased oxidation of LDL

- SLIGHTLY INCREASED LDL OXIDATION -

ABOUT

Oxidized low-density lipoprotein (LDL) is a harmful type of cholesterol that is produced in your body when normal LDL cholesterol is damaged by chemical interactions with free radicals. These, and a related series of inflammatory responses can result in atherosclerosis, which is the hardening of the arteries. The resulting decrease in blood flow in your arteries increases your chances of having a heart attack or a stroke. You can produce high levels of oxidized LDL if you have excessive free radical formation or simply high LDL cholesterol levels. In this category, the genes related to an increased predisposition to oxidize LDL are analyzed.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
APOB-2	rs676210	AG	MEDIUM	Predisposition to increased LDL oxidation.

INDICATIONS

NOT INCREASED LDL OXIDATION

Normal LDL oxidation.

SLIGHTLY INCREASED LDL OXIDATION

Moderate increase in the LDL oxidation. Increased risk of atherosclerosis.

INCREASED LDL OXIDATION

Increased LDL oxidation. Increased risk of atherosclerosis. Strategies for reducing LDL levels would be recommended.

HIGHLY INCREASED LDL OXIDATION

Higly increased LDL oxidation and risk of atherosclerosis. Intense strategies for reducing LDL levels should be considered

Risk of increased cholesterol LDL levels

- INCREASED LDL LEVELS -

ABOUT

Low-density lipoprotein (LDL) is one of the five major groups of lipoprotein which transport all fat molecules around the body in extracellular water. LDL delivers fat molecules to cells. LDL can contribute to atherosclerosis if it is oxidized within the walls of arteries. In this category, the genes related to the risk of having increased cholesterol LDL levels in your body are analyzed.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
CELSR2	rs12740374	GT	MEDIUM	Increased predisposition to lower LDL cholesterol levels.
HNF1A	rs2650000	AA	HIGH	Predisposition to increased LDL cholesterol levels.
LDLR	rs6511720	GG	HIGH	High risk of increased LDL cholesterol levels.
ABCG8	rs6544713	CC	LOW	High risk of increased LDL cholesterol levels.

INDICATIONS

NOT INCREASED LDL LEVELS
Lower risk of high LDL levels

SLIGHTLY INCREASED LDL LEVELS
Moderate risk of high LDL levels

INCREASED LDL LEVELS
High risk of high LDL levels.

HIGHLY INCREASED LDL LEVELS
Very high risk of high LDL levels.

Risk of unbalanced Triglycerides/HDL ratio

- SLIGHLTLY INCREASED TG/HDL RATIO -

ABOUT

The predisposition to an unbalanced Triglyceride/HDL cholesterol (TG/HDL-C) ratio is analyzed. High TG/HDL ratio has been identified as a risk factor for cardiovascular (CV) diseases.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
HMGCR	rs3846663	CT	MEDIUM	Predisposition to slightly higher triglyceride (TG) levels, and increased TG/HDL cholesterol ratio.

INDICATIONS

NORMAL TG/HDL RATIO

Not associated with increased TG/HDL ratio.

SLIGHLTLY INCREASED TG/HDL RATIO

Slightly associated with increased TG/HDL ratio.

INCREASED TG/HDL RATIO

Increased TG/HDL ratio leads to a highly increased risk of cardiovascular pathologies. Risk of insulin insensitivity.

HIGHLY INCREASED TG/HDL RATIO

A very high TG/HDL ratio leads to a highly increased risk of cardiovascular pathologies. Risk of insulin insensitivity.

Risk of increased glucose levels in plasma after fasting

- HIGH RISK OF HIGH GLUCOSE LEVELS -

ABOUT

Fasting blood sugar levels give vital clues about how a person's body is managing blood sugar. Blood sugar tends to peak about an hour after eating and declines after that. High fasting blood sugar levels point to insulin resistance or diabetes. In this category, the genes related to the predisposition to an increased level of glucose after fasting are analyzed, helping to understand how the body manages sugar.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
PLIN1	rs2289487	CC	HIGH	High risk of increased plasma glucose levels after fasting.
GHSR	rs490683	GG	HIGH	High risk of increased plasma glucose levels after fasting.

INDICATIONS

LOW RISK OF HIGH GLUCOSE LEVELS

Normal fasting plasma glucose levels.

MEDIUM-LOW RISK OF HIGH GLUCOSE LEVELS

Normal or slightly increased fasting plasma glucose levels.

MEDIUM-HIGH RISK OF HIGH GLUCOSE LEVELS

Increased fasting plasma glucose levels.

HIGH RISK OF HIGH GLUCOSE LEVELS

High risk of Increased fasting plasma glucose levels

Risk of insulin resistance

- MEDIUM-LOW INSULIN RESISTANCE -

ABOUT

Insulin resistance (also called metabolic syndrome) is when cells in your muscles, fat, and liver don't respond well to insulin and can't use glucose from your blood for energy. To make up for it, your pancreas makes more insulin. Over time, your blood sugar levels go up. Insulin resistance syndrome includes a group of problems like obesity, high blood pressure, high cholesterol, and Type-II diabetes. In this category the genetic predisposition towards a higher risk of insulin resistance is analyzed.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
PPAR-Y	rs1801282	CC	HIGH	High predisposition to insulin resistance.
ADIPOQ	rs17300539	GG	HIGH	High predisposition to insulin resistance.
TCF7L2-2	rs7903146	CC	LOW	No predisposition to insulin resistance.
FTO-1	rs9939609	TT	LOW	No predisposition to insulin resistance.
FTO-2	rs1121980	GG	LOW	No predisposition to insulin resistance.

INDICATIONS

LOW INSULIN RESISTANCE
Low inherited risk of insulin resistance

MEDIUM-LOW INSULIN RESISTANCE
Medium-low inherited risk of insulin resistance

MEDIUM-HIGH INSULIN RESISTANCE
Medium-high inherited risk of insulin resistance

HIGH INSULIN RESISTANCE
High inherited risk of insulin resistance

Risk of Type-II diabetes

- MEDIUM-LOW DIABETES TYPE-II RISK -

ABOUT

Type-II diabetes mellitus (T2DM) is caused by complex interplay between multiple genetic and environmental factors. In this category, a complete analysis of the main genetic variants related to an increase in the risk of developing Type-II diabetes is analyzed. Genetic factors are one risk factor among many, which includes weight, fat distribution, inactivity, age, etc. Predisposition only signifies increased risk and does not indicate specific likelihood of being diagnosed with Type-II diabetes.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
PPAR-Y	rs1801282	CC	HIGH	Increased risk of diabetes type 2.
PLIN1	rs2289487	CC	HIGH	Increased risk of type 2 diabetes.
TCF7L2-2	rs7903146	CC	LOW	Normal risk of diabetes type 2.
FTO-1	rs9939609	TT	LOW	Normal risk of diabetes type 2.
MC4R-2	rs17700633	GG	LOW	No predisposition to obesity and type 2 diabetes.
CDKN2A/B	rs10811661	CT	HIGH	High risk of type 2 diabetes.
KCNQ1	rs2237892	CC	HIGH	Increased risk of type 2 diabetes.
CDKN2A, CDKN2B	rs2383208	AG	MEDIUM	Increased risk of type 2 diabetes.
CDKAL1	rs7756992	AA	LOW	Normal risk of type 2 diabetes.
TCF7L2-1	rs7901695	TT	LOW	Normal risk of type 2 diabetes.

INDICATIONS

LOW DIABETES TYPE-II RISK

Normal diabetes type-II risk.

MEDIUM-LOW DIABETES TYPE-II RISK

Medium-low risk of developing type-II diabetes.

MEDIUM-HIGH DIABETES TYPE-II RISK

Medium-high risk of developing type-II diabetes.

HIGH DIABETES TYPE-II RISK

High risk of developing type-II diabetes.

Bitter taste sensitivity

- NORMAL -

ABOUT

Sensitivity to bitter flavors is deeply linked to genetics. A high sensitivity to bitter flavors is usually linked to increased salt consumption.

MARKER	LOCUS	VARIANT	SENSITIVITY	DESCRIPTION
TAS2R38-1	rs1726866	AG	NORMAL	Predisposition to normal sensitivity to bitter taste.
TAS2R38-2	rs713598	GC	NORMAL	Predisposition to normal sensitivity to bitter taste.

INDICATIONS

NORMAL

Normal or decreased sensitivity to bitter flavors. No extra salt should be consumed for this reason.

SLIGHTLY INCREASED

Slightly increased sensitivity to bitter flavors. No extra salt should be consumed for this reason.

INCREASED

Increased sensitivity to bitter flavors. Try to minimize bitter-tasting food, since it may lead to an increased consumption of salt.

HIGHLY INCREASED

High sensitivity to bitter flavors. Try to avoid bitter-tasting food, since it may lead to an increased consumption of salt.

Salt sensitivity

- LOW SALT SENSITIVITY -

ABOUT

Salt sensitivity is defined as a physiological trait by which blood pressure shows changes parallel to changes in salt intake. In many individuals, when salt intake increases, the excess amount is excreted by the way of kidney or sweat. However, there are some individuals where this mechanism is faulty and increased salt is retained and manifests as high blood pressure.

MARKER	LOCUS	VARIANT	SENSITIVITY	DESCRIPTION
ACE	rs4343	AA	LOW	Predisposition to normal salt sensitivity.

INDICATIONS

LOW SALT SENSITIVITY

Normal salt sensitivity: no increased blood pressure risk due to salt consumption.

MEDIUM-LOW SALT SENSITIVITY

Slightly increased salt sensitivity: moderately increased blood pressure risk due to salt consumption.

MEDIUM-HIGH SALT SENSITIVITY

Increased salt sensitivity: increased blood pressure risk due to salt consumption. Reduce current salt consumption, if daily intake is high.

HIGH SALT SENSITIVITY

High salt sensitivity: high blood pressure risk due to salt consumption. Reduce current salt consumption, if daily intake is high.

Sweet flavor preference

- NORMAL -

ABOUT

Increased desire to eat sweet food due to an decreased sensitivity to sweet flavors

MARKER	LOCUS	VARIANT	SENSITIVITY	DESCRIPTION
SLC2A2	rs5400	GG	HIGH	No predisposition for preferring sugar-containing foods.

INDICATIONS

NORMAL

Normal taste of sweet flavour. No excess sugar intake should be required.

SLIGHTLY INCREASED

Slight incapacity to taste sweet flavours. This will lead to an increase in sugar consumption and obesity risk.

INCREASED

Incapacity to taste sweet flavours. This will lead to an increase in the sugar consumption and obesity risk. Consider using artificial sweeteners in your diet.

HIGHLY INCREASED

Major incapacity to taste sweet flavours. This will lead to an increase in the sugar consumption and obesity risk. Consider using artificial sweeteners in your diet.

Antioxidant capability

- NORMAL ANTIOXIDANT CAPABILITY -

ABOUT

The balance between production and clearance of reactive oxygen species (ROS) is essential for cell survival. Antioxidant cellular systems evolved to maintain a redox homeostasis under different physiological and pathological conditions. Therefore, understanding the status of the antioxidant mechanisms is a key factor for health improvement. The main genes involved in the human antioxidant capability are analyzed in this category, allowing us to understand whether we need extra help via specific supplementation or if our internal antioxidant mechanisms work properly.

MARKER	LOCUS	VARIANT	CAPABILITY	DESCRIPTION
GPX1	rs1050450	GG	HIGH	Predisposition to normal hydrogen peroxide detoxification.
NQO1	rs1800566	GA	MEDIUM	Predisposition to reduced NQO1 activity resulting in less effective protection against oxidative stress.
COMT	rs4680	GA	MEDIUM	Predisposition to slightly reduced COMT enzyme activity resulting in a less efficient inactivation of neurotransmitters and catechol estrogens.
SOD2	rs4880	GA	HIGH	Predisposition to normal hydrogen peroxide detoxification.
CYP1B1	rs1056836	CG	MEDIUM	Predisposition to increased CYP1B1 activity which could result in an increased accumulation of carcinogenic products.
CYP1A1-2	rs1048943	TT	HIGH	Predisposition to normal CYP1A1 enzyme activity.
GSTP1	rs1695	AA	HIGH	Predisposition to normal GSTP1 activity.

INDICATIONS

NORMAL ANTIOXIDANT CAPABILITY

Normal capacity of metabolizing free radicals and cellular toxins.

SLIGHTLY REDUCED ANTIOXIDANT CAPABILITY

Slightly reduced capability of metabolizing free radicals and cellular toxins.

REDUCED ANTIOXIDANT CAPABILITY

Reduced capability of metabolizing free radicals and cellular toxins. Increased risk of cellular damage. Consider supplementation as suggested at gene level.

LOW ANTIOXIDANT CAPABILITY

Low capability of metabolizing free radicals and cellular toxins. High risk of cellular damage. Consider supplementation as suggested at gene level.

Calcium malabsorption risk

- LOW RISK OF CALCIUM MALABSORPTION -

ABOUT

Calcium dissolves in the stomach and is absorbed through the lining of the small intestine into the blood stream. Once in the blood stream, calcium builds bone, regulates the expansion and contraction of the blood vessels, and performs other important functions. Common factors for calcium malabsorption are a diet high in phytic acid (present in wholegrains), high levels of sodium intake, smoking and also genetic factors related to Vitamin D. In this category, the genetic factors related to a predisposition to calcium malabsorption due to lower levels of 25(OH) D (Vitamin D) are analyzed. Therefore, a high risk of malabsorption would require an increase in vitamin D consumption or even controlled supplementation.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
CYP2R1-1	rs10766197	GG	LOW	Predisposition to normal vitamin D levels and calcium absorption.
GC	rs2282679	TT	LOW	Predisposition to normal vitamin D levels and calcium absorption.

INDICATIONS

LOW RISK OF CALCIUM MALABSORPTION

Low inherited risk of calcium malabsorption.

MEDIUM-LOW RISK OF CALCIUM MALABSORPTION

Medium-low inherited risk of calcium malabsorption.

MEDIUM-HIGH RISK OF CALCIUM MALABSORPTION

Medium-high inherited risk of calcium malabsorption.

HIGH RISK OF CALCIUM MALABSORPTION

High inherited risk of calcium malabsorption.

Predisposition to dysregulated calcium levels

- NO ADDITIONAL RISK OF DYSREGULATED PLASMA CALCIUM LEVELS -

ABOUT

The predisposition to low or high levels of plasma calcium are analyzed in this category. A predisposition to high levels of calcium and increased absorption would be a warning against calcium supplementation due to the potential increased risk of vascular calcification.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
DGKD	rs1550532	CG	MEDIUM	Predisposition to slightly increased serum levels of calcium.
CYP24A1	rs1570669	AG	MEDIUM	Predisposition to slightly reduced serum calcium levels and bone mineral density.
CASR-1	rs17251221	AA	LOW	Predisposition to normal serum calcium levels.
CASR-2	rs1801725	GG	LOW	Predisposition to normal serum calcium levels.
CARS	rs7481584	GG	LOW	Predisposition to normal serum calcium levels
GCKR	rs780094	TT	LOW	Predisposition to normal serum calcium levels

INDICATIONS

NO ADDITIONAL RISK OF DYSREGULATED PLASMA CALCIUM LEVELS

No additional risk of dysregulated plasma calcium levels.

SLIGHTLY INCREASED RISK OF DYSREGULATED PLASMA CALCIUM LEVELS

Slightly increased risk of dysregulated plasma calcium levels.

INCREASED RISK OF DYSREGULATED PLASMA CALCIUM LEVELS

Increased risk of dysregulated plasma calcium levels.

HIGHER RISK OF DYSREGULATED PLASMA CALCIUM LEVELS

High risk of dysregulated plasma calcium levels.

Risk of iron overload

- LOW RISK OF HEMOCHROMATOSIS -

ABOUT

Iron overload is defined as excess stores of iron in the body. Excess iron is deposited in organs throughout the body. The most notable organs with iron deposition are the liver, heart, and endocrine glands. Resulting symptoms and diseases are related to specific organ damage. In this category, the genetic risk of iron overload on high intake is analyzed.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
HFE	rs1800562	GG	LOW	Predisposition to normal absorption of dietary iron.

INDICATIONS

LOW RISK OF HEMOCHROMATOSIS

No additional risk of iron overload.

MEDIUM-LOW RISK OF HEMATOCHROMATOSIS

Some risk of having increased iron absorption on high iron intake. Before implementing supplementation or dietary changes, consult your physician for further analysis

MEDIUM-HIGH RISK O FHEMATOCHROMATOSIS

Medium risk of having increased iron absorption on high iron intake. Before implementing supplementation or dietary changes, consult your physician for futher analysis.

HIGH RISK OF HEMATOCHROMATOSIS

High risk of having increased iron absorption on high iron intake. Before implementing supplementation or dietary changes consult your physician for further analysis.

Risk of low iron plasma levels

- MEDIUM-HIGH RISK OF DECREASED IRON LEVELS -

ABOUT

Low iron levels may lead to anemia. In this category, the genetic risk of low transference of iron into the body is analyzed. When your body has a predisposition to low iron levels, it will be necessary to ensure a diet with proper levels of iron.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
TF-1	rs3811647	AA	HIGH	Predisposition to increased serum ferritin and reduced serum iron levels.
TMPRSS6	rs4820268	AA	LOW	Predisposition to normal serum iron levels.
TF-2	rs8177253	TT	HIGH	Predisposition to increased total iron binding capacity.

INDICATIONS

LOW RISK OF DECREASED IRON LEVELS

No additional inherited risk of low iron levels.

MEDIUM-LOW RISK OF DECREASED IRON LEVELS

Some risk of having lower iron transference, only when iron intake is low. Monitor dietary daily recommended intake.

MEDIUM-HIGH RISK OF DECREASED IRON LEVELS

Moderate risk of having lower iron transference, only when iron intake is low. Supplementation may be beneficial

HIGH RISK OF DECREASED IRON LEVELS

High risk of having lower iron transference, only when iron intake is low. Supplementation may be beneficial

Predisposition to dysregulated magnesium levels

- MEDIUM-LOW RISK OF DYSREGULATED MAGNESIUM LEVELS -

ABOUT

Inherited risk of low magnesium plasma levels.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
CASR-1	rs17251221	AA	LOW	Predisposition to normal serum magnesium levels.
TRPM6	rs11144134	TT	HIGH	Predisposition to lower serum magnesium levels.
SHROOM3	rs13146355	AG	MEDIUM	Predisposition to slightly lower serum magnesium levels.
DCDC5	rs3925584	TT	LOW	Predisposition to normal serum magnesium levels.
MUC1	rs4072037	TT	LOW	Predisposition to normal magnesium levels.

INDICATIONS

NO ADDITIONAL RISK OF DYSREGULATED MAGNESIUM LEVELS

No additional risk of dysregulated plasma magnesium levels.

MEDIUM-LOW RISK OF DYSREGULATED MAGNESIUM LEVELS

Some risk of dysregulated plasma magnesium levels.

MEDIUM-HIGH RISK OF DYSREGULATED MAGNESIUM LEVELS

Medium risk of dysregulated plasma magnesium levels.

HIGH RISK OF DYSREGULATED MAGNESIUM LEVELS

High risk of dysregulated plasma magnesium levels.

Predisposition to dysregulated selenium levels

- NO ADDITIONAL RISK OF DYSREGULATED SELENIUM LEVELS -

ABOUT

Selenium is an essential mineral and micronutrient. It is fundamental to human health and found in many foods. It is found in meat, grain cereals, egg yolk, milk, brazil nuts, mushrooms, garlic and seafood (hence, selenium levels are high in populations with high intake of seafood). Understanding the predisposition to low or high selenium levels will help for ensuring the proper selenium daily intake.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
AGA	rs1395479	AC	MEDIUM	Predisposition to slightly increased serum levels of selenium.
SLC39A11	rs891684	GG	LOW	Predisposition to normal serum selenium levels.

INDICATIONS

NO ADDITIONAL RISK OF DYSREGULATED SELENIUM LEVELS

No additional risk of dysregulated plasma selenium levels.

MEDIUM-LOW RISK OF DYSREGULATED SELENIUM LEVELS

Some risk of dysregulated plasma selenium levels.

MEDIUM-HIGH RISK OF DYSREGULATED SELENIUM LEVELS

Medium risk of dysregulated plasma selenium levels.

HIGH RISK OF DYSREGULATED SELENIUM LEVELS

High risk of dysregulated plasma selenium levels.

Sodium sensitivity

- LOW SODIUM SENSITIVITY -

ABOUT

Inherited risk of dietary salt-induced blood pressure.

MARKER	LOCUS	VARIANT	SENSITIVITY	DESCRIPTION
ACE	rs4343	AA	LOW	Predisposition to normal sodium sensitivity.

INDICATIONS

LOW SODIUM SENSITIVITY

Normal sodium sensitivity: no increased blood pressure risk due to salt consumption.

MEDIUM-LOW SODIUM SENSITIVITY

Slightly increased sodium sensitivity: moderately increased blood pressure risk due to salt consumption.

MEDIUM-HIGH SODIUM SENSITIVITY

Moderate sodium sensitivity: increased blood pressure risk due to salt consumption. Reduce current salt consumption, if daily intake is high.

HIGH SODIUM SENSITIVITY

High sodium sensitivity: high blood pressure risk due to salt consumption. Reduce current salt consumption, if daily intake is high.

Lactose intolerance risk

- LOWER RISK OF LACTOSE INTOLERANCE -

ABOUT

Lactose intolerance means that there are insufficient lactase enzymes to break down all the consumed lactose in the intestine. Partially digested or undigested lactose passes into the large intestine and that causes symptoms such as pain, abdominal bloating and diarrhea.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
MCM6-1	rs182549	TT	LOW	Normal predisposition to lactose tolerance.
MCM6-2	rs4988235	AA	LOW	Normal predisposition to lactose tolerance.

INDICATIONS

LOWER RISK OF LACTOSE INTOLERANCE

Lower risk of lactose intolerance.

SLIGHTLY INCREASED RISK LACTOSE INTOLERANCE

Slightly increased risk of lactose intolerance. Lower capability to digest lactose. Consider reducing the lactose intake.

MEDIUM-HIGH RISK LACTOSE INTOLERANCE

Medium-high risk of lactose intolerance. Lower capability to digest lactose. Rather reduce or avoid lactose-rich food.

LACTOSE INTOLERANCE

Lactose intolerance. Recommend moving to lactose-free diet.

SYMPTOMS OF LACTOSE INTOLERANCE

If you suffer from these symptoms and / or have a medium or high risk of developing intolerance, it is advisable to eliminate these types of products from your diet if possible.

Major symptoms

- Nausea
- Abdominal pain
- Spasms
- Swelling and abdominal bloating
- Abdominal gases and flatulence
- Acidic diarrhea
- Vomiting

Other nonspecific symptoms due to an alteration of the intestinal mucosa

- Low mood
- Tiredness
- Pain in extremeties
- Skin problems
- Reduced mental concentration
- Nervousness
- Sleep Disorders

Alcohol metabolism

- NORMAL ALCOHOL METABOLISM -

ABOUT

People of certain genetic type may experience symptoms like redness or flushing of the face and neck after consuming alcohol. These reactions can result from variants in the ALDH2 gene which is involved in breaking down alcohol.

MARKER	LOCUS	VARIANT	METABOLISM	DESCRIPTION
ALDH2	rs671	GG	HIGH	Predisposition to normal alcohol metabolism.

INDICATIONS

NORMAL ALCOHOL METABOLISM

Normal risk of alcohol toxicity due to a normal metabolism.

NORMAL-INTERMEDIATE ALCOHOL METABOLISM

Moderate risk of alcohol toxicity due to a slightly slower metabolism.

INTERMEDIATE-SLOW ALCOHOL METABOLISM

Medium-high risk of alcohol toxicity due to slow metabolism.

SLOW ALCOHOL METABOLISM

High risk of alcohol toxicity due to slow metabolism.

SYMPTOMS OF ALCOHOL INTOLERANCE

If you suffer from these symptoms and / or have a medium or high risk of developing intolerance, it is advisable to eliminate these types of products from your diet if possible.

Major symptoms

- Facial redness (flushing)
- Red, itchy skin bumps (hives)
- Worsening of pre-existing asthma
- Runny or stuffy nose
- Low blood pressure
- Skin problems
- Diarrhea

Risk of celiac disease

- MEDIUM-HIGH RISK OF CELIAC DISEASE -

ABOUT

Celiac disease is an autoimmune disorder that occurs in genetically predisposed people where the ingestion of gluten leads to damage in the small intestine and cause digestive problems such as malabsorption of nutrients, abdominal pain or diarrhea. There are different risk haplotypes for celiac disease, the most prevalent is the haplotype HLA-DQ2.5 that covers 90% of celiac disease patients. However, there are other haplotypes (HLA-DQ2.2, HLA-DQ8) which account for 10% of cases and increase the risk of suffering celiac disease. Nutrigen™ determines whether or not an at-risk individual carries this additional risk.

HAPLOTYPE	HAPLOTYPE RESULT	HAPLOTYPE SNP DESCRIPTION	HAPLOTYPE RISK
DQ2.5/DQ2.5	Absent	DQ2.5/DQ2.5 = rs2187668 (T/T)	HIGH
DQ2.5/DQ2.2	Absent	DQ2.5 = rs2187668 (T) & DQ2.2=rs2395182 (T) + rs7775228 (C) + rs4713586 (A)	HIGH
DQ2.2/DQ2.2	Absent	DQ2.2/DQ2.2=rs2395182 (TT) + rs7775228 (CC) + rs4713586 (AA)	MEDIUM
DQ2.5	Present	DQ2.5 = rs2187668 (T)	MEDIUM
DQ2.5/DQ8	Absent	DQ2.5= rs2187668 (T) & DQ8= rs7454108 (T)	MEDIUM
DQ2.5/DQ7	Present	DQ2.5= rs2187668 (T) & DQ7=rs4639334 (A)	MEDIUM
DQ2.2	Absent	DQ2.2/DQ2.2=rs2395182 (T) + rs7775228 (C) + rs4713586 (A)	MEDIUM
DQ2.2/DQ8	Absent	DQ2.2 =rs2395182 (T) + rs7775228 (C) + rs4713586 (A) & DQ8= rs7454108 (T)	MEDIUM
DQ2.2/DQ7	Absent	DQ2.2 = rs2395182 (T) + rs7775228 (C) + rs4713586 (A) & DQ7=rs4639334 (A)	MEDIUM
DQ8/DQ8	Absent	DQ8/DQ8= rs7454108 (CC)	MEDIUM
DQ8/DQ7	Absent	DQ8= rs7454108 (C) & DQ7=rs4639334 (A)	MEDIUM
DQ8	Absent	DQ8= rs7454108 (C)	MEDIUM
DQ7/DQ7	Absent	DQ7/DQ7=rs4639334 (AA)	LOW
DQ7	Present	DQ7=rs4639334 (A)	LOW

INDICATIONS

NO ADDITIONAL RISK OF CELIAC DISEASE

No additional risk of celiac disease

LOW RISK OF CELIAC DISEASE

Carrier of celiac disease risk variant. Try to reduce the gluten intake (consult your physician before making any dietary changes).

MEDIUM-HIGH RISK OF CELIAC DISEASE

Carrier of celiac disease risk variants. Try to reduce or avoid gluten-containing food (consult your physician before making any dietary changes).

HIGHER RISK OF CELIAC DISEASE

The genetic test indicates a high risk of developing celiac disease. Before initiating any dietary changes, consult your physician for further analysis.

SYMPTOMS OF GLUTEN INTOLERANCE

If you suffer from these symptoms and / or have a medium or high risk of developing intolerance, it is advisable to eliminate these types of products from your diet if possible.

Major symptoms

- Bloating
- Diarrhea, Constipation and Smelly Feces
- Abdominal pain
- Headaches
- Feeling Tired
- Skin problems
- Unexplained Weight Loss

Caffeine metabolism

- FAST CAFFEINE METABOLIZER -

ABOUT

Metabolism of caffeine. Slower metabolism implies that caffeine will take longer to be degraded and therefore its effects will be more noticeable. However there is a risk of feeling anxious due to excessive consumption. On the other hand, faster metabolism implies that the patient will tend to increase consumption to get the same stimulating effects, since caffeine will be rapidly degraded.

MARKER	LOCUS	VARIANT	METABOLISM	DESCRIPTION
CYP1A1-1	rs2470893	TT	HIGH	Predisposition to fast caffeine metabolism.
CYP1A2	rs762551	AA	HIGH	Predisposition to fast caffeine metabolism.

INDICATIONS

FAST CAFFEINE METABOLIZER

Fast speed of caffeine metabolism and increased desire to drink coffee in order to feel the benefits.

INTERMEDIATE-FAST CAFFEINE METABOLIZER

Intermediate speed of caffeine metabolism.

SLOW-INTERMEDIATE CAFFEINE METABOLIZER

Slow caffeine metabolism speed: caffeine will last longer in the body. Be careful with excess caffeine.

SLOW CAFFEINE METABOLIZER

Very slow caffeine metabolism speed: caffeine will last longer in the body. Be careful with excess caffeine.

SYMPTOMS OF CAFFEINE INTOLERANCE

If you suffer from these symptoms and / or have a medium or high risk of developing intolerance, it is advisable to eliminate these types of products from your diet if possible.

Major symptoms

- Acing heartbeat
- Headaches
- Jitters
- Nervousness or anxiousness
- Restlessness
- Insomnia

Fructose intolerance risk

- LOWER RISK OF FRUCTOSE INTOLERANCE -

ABOUT

Fructose malabsorption, or dietary fructose intolerance, occurs when cells on the surface of the intestines aren't able to break down fructose efficiently. Fructose is a simple sugar, known as a monosaccharide, that comes mostly from fruit and some vegetables. It's also found in honey, agave nectar, and many processed foods that contain added sugars. Symptoms of fructose malabsorption/intolerance can include nausea, abdominal pain, diarrhea, vomiting, chronic fatigue, among others.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
ALDOB-1	rs1800546	CC	LOW	No predisposition to develop hereditary fructose intolerance.
ALDOB-2	rs76917243	GG	LOW	No predisposition to develop hereditary fructose intolerance.

INDICATIONS

LOWER RISK OF FRUCTOSE INTOLERANCE

Lower risk of fructose intolerance.

SLIGHTLY INCREASED RISK FRUCTOSE INTOLERANCE

Slightly increased risk of fructose intolerance. Lower capability to digest fructose. Rather reduce the fructose intake.

MEDIUM-HIGH RISK FRUCTOSE INTOLERANCE

Medium-high risk of fructose intolerance. Lower capability to digest fructose. Rather reduce or avoid fructose-rich food.

HIGH RISK FRUCTOSE INTOLERANCE

Fructose intolerance. Consider a fructose-free diet.

SYMPTOMS OF FRUCTOSE INTOLERANCE

If you suffer from these symptoms and / or have a medium or high risk of developing intolerance, it is advisable to eliminate these types of products from your diet if possible.

Major symptoms

- Nausea
- Bloating
- Abdominal pain
- Diarrhea
- Vomiting
- Chronic fatigue
- Malabsorption of certain nutrients,such as iron

Efficacy of low calorie diets

- VERY LOW EXPECTED BENEFIT FROM LOW-CALORIE DIET -

ABOUT

A complete set of genes related to the expected efficacy of a low-calorie diet is analyzed in this category.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
PPAR-Y	rs1801282	CC	HIGH	No predisposition to weight loss induced by a low calorie diet.
ADIPOQ	rs17300539	GG	HIGH	No predisposition to weight loss induced by a low calorie diet.
LEPR-1	rs1805134	TT	HIGH	No predisposition to weight loss induced by a low calorie diet.
ACSL5	rs2419621	CC	HIGH	No predisposition to weight loss induced by a low calorie diet.
ADRB2	rs1042714	GC	MEDIUM	Increased predisposition to weight loss induced by a low calorie diet.

INDICATIONS

VERY LOW EXPECTED BENEFIT FROM LOW-CALORIE DIET

A pure low-calorie diet may not be the best option for weight loss.

MEDIUM-LOW EXPECTED BENEFIT FROM LOW-CALORIE DIET

A pure low-calorie diet may not be the best option for weight loss. However, a reduction in calorie intake may be beneficial.

MEDIUM-HIGH EXPECTED BENEFIT FROM LOW-CALORIE DIET

A low-calorie diet may be one of the best options for weight loss. Try to dramatically reduce calorie intake.

HIGH EXPECTED BENEFIT FROM LOW-CALORIE DIET

High expected efficacy of a low-calorie diet. It is strongly recommended to follow it.

Efficacy of low carbohydrate diets

- MEDIUM-HIGH EXPECTED BENEFIT FROM LOW-CARBOHYDRATE DIET -

ABOUT

A complete set of genes related to the expected efficacy of a low-carbohydrate diet is analyzed in this category.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
KCTD10	rs10850219	GG	LOW	Predisposition to weight loss induced by a low carbohydrate diet.
MMAB	rs2241201	GG	HIGH	No predisposition to weight loss induced by a low carbohydrate diet.

INDICATIONS

VERY LOW EXPECTED BENEFIT FROM LOW-CARBOHYDRATE DIET

A pure low-carbohydrate diet may not be the best option for weight loss.

MEDIUM-LOW EXPECTED BENEFIT FROM LOW-CARBOHYDRATES DIET

A pure low-carbohydrate diet may not be the best option for weight loss. However, a reduction in carbohydrate intake may be beneficial.

MEDIUM-HIGH EXPECTED BENEFIT FROM LOW-CARBOHYDRATE DIET

A low-carbohydrate diet may be one of the best option for weight loss. Try to dramatically reduce carbohydrate intake.

HIGH EXPECTED BENEFIT FROM LOW-CARBOHYDRATE DIET

High expected efficacy of a low-carbohydrate diet. It is strongly recommended to follow it.

Efficacy of low fat diets

- VERY LOW EXPECTED BENEFIT FROM LOW-FAT DIET -

ABOUT

A complete set of genes related to the expected efficacy of a low-fat diet is analyzed in this category.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
PPAR-Y	rs1801282	CC	HIGH	No predisposition to weight loss induced by a low fat diet.
GHSR	rs490683	GG	HIGH	No predisposition to weight loss induced by a low fat diet. Also applicable after gastric bypass.
APOA2	rs5082	AA	HIGH	No predisposition to weight loss induced by a low fat diet.
SH2B1-2	rs7498665	AA	HIGH	No predisposition to weight loss induced by a low fat diet.
TCF7L2-2	rs7903146	CC	HIGH	No predisposition to weight loss induced by a low fat diet.
FTO-1	rs9939609	TT	HIGH	No predisposition to weight loss induced by a low fat diet.

INDICATIONS

VERY LOW EXPECTED BENEFIT FROM LOW-FAT DIET

A pure low-fat diet may not be the best option for weight loss.

MEDIUM-LOW EXPECTED BENEFIT FROM LOW-FAT DIET

A pure low-fat diet may not be the best option for weight loss. However, a reduction of fat intake may be beneficial.

MEDIUM-HIGH EXPECTED BENEFIT FROM LOW-FAT DIET

A low-fat diet may be one of the best options for weight loss. Try to dramatically reduce fat intake.

HIGH EXPECTED BENEFIT FROM LOW-FAT DIET

The expected efficacy of a low-fat diet is high. It is strongly recommended to follow it.

Leptin

ABOUT

Leptin is a hormone which main function is sending a signal to the brain for food intake regulation. Leptin is commonly called the "satiety hormone". Low levels of leptin may imply problems of overeating and/or burning the stored fat. LEP-R is the gene coding for the cellular receptor of the leptin hormone. Its capability to bind leptin and start the cellular signalling is key for the satiety regulation function. Lower leptin binding capability may lead to high possibilities of leptin resistance, overeating and lower fat burning.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
LEP	rs7799039	GA	HIGH	Predisposition to lower levels of leptin.

Visfatin

ABOUT

Visfatin is an adipokine with an inflammatory and catabolic profile that has been associated with several metabolic risk factors.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
NAMPT-1	rs9770242	CC	LOW	No predisposition to increased levels of circulating visfatin.

Ghrelin

ABOUT

Ghrelin is a hormone produced in the gut, often termed "the hunger hormone", since it causes an increase in appetite through its effect in the brain. Imbalances in ghrelin are associated with appetite increase, increased calorie consumption and fat storage.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
GHSR	rs490683	GG	HIGH	Predisposition to normal ghrelin receptor (GHSR) expression.

Adiponectin

ABOUT

Adiponectin is a hormone that regulates glucose levels and fatty acid breakdown. Low levels of adiponectin are associated with inflammation, lipid abnormalities and insulin resistance.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
ADIPOQ-2	rs1501299	GG	HIGH	High predisposition to lower adiponectin plasma levels.
ADIPOQ-3	rs2241766	TT	HIGH	High predisposition to lower adiponectin plasma levels.

TNF-α

ABOUT

TNF-α is a pro-inflammatory cytokine, strongly linked to many inflammatory conditions, expressed in, and secreted by adipose tissues. Increased levels are associated with inflammatory conditions and increased health risks.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
TNF-α-1	rs1800629	AG	MEDIUM	Predisposition to moderately increased levels of TNF-alpha. Pro-inflammation tendency.

IL-6

ABOUT

IL-6 is an interleukin with mainly pro-inflammatory functions and is commonly used as inflammatory marker. High levels of IL-6 are associated with inflammatory conditions and health risks.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
IL-6-1	rs1800795	GG	HIGH	Predisposition to highly increased levels of IL-6. Pro-inflammation.

IL-10

ABOUT

IL-10 is a cytokine with potent anti-inflammatory properties.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
IL-10-1	rs1800896	CC	LOW	Predisposition to higher levels of the anti-inflammatory cytokine IL-10.

Vitamin E

- MEDIUM-HIGH RISK OF VITAMIN E DEFICIENCY -

ABOUT

Inherited risk of vitamin E metabolism deficiency or low plasma levels.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
INTERGENIC	rs12272004	CC	HIGH	High risk of low plasma levels of alpha-tocopherol (Vitamin E).
ZNF259, LOC100128347, APOA5, SIK3, BUD13	rs964184	CG	MEDIUM	Increased risk of lower plasma levels of alpha-tocopherol (Vitamin E).

INDICATIONS

LOW RISK OF VITAMIN E DEFICIENCY

Normal vitamin E metabolism and levels. Ensure daily recommended intake.

MEDIUM-LOW RISK OF VITAMIN E DEFICIENCY

Low risk of Viamin E deficiency. Ensure daily recommended intake.

MEDIUM-HIGH RISK OF VITAMIN E DEFICIENCY

Medium risk of Vitamin E deficiency. Ensure daily recommended intake. Supplementation strategies might be of interest.

HIGH RISK OF VITAMIN E DEFICIENCY

High risk of Vitamin E deficiency. Ensure daily recommended intake. Supplementation strategies would be recommended.

Vitamin D

- MEDIUM-LOW RISK OF VITAMIN D DEFICIENCY -

ABOUT

Inherited risk of vitamin D metabolism deficiency or low plasma levels.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
GC	rs2282679	TT	LOW	Normal risk of vitamin D deficiency.
CYP2R1-2	rs10741657	GA	HIGH	High risk of low serum levels of vitamin D.
NADSYN1, DHCR7-1	rs12785878	GT	MEDIUM	Increased risk of lower serum levels of vitamin D.
CYP2R1-3	rs2060793	GA	MEDIUM	Increased risk of lower serum levels of vitamin D.
NADSYN1, DHCR7-2	rs3829251	AG	MEDIUM	Increased risk of lower serum levels of vitamin D.

INDICATIONS

LOW RISK OF VITAMIN D DEFICIENCY

Normal vitamin D metabolism and levels. Ensure daily recommended intake.

MEDIUM-LOW RISK OF VITAMIN D DEFICIENCY

Low risk of Viamin D deficiency. Ensure daily recommended intake.

MEDIUM-HIGH RISK OF VITAMIN D DEFICIENCY

Medium risk of Vitamin D deficiency. Ensure daily recommended intake. Supplementation strategies might be of interest.

HIGH RISK OF VITAMIN D DEFICIENCY

High risk of Vitamin D deficiency. Ensure daily recommended intake. Supplementation strategies would be recommended.

Vitamin C

- LOW RISK OF VITAMIN C DEFICIENCY -

ABOUT

Inherited risk of vitamin C metabolism deficiency or low plasma levels.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
SLC23A2	rs1279683	AG	LOW	Normal risk of vitamin C deficiency.
SLC23A1	rs33972313	CC	LOW	Normal risk of vitamin C deficiency.

INDICATIONS

LOW RISK OF VITAMIN C DEFICIENCY

Normal vitamin C metabolism and levels. Ensure daily recommended intake.

MEDIUM-LOW RISK OF VITAMIN C DEFICIENCY

Low risk of Viamin C deficiency. Ensure daily recommended intake.

MEDIUM-HIGH RISK OF VITAMIN C DEFICIENCY

Medium risk of Vitamin C deficiency. Ensure daily recommended intake. Supplementation strategies might be of interest.

HIGH RISK OF VITAMIN C DEFICIENCY

High risk of Vitamin C deficiency. Ensure daily recommended intake. Supplementation strategies would be recommended.

Vitamin B12

- HIGH RISK OF VITAMIN B12 DEFICIENCY -

ABOUT

Inherited risk of vitamin B12 metabolism deficiency or low plasma levels.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
FUT2	rs602662	GG	HIGH	High risk of vitamin B12 deficiency.

INDICATIONS

LOW RISK OF VITAMIN B12 DEFICIENCY

Normal vitamin B12 metabolism. Ensure daily recommended intake.

MEDIUM-LOW RISK OF VITAMIN B12 DEFICIENCY

Low risk of vitamin B12 deficiency. Ensure daily recommended intake.

MEDIUM-HIGH RISK OF VITAMIN B12 DEFICIENCY

Medium risk of vitamin B12 deficiency. Ensure daily recommended intake and increase it. Supplementation should be evaluated.

HIGH RISK OF VITAMIN B12 DEFICIENCY

High risk of vitamin B12 deficiency. Increase daily vitamin B12 intake. Supplementation should be evaluated.

Vitamin B9 (folate)

- LOW RISK OF VITAMIN B9 (Folate) DEFICIENCY -

ABOUT

Inherited risk of vitamin B9 (folate) metabolism deficiency or low plasma levels.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
MTHFR	rs1801133	GG	LOW	Normal risk of folate deficiency.

INDICATIONS

LOW RISK OF VITAMIN B9 (Folate) DEFICIENCY

Normal folate metabolism. Ensure daily recommended intake.

MEDIUM-LOW RISK OF VITAMIN B9 (Folate) DEFICIENCY

Low risk of folate deficiency. Ensure daily recommended intake.

MEDIUM-HIGH RISK OF VITAMIN B9 (Folate) DEFICIENCY

Medium risk of folate deficiency. Ensure daily recommended intake. It is recommended to supplement with L-methylfolate due to a lower capability to activate folate. It also impacts lower B12 levels when low levels of folate are active.

HIGH RISK OF VITAMIN B9 (Folate) DEFICIENCY

High risk of folate deficiency. Ensure daily recommended intake. Highly recommended to supplement with L-methylfolate due to a almost null capability to activate folate. It also impacts lower B12 levels when low levels of folate are active.

Vitamin B6

- HIGH RISK OF VITAMIN B6 DEFICIENCY -

ABOUT

Inherited risk of vitamin B6 metabolism deficiency or low plasma levels.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
NBPF3	rs4654748	CC	HIGH	High risk of low plasma vitamin B6 concentrations.

INDICATIONS

LOW RISK OF VITAMIN B6 DEFICIENCY

Normal vitamin B6 metabolism. Ensure daily recommended intake.

MODERATE RISK OF VITAMIN B6 DEFICIENCY

Little predisposition to a vitamin B6 deficiency. Make sure that the recommended daily intake is met.

MEDIUM-HIGH RISK OF VITAMIN B6 DEFICIENCY

Medium risk of vitamin B6 deficiency. Ensure daily recommended intake and increase it. Supplementation should be evaluated.

HIGH RISK OF VITAMIN B6 DEFICIENCY

High risk of vitamin B6 deficiency. Increase daily vitamin B6 intake. Supplementation should be evaluated.

Vitamin A

- MEDIUM-LOW RISK OF VITAMIN A DEFICIENCY -

ABOUT

Inherited risk of vitamin A metabolism deficiency or low plasma levels.

MARKER	LOCUS	VARIANT	RISK	DESCRIPTION
BCMO1-1	rs12934922	TA	MEDIUM	Increased predisposition to reduced provitamin A conversion and increased fasting β-carotene concentrations.
BCMO1-2	rs7501331	TC	MEDIUM	Increased predisposition to reduced provitamin A conversion.

INDICATIONS

LOW RISK OF VITAMIN A DEFICIENCY

Normal vitamin A metabolism. Ensure daily recommended intake.

MEDIUM-LOW RISK OF VITAMIN A DEFICIENCY

Low risk of vitamin A deficiency. Ensure daily recommended intake or slightly increase it.

MEDIUM-HIGH RISK OF VITAMIN A DEFICIENCY

Medium risk of vitamin A deficiency. Ensure daily recommended intake and increase it. Supplementation should be evaluated.

HIGH RISK OF VITAMIN A DEFICIENCY

High risk of vitamin A deficiency. Increase daily vitamin A intake. Supplementation should be evaluated.

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