


# NutriGen™

## Professional Nutrigenomic Advice

GX Sciences
a Fagron company

www.fagrongenomics.com

| | |
|---|---|
| Patient name | **API TEST 2** |
| Date of birth | **01-02-2000** |
| Sample code | **NUT09258AA** |
| Doctor's name | **Doctor GX** |
| Reception date | **05-17-2021** |
| Results date | **05-17-2021** |

# How to read and use the Fagron NutriGen™ 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/behaviour data. List of foods to avoid and enhance: the nutritional description of 559 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

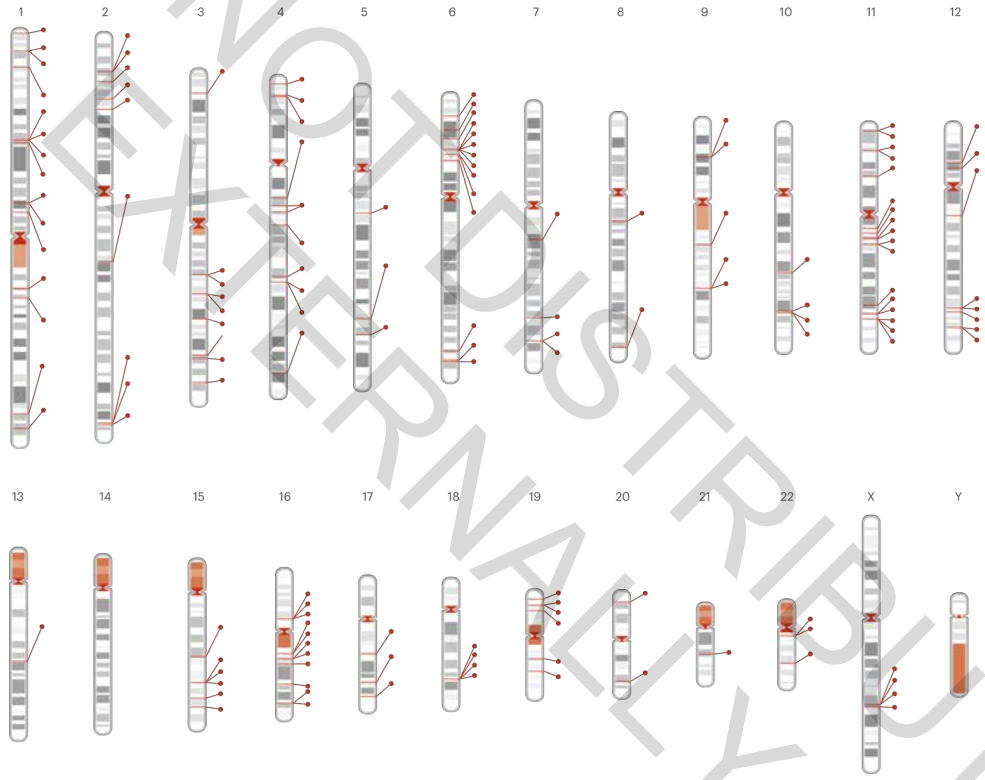
**Summary of your health habits, including the various factors related to your weight, exercise, metabolism, and key parameters, all related and analyzed by our diagnostic platform.**

## Fagron Nutrigen™ studies 384 top-informative DNA variations in 60 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. Vitamin deficiency risk
13. Matching Diet Type
14. Inflammation
15. Hormones



## 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 | 21 years |
| Height | 5 ft 10 ins |
| Current weight | 194 lbs |
| Goal weight | 176 lbs |
| Current BMI | 27,16 |
| Goal BMI | 24,69 |
| Weight type | Grade II overweight |

**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 | Light |

**- Basal metabolism -**

| | |
|---|---|
| Current (cal) | 1.905 |
| Target (cal) | 1.825 |

**- Current daily energy expenditure -**

| | |
|---|---|
| Current (Kcal) | 2.619 |
| Target (Kcal) | 2.509 |
| Variation (Kcal) | -110 |

# 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 | NUT09258AA |
| Reception date | 05-17-2021 |
| Results date | 05-17-2021 |
| 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. | 36.43% |

| | | |
|---|---|---|
| Genetic risk of overweight | MEDIUM-HIGH RISK | Pg. 56 |
| Risk of rebound weight gain | HIGH REBOUND EFFECT | Pg. 57 |
| Risk of increased BMI | MEDIUM-HIGH RISK | Pg. 58 |
| Basal metabolic rate (burn calories at rest) | MEDIUM-LOW BURNER | Pg. 59 |
| Weight loss capability during diet interventions | NORMAL WEIGHT LOSS | Pg. 60 |

| CATEGORY | DESCRIPTION | RESULTS |
|---|---|---|
| **Behavioral genetics in food intake** | Medium-high dysregulation of food intake behaviour. High predisposition to being overweight. Strategies to improve satiety should be considered. | 40.4% |

| | | |
|---|---|---|
| Appetite and anxiety risk | INCREASED | Pg. 61 |
| Satiety: Feeling Full | SLIGHTLY LOWER SATIETY | Pg. 62 |

| CATEGORY | DESCRIPTION | RESULTS |
|---|---|---|
| **Efficacy of exercise** | Low-medium efficacy of exercise to reduce body fat and regulate cholesterol levels. | 26.06% |

| | | |
|---|---|---|
| Benefits from endurance exercise for improving HDL levels | VERY LOW EXPECTED BENEFITS FROM EXERCISE | Pg. 63 |
| Exercise to reduce body fat | MEDIUM-HIGH EXPECTED BENEFIT FROM EXERCISE | Pg. 64 |



**INDICATIONS**

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

# Efficacies

| CATEGORY | DESCRIPTION | RESULTS |
|---|---|---|
| Fat metabolism | Highly negative fat burning capacity. It would be recommended to greatly decrease the fat intake. | 17.78% |

| | | |
|---|---|---|
| Response to monosunsaturated fats (MUFAs) | VERY LOW MUFA METABOLISM | Pg. 65 |
| Response to polyunsaturated fats (PUFAs) | MEDIUM PUFA METABOLISM | Pg. 66 |
| Response to fat intake to improve the HDL levels | VERY LOW EXPECTED BENEFITS | Pg. 67 |

| CATEGORY | DESCRIPTION | RESULTS |
|---|---|---|
| Carbohydrate metabolism | Moderate carbohydrate metabolism dysregulation. Carbohydrate intake may not be the main reason for being overweight or obese. | 62.29% |

| | | |
|---|---|---|
| Capability to digest starchy food | REDUCED STARCH DIGESTION | Pg. 68 |
| Refined carbohydrate sensitivity | NORMAL CARBOHYDRATE SENSITIVITY | Pg. 69 |
| Carbohydrates and HDL levels predisposition | HIGH RISK OF DYSREGULATION | Pg. 70 |
| Carbohydrates and LDL levels | LOW RISK OF DYSREGULATION | Pg. 71 |

| CATEGORY | DESCRIPTION | RESULTS |
|---|---|---|
| Lipid metabolism | Moderately affected lipid metabolism. Cholesterol and triglyceride levels should be reasonably normal on a balanced diet. | 62.47% |

| | | |
|---|---|---|
| Predisposition to reduced HDL levels | REDUCED HDL LEVELS | Pg. 72 |
| Predisposition to increased levels of triglycerides | TRIGLYCERIDES NOT INCREASED | Pg. 73 |
| Predisposition to increased oxidation of LDL | NOT INCREASED LDL OXIDATION | Pg. 74 |
| Risk of increased cholesterol LDL levels | SLIGHTLY INCREASED LDL LEVELS | Pg. 75 |
| Risk of unbalanced Triglycerides/HDL ratio | HIGHLY INCREASED TG/HDL RATIO | Pg. 76 |



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. | 39.22% |

| | | |
|---|---|---|
| Risk of increased glucose levels in plasma after fasting | MEDIUM-HIGH RISK OF HIGH GLUCOSE LEVELS | Pg. 77 |
| Risk of insulin resistance | MEDIUM-LOW INSULIN RESISTANCE | Pg. 78 |
| Risk of Type-II diabetes | MEDIUM-HIGH DIABETES TYPE-II RISK | Pg. 79 |

| CATEGORY | DESCRIPTION | RESULTS |
|---|---|---|
| Flavor Sensitivities | Normal or average flavour sensitivity. | 99.67% |

| | | |
|---|---|---|
| Bitter taste sensitivity | NORMAL | Pg. 80 |
| Salt sensitivity | LOW SALT SENSITIVITY | Pg. 81 |
| Sweet flavor preference | NORMAL | Pg. 82 |

| CATEGORY | DESCRIPTION | RESULTS |
|---|---|---|
| Detoxification imbalances | Slightly reduced detoxification capacities. Try to decrease toxin exposure and intake. | 73.19% |

| | | |
|---|---|---|
| Antioxidant capability | SLIGHTLY REDUCED ANTIOXIDANT CAPABILITY | Pg. 83 |



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. |

| | | |
|---|---|---|
| Calcium malabsorption risk | LOW RISK OF CALCIUM MALABSORPTION | Pg. 84 |
| Predisposition to dysregulated calcium levels | NO ADDITIONAL RISK OF DYSREGULATED PLASMA CALCIUM LEVELS | Pg. 85 |
| Risk of iron overload | LOW RISK OF HEMOCHROMATOSIS | Pg. 86 |
| Risk of low iron plasma levels | LOW RISK OF DECREASED IRON LEVELS | Pg. 87 |
| Predisposition to dysregulated magnesium levels | MEDIUM-LOW RISK OF DYSREGULATED MAGNESIUM LEVELS | Pg. 88 |
| Predisposition to dysregulated selenium levels | MEDIUM-HIGH RISK OF DYSREGULATED SELENIUM LEVELS | Pg. 89 |
| Sodium sensitivity | LOW SODIUM SENSITIVITY | Pg. 90 |

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

| | | |
|---|---|---|
| Lactose intolerance risk | LACTOSE INTOLERANCE | Pg. 91 |
| Alcohol metabolism | NORMAL ALCOHOL METABOLISM | Pg. 93 |
| Risk of celiac disease | MEDIUM-LOW RISK OF CELIAC DISEASE | Pg. 95 |
| Caffeine metabolism | SLOW CAFFEINE METABOLIZER | Pg. 97 |
| Fructose intolerance risk | LOWER RISK OF FRUCTOSE INTOLERANCE | Pg. 99 |

# EFFECTIVENESS OF DIETS

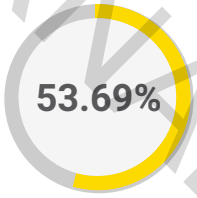
## - INTEGRATED NUTRITIONAL PLAN (LOW IN CARBOHYDRATES) -

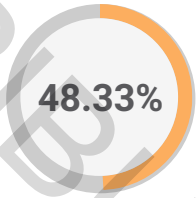
Depending on the specific needs of your body, the optimal type of nutritional plan is determined. It has been defined by our nutritional experts and based on the foods you are better able to metabolize, the genetic information and the available personal health data.

### 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 | | Efficacy of low fat diets | | Efficacy of low calorie diets | |
|---|---|---|---|---|---|
| MARKER | RESULTS | MARKER | RESULTS | MARKER | RESULTS |
| KCTD10 | | PPAR-Y | | PPAR-Y | |
| MMAB | | GHSR | | ADIPOQ | |
| | | APOA2 | | LEPR-1 | |
| | | SH2B1-2 | | ACSL5 | |
| | | TCF7L2-2 | | ADRB2 | |
| | | 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 $B^9$ | Low risk of folate deficiency. Ensure daily recommended intake. |  |
| Vitamin $B^{12}$ | Normal vitamin B12 metabolism. Ensure daily recommended intake. |  |
| 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 | High risk of Vitamin E deficiency. Ensure daily recommended intake. Supplementation strategies would be recommended. |  |



**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 intermediate 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 — High 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

**ABOUT**

After analyzing your DNA and lifestyle, we have selected food supplements that will help you with maintaining a healthy weight.
Below is a list of dietary supplements in the order of most recommended (from darker green to lighter green) to not recommended (red)


**CLEANING PHASE**

- ▶ Magnesium
- ▶ Resveratrol
- ▶ Papain
- ▶ Quercetina
- ▶ Taurine
- ▶ Vitamin D3 (Cholecalciferol)
- ▶ Vitamin C
- ▶ Biointestil


**RESTRUCTURING PHASE**

- ▶ Lactobacillus salivarius
- ▶ Lactobacillus plantarum
- ▶ Vitamin B12
- ▶ Bifidobacterium longum
- ▶ Bifidobacterium infantis
- ▶ Vitamin B2 (Riboflavine)
- ▶ Bifidobacterium adolescentis
- ▶ Lactobacillus acidophilus
- ▶ Niacin


**SUPPLEMENTATION PHASE**

- ▶ Vitamin A
- ▶ Oxitriptan
- ▶ Magnesium
- ▶ Resveratrol
- ▶ Vitamin B12
- ▶ Taurine
- ▶ Ubiquinol
- ▶ Vitamin B2 (Riboflavine)
- ▶ Melatonin
- ▶ Vitamin E
- ▶ Vitamin D3 (Cholecalciferol)
- ▶ Vitamin K2
- ▶ Niacin

# III. Personalized Diet Plan

**Made from your genetic and health/behaviour data. List of foods to avoid and enhance: the nutritional description of 559 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.**

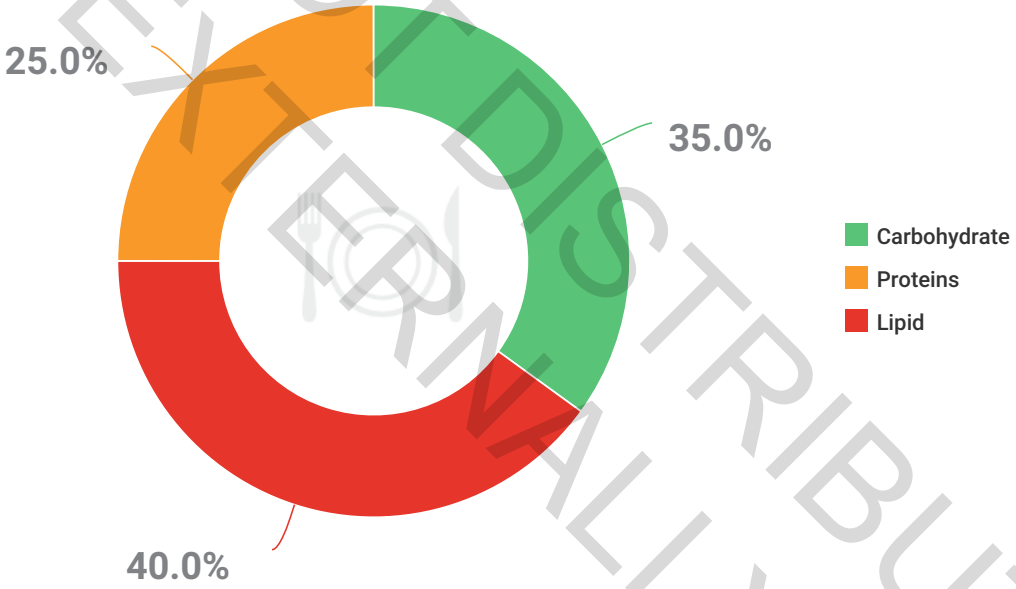
# Daily food intake

## - 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 *
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or 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
- Selenium
- Monounsaturated Fatty Acids (MUFAs)
- Polyunsaturated Fatty Acids (PUFAs)
- Saturated Fatty Acids (SAFAs)
- Diabetes
- Starch
- Glucose
- Salt
- Other intolerances
- Vitamin A
- Vitamin B6
- Vitamin B9
- Vitamin B12
- Vitamin C
- Vitamin D
- Vitamin E
- Antioxidant
- Satiety
- Iron
- Magnesium
- Calcium
- Selenium

# Vegetables

| FOOD | Indications |
|---|---|
| Broccoli, boiled | E |
| Turnip, peeled | |
| Arugula | |
| Mushroom, griddle | |
| Cabbage, white | E |
| Asparagus, green | E |
| Asparagus, white, canned | E |
| Watercress | E |
| Pumpkin, boiled | E |
| Pickled gherkin | $B^6$ |
| Sweet pepper, canned | $B^6$ |

| FOOD | Indications |
|---|---|
| Red pepper | $B^6$ |
| Leek, frozen | $B^6$ |
| Chard | |
| Chard, boiled | |
| Chicory | |
| Artichoke, frozen | |
| Artichoke, tinned | |
| Caper | |
| Celery | |
| Aubergine | |
| Courgette | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Vegetables

| FOOD | Indications | FOOD | Indications |
|---|---|---|---|
| Courgette, roasted | | Endive | |
| Cardoon | | Escarole | |
| Onion | | Spinach, canned | |
| Onion, roasted | | Spinach, boiled | |
| Chive | | Turnip greens | |
| Mushroom | | Lettuce | |
| Mushrooms, canned | | Lombard | |
| Brussels sprout, frozen | | Palm heart, canned | |
| Red cabbage, boiled | | Cucumber | |
| Savoy cabbage | | Pepper, fried | |
| Cauliflower, boiled | | Radish | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Vegetables

| FOOD | Indications |
|---|---|
| Cabbage | |
| Tomato | |
| Garlic, fried | |
| Soybean, sprouts, canned | |
| Tomato, roasted | |
| Carrot | |

| FOOD | Indications |
|---|---|
| Green bean, boiled | |
| Green bean, canned | |
| Corn, on the cob | |
| Garlic | B6 |
| Aubergine, fried, in sunflowerseed oil | FAT E |
| Tomato, ripe, peeled and ground, canned | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Legumes and derivatives

| FOOD | Indications |
|---|---|
| Tofu | E |
| Soy flour | B6 E |
| Soybean, dry, soaked, boiled | Se E |
| White bean, tinned | |
| Pinto bean, steeped, boiled | |
| Pea, frozen, boiled | |
| Broad bean, dried, steeped, boiled | |
| Lentil, canned | |

| FOOD | Indications |
|---|---|
| Chickpea, canned | E |
| Pea, canned | |
| Broad bean, fried | |
| Lentil, boiled | B6 E |
| White bean, boiled | B6 E |
| Chickpea, boiled | E |
| Soya, fried | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Fruits and derivatives

| FOOD | Indications | FOOD | Indications |
|---|---|---|---|
| Avocado | $B^6$ E | Apricot | |
| Blueberry | E | Yellow plum, with skin | |
| Tangerine | | Raspberry | |
| Pineapple | | Pomegranate | |
| Olive | E | Black currant | |
| Olive, black, with pip | E | Red currant | |
| Strawberry | E | Lime | |
| Kiwi | E | Peach | |
| Mango, without skin | E | Melon | |
| Papaya, without skin | E | Orange | |
| Maracuja - Passion Fruit | E | Medlar, with skin | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Fruits and derivatives

| FOOD | Indications |
|---|---|
| Pear | |
| Pineapple, canned, in juice | |
| Grapefruit | |
| Watermelon | |
| Banana | B6 |
| Litchis | |
| Quince | |
| Persimmon | |
| Cherry | |
| Custard apple | |
| Coconut | |

| FOOD | Indications |
|---|---|
| Guava, canned in syrup | |
| Apple | |
| Nectarine | |
| White grapes | |
| Chayote | FAT |
| Syrup peach | |
| Date | E |
| Coconut, dried | FAT B6 |
| Figs | |
| Fruit salad, canned in own juice | |
| Peach, dried | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Fruits and derivatives

| FOOD | Indications |
|---|---|
| Fruit paste | |
| Pear, canned, in syrup | |

| FOOD | Indications |
|---|---|
| Red grape | |
| Raisin | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Cereals and derivates

| FOOD | Indications |
|---|---|
| Quinoa | |
| Wheat germ | B6 E |
| Wholewheat flour | B6 E |
| Wheat, bran | B6 E |
| Millet | B6 |
| Flax, seeds | B6 |
| Oat | |
| Pasta, whole, cooked | |
| Pasta, filled with meat, boiled | |
| Corn flour | |
| Crackers | E |

| FOOD | Indications |
|---|---|
| Wholewheat bread | B6 |
| Wheat flour | |
| Corn bread | |
| Whole bread, toasted | |
| Egg-free pasta | |
| Rye bread | E |
| Oat bread | |
| Barley bread | |
| Oat flour | E |
| White bread | |
| White bread, without salt | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Cereals and derivates

| FOOD | Indications |
|---|---|
| Granola | B6 E |
| Rye | E |
| Rice, boiled | B6 |
| Barley | B6 |
| Corn starch | |
| White bread, toasted | |
| White bread, toasted, without salt | |
| Milk bread | |
| Breadcrumbs | |
| Rye flour | B6 E |
| Doughnut | FAT E |

| FOOD | Indications |
|---|---|
| Doughnut, with chocolate | FAT E |
| Cookie, digestive type, with chocolate | FAT E |
| Cookie, with chocolate | FAT E |
| Barley flour | B6 |
| Cruller | FAT |
| Biscuit, fruit jam filled, comercial | |
| Burguer bread | FAT |
| Raisin pudding | FAT |
| Croissant with chocolate | FAT E |
| Puff pastry | FAT E |
| Sponge cake | FAT |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Cereals and derivates

| FOOD | Indications |
|---|---|
| Croissant | |
| Muffin | |

| FOOD | Indications |
|---|---|
| Fruit cake | |
| Chocolate cake | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Fish and derivatives

| FOOD | Indications | FOOD | Indications |
|---|---|---|---|
| Mackarel | Se B6 E | Trout | Se B6 E |
| Sea bream | Se E | Whiting | Se B6 |
| Salmon | B6 E | Cod, fresh, baked | Se B6 |
| Salmon, griddle | B6 E | Dogfish | Se B6 |
| Halibut | Se B6 E | Ray | Se B6 |
| Anchovy | Se B6 | Mullet | Se B6 |
| Carp, baked | Se | Sardine, canned in oil, drained | Se B6 |
| Whiting, frozen | Se | Cod, smoked | Se |
| Sole, baked | Se | Cod | Se |
| Hake | Se | Seabass | Se |
| Sardine | Se B6 E | Grouper, griddle | Se |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Fish and derivatives

| FOOD | Indications |
|---|---|
| Tuna, baked | Se B6 |
| Tuna | Se B6 |
| Anchovy in vegetable oil | Se E |
| Tuna, griddle | Se B6 |
| Pike, baked | |
| Codfish, fried | Se |
| Swordfish, griddle | B6 |
| Tuna, canned in water | Se B6 |
| Pout | Se E |
| Herring, smoked | Se B6 |
| Monkfish, grilled | Se B6 |

| FOOD | Indications |
|---|---|
| European eel, baked | E |
| Europan eel, boiled | E |
| Perch | Se E |
| Perch, baked | Se |
| Iridescent shark | |
| Mackerel, baked | Se B6 E |
| Sardine, roasted | FAT B6 E |
| Mackerel, canned in oil, drained | FAT Se |
| Smoked salmon | FAT Se E |
| Turbot | Se |
| Herring, salted | FAT Se B6 E |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Fish and derivatives

| FOOD | Indications |
|---|---|
| Caviar | FAT, Se, B6, E |
| Swordfish | Se, B6 |

| FOOD | Indications |
|---|---|
| Trout, smoked | Se |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Meats and derivatives

| FOOD | Indications |
|---|---|
| Pork, sirloin, roasted | B6 |
| Liver, beef | B6 |
| Turkey, breast, without skin, grilled | B6 |
| Quail, cooked | B6 |
| Pigeon, part n/e, without skin, roasted | B6 |
| Chiken, breast, grilled | B6 |
| Beef, part n/s, stewed, with separable fat | B6 |
| Beef, sirloin, grilled | B6 |
| Oxtail | |
| Veal, loin, with separable fat | |
| Rabbit, stewed | B6 |

| FOOD | Indications |
|---|---|
| Pork, loin | B6 |
| Lamb, not specified part | |
| Pork, shoulder, cooked, lean and fat eaten | |
| Cooked ham, canned | |
| Pork, loin, roasted | B6 |
| Turkey, leg, with skin | B6 |
| Turkey, breast, with skin | B6 |
| Chicken, breast, with skin | B6 |
| Chicken luncheon meat | |
| Pork, not specified part | B6 |
| Foie gras | FAT B6 |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Meats and derivatives

| FOOD | Indications |
|---|---|
| Hen | FAT B6 |
| Liver, chicken | FAT B6 |
| Liver, pork | FAT B6 |
| Turkey | B6 |
| Veal, rib, with separable fat | FAT B6 |
| Veal, sirloin, roasted, with separable fat | FAT B6 |
| Beef, part n/s, roasted, with separable fat | FAT B6 |
| Pork sausage | FAT |
| Duck, roasted | FAT |
| Turkey luncheon meat | FAT |
| Bacon, smoked, grilled | FAT B6 |

| FOOD | Indications |
|---|---|
| Cured beef | FAT B6 |
| Ham, roasted | FAT B6 |
| Cured ham | FAT B6 |
| Mincemeat | |
| Lamb, rib | FAT |
| Cooked ham | FAT |
| Ostrich, sirloin | FAT B6 |
| Pork, chop | B6 |
| Heart, lamb | FAT B6 |
| Heart, chicken | FAT B6 |
| Chicken, wing, with skin | FAT B6 |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Meats and derivatives

| FOOD | Indications |
|---|---|
| Chicken, with skin, roasted | FAT, B6 |
| Chicken, fried | FAT, B6 |
| Chicken, leg, with skin, roasted | FAT, B6 |
| Beef, heart, cooked | FAT |
| Cured pork, loin | FAT, |
| Sausage | FAT, |
| Sausage, fresh | |
| Pork, rib | B6 |
| Salami | FAT, B6 |

| FOOD | Indications |
|---|---|
| Bacon | FAT, |
| Pork luncheon meat | FAT, |
| Chorizo | FAT, |
| Chicken croquettes | FAT, |
| Blood sausage, fried | FAT |
| Bologna | FAT, |
| Breaded chicken, fried | FAT, |
| Salchichon | FAT, |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Nuts and seeds

| FOOD | Indications |
|---|---|
| Lupin | B6 |
| Sunflower seeds | B6 E |
| Almond | E |
| Cashew nut | E |
| Pumpkin seeds | E |
| Sesame, seed | E |
| Chestnut | B6 E |
| Chestnut, roasted | B6 E |
| Walnut | B6 |

| FOOD | Indications |
|---|---|
| Almond, toast | FAT E |
| Pine nut | E |
| Hazelnut | FAT B6 E |
| Pistachio nut | B6 E |
| Almond, fried, salted | FAT |
| Sunflower seeds, peeled, with salt | FAT B6 E |
| Peanut, fried, salted | FAT B6 E |
| Peanut, toasted, salted | FAT B6 |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Shellfish and derivatives

| FOOD | Indications |
|---|---|
| Cuttlefish | Se B6 E |
| Lobster, boiled | Se E |
| Squid, roasted | Se E |
| Octopus, boiled | |
| Cockles | Se |
| Shrimp, boiled | Se |
| Variegated scallop | Se |
| Clams | Se |

| FOOD | Indications |
|---|---|
| Crab | Se B6 E |
| Snail | Se E |
| Mussel, boiled | Se E |
| Crayfish | B6 E |
| Mussel, canned in brine | Se E |
| Squid in vegetable oil | Se E |
| Scallop | Se |
| Oyster | Se |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Eggs and derivatives

| FOOD | Indications |
|---|---|
| Egg, chicken, poached | E |
| Egg, chicken, boiled | E |
| Egg, chicken, white | |
| Egg, duck | |
| Egg, turkey | |

| FOOD | Indications |
|---|---|
| Egg, chiken, yolk | FAT B6 |
| Egg, quail | FAT |
| Egg, chicken, fried | FAT |
| Egg, scrambled, with butter | FAT |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Milk and derivatives

| FOOD | Indications |
|---|---|
| Gouda cheese | |
| Coconut milk | |
| Parmesan cheese | |
| Cheese, edam type | |
| Almond milk | |
| Soy Yoghurt | |
| Mozzarella cheese | B6 |
| Egg custard | |
| Strawberry ice cream | |
| Kefir | |
| Goat's milk | |

| FOOD | Indications |
|---|---|
| Milk | |
| Milk, skimmed, pasteurized | |
| Milk, semi-skimmed, pasteurized | |
| Yoghurt mousse, with fruits | |
| Yoghurt mousse, plain | |
| Fresh cheese | |
| Cottage cheese | |
| Yoghurt, skimmed, plain flavour | |
| Drinking Yoghurt, skimmed, plain | |
| Drinking Yoghurt, milk, with fruits | |
| Goat cheese, uncured | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Milk and derivatives

| FOOD | Indications |
|---|---|
| Cheese Feta | |
| Sheep's milk | |
| Blue cheese | |
| Brie cheese | |
| Goat cheese, cured | |
| Camembert cheese, 20-30% fidm | |
| Cheese spread | |
| Grated cheese, parmesan | |
| Roquefort cheese | |
| Emmental cheese | |
| Processed cheese, portions | |

| FOOD | Indications |
|---|---|
| Yoghurt, skimmed, with fruits | B6 |
| Milk, semi-skimmed, dried | |
| Milk shake, chocolate | |
| Chocolate ice cream | |
| Cream ice cream | |
| Chocolate mousse | |
| Cheddar cheese | |
| Gruyere cheese | |
| Drinking yoghurt, plain, sweetened | |
| Yoghurt , skimmed, flavoured n/e | |
| Yoghurt, skimmed, vanilla flavour | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Milk and derivatives

| FOOD | Indications |
| --- | --- |
| Milk, condensed, with sugar | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Oils and fats

| FOOD | Indications |
|---|---|
| Extra virgin olive oil | E |
| Extra virgin olive oil, organic | E |
| Sunflower oil | E |
| Planta vegetable fat | E |
| Mayonnaise light | |
| Olive oil | E |
| Wheat germ oil | E |
| Walnut oil | E |
| Coconut oil | |
| Peanut oil | E |

| FOOD | Indications |
|---|---|
| Rape oil | E |
| Flaxseed oil | E |
| Sesame oil | E |
| Butter with salt | E |
| Butter, light | |
| Margarine, light | |
| Soya, oil | E |
| Cod liver oil | E |
| Palm oil | E |
| Pork lard | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Tubers and derivatives

| FOOD | Indications |
|---|---|
| Beetroot, canned | |
| Potato, roast | B6 |
| Potato, boiled | |

| FOOD | Indications |
|---|---|
| Sweet potato | E |
| Potato, fried in unspecified oil, without salt | FAT |
| Potato, prefried, frozen | FAT |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Sauces and condiments

| FOOD | Indications |
|---|---|
| Oregano, dried | B6 E |
| Bay, leaf | B6 |
| Mint, fresh | E |
| Parsley, fresh | E |
| Cumin | |
| Curry | |
| Fennel | |
| Mustard | |
| Sea salt | |
| Iodized salt | |
| Tahini | |

| FOOD | Indications |
|---|---|
| White pepper | B6 E |
| Black pepper | B6 E |
| Chili or hot pepper | B6 |
| Chili pepper, red | |
| Chili pepper, green | |
| Vanilla | |
| Paprika, powder | B6 E |
| Thyme, dried | |
| Dill, dried | B6 E |
| Nutmeg | B6 E |
| Saffron | B6 |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Sauces and condiments

| FOOD | Indications |
|---|---|
| Vinaigrette sauce, with olive oil | E |
| Cinnamon, powder | |
| Ginger | |
| Tabasco, sauce | |
| Garlic, powder | Se B6 |
| Basil | Se B6 E |
| Gomasio | |
| Soya, sauce | |
| Rosemary | |
| Balsamic vinegar | |

| FOOD | Indications |
|---|---|
| Apple vinegar | |
| Wine vinegar | |
| Ketchup | E |
| Sweet and sour sauce | FAT |
| Curry sauce | FAT |
| Roquefort sauce | FAT |
| Barbecue sauce | FAT |
| Bechamel sauce | FAT |
| Bolognese sauce | FAT |
| Cheese sauce | FAT |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Sugars and derivatives

| FOOD | Indications |
|---|---|
| Marmalade, strawberry, light | |
| Chocolate, bitter | |
| Liquorice | |
| Sugar, brown | |
| Soluble cocoa, with sugar, powder | |
| Milk chocolate | |
| Chocolate with milk and almonds | |
| Chocolate, bitter, with almonds | |
| Chocolate bitter, with sugar | |
| White chocolate | E |
| Chocolate paste with hazelnuts | E |

| FOOD | Indications |
|---|---|
| Nougat, alicante type | E |
| Honey | $B_6$ |
| Sugar, white | |
| Chocolate bar, type kit kat | |
| Chocolate | |
| Chewing gum | |
| Chocolate and cream pudding | |
| Custard | |
| Jelly | |
| Marmalade, strawberry | |
| Marmalade, orange | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Snacks

| FOOD | Indications |
|---|---|
| Butter cookie | |

| FOOD | Indications |
|---|---|
| Corn chips | E |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Non-alcoholic beverages

| FOOD | Indications |
|---|---|
| Mineral water | |
| Tea - without sugar | |
| Tap water | |
| Sparkling water, bottled | |
| Sport drink | |
| Coffee, brewed, decaffeinated | |
| Infusion, tea, herbal | |
| Lemonade | |
| Lemon juice, fresh | |
| Coffee, seed or powder, decaffeinated | |
| Carrot, fresh juice | |

| FOOD | Indications |
|---|---|
| Tomato, fresh juice | E |
| Soy milk | |
| Apple juice | |
| Orange juice | |
| Grapefruit juice | |
| Soft drink, tonic water type | |
| Soft drink, carbonated, orange flavoured | |
| Carbonated drink, lemon | |
| Soft drink, orange flavoured, non carbonated | |
| Soda | |
| Coffee, brewed | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

# Non-alcoholic beverages

| FOOD | Indications |
|---|---|
| Tea infusion, with milk | |
| Pineapple juice | |
| Energy drink | B6 |
| Soluble cocoa, with sugar, powder, light | B6 |
| Coffee infusion, with milk | |
| Blackcurrant juice | |

| FOOD | Indications |
|---|---|
| Cranberry juice | |
| Coffee, powder | |
| Soluble coffee, powder | |
| Coffee, substitute, instant | |
| Non-alcoholic beer | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or in small quantities.

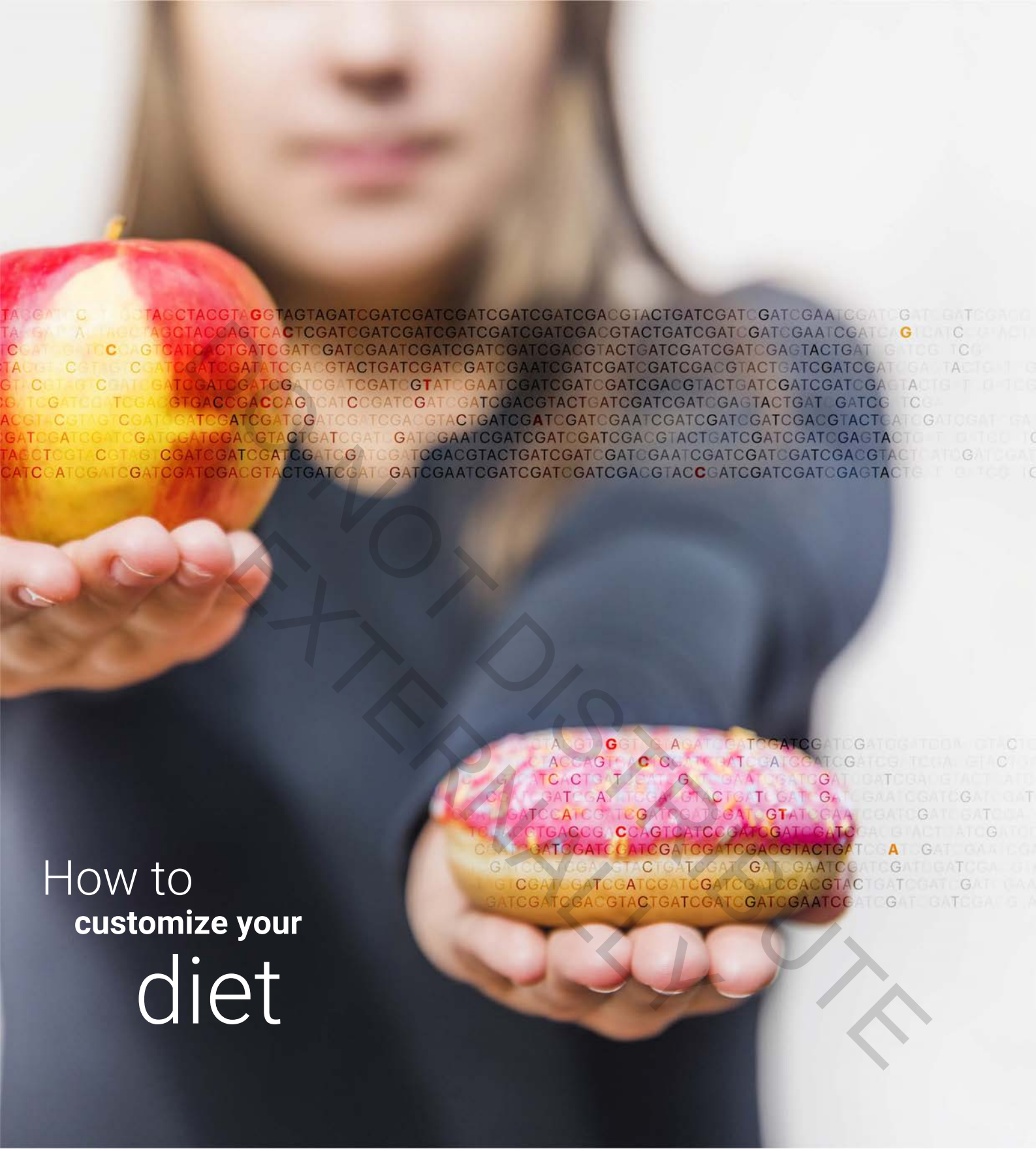
# Alcoholic beverages

| FOOD | Indications |
|---|---|
| Wine, rose | |
| Sidra | |
| Red wine | |
| White wine | |
| Sparkling wine, cava type | |
| Beer | |
| Beer, low alcohol | |
| Cognac | |

| FOOD | Indications |
|---|---|
| Gin | FAT |
| Fruit liqueur | |
| Rum | |
| Sangria | |
| Tequila | |
| Vodka | |
| Whisky | |



- Allowed, adjusting the amounts and / or frequency
- Consume in higher amounts or frequencies
- Consume in lesser amounts or frequencies
- Consume occassionally or 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-HIGH 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 | AT | MEDIUM | Predisposition to obesity, related to insulin resistance, hyperphagia, and increased risk of type 2 diabetes. |
| FTO-2 | rs1121980 | AG | MEDIUM | Increased risk of obesity related with insulin resistance, hyperphagia, and increased risk of type 2 diabetes. |
| MC4R-2 | rs17700633 | AG | MEDIUM | Increased risk of obesity and type 2 diabetes. |

### 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-HIGH 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 | AA | HIGH | High risk of increased BMI, increased waist circumference and insulin resistance. |
| MC4R-4 | rs17782313 | CC | HIGH | High 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)

## - MEDIUM-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 | AA | HIGH | Predisposition to normal 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

## - NORMAL 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 | TC | MEDIUM | Predisposition to slower 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

## - SLIGHTLY LOWER 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 | AT | MEDIUM | Slight predisposition to diminished satiety. Increased risk of obesity. |



### 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-HIGH 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 | AT | MEDIUM | Slight predisposition to lose fat during physical exercise. |
| FTO-2 | rs1121980 | AG | MEDIUM | Predisposition to lose fat slowly during physical exercise. |
| LIPC | rs1800588 | CC | LOW | No 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)

## - MEDIUM 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 | GC | MEDIUM | Slight 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

## - VERY LOW 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 | CC | LOW | No 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 CARBOHYDARATE 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

## - LOW RISK OF DYSREGULATION -

### ABOUT

Effect of carbohydrate intake in the regulation of cholesterol levels.

| MARKER | LOCUS | VARIANT | RISK | DESCRIPTION |
|---|---|---|---|---|
| MMAB | rs2241201 | CC | LOW | No predisposition to increase LDL 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

## - TRIGLYCERIDES NOT INCREASED -

### 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 | CG | LOW | Predisposition to normal 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

## - NOT 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 | AA | LOW | No 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

## - SLIGHTLY 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 analysed.

| MARKER | LOCUS | VARIANT | RISK | DESCRIPTION |
|---|---|---|---|---|
| CELSR2 | rs12740374 | GT | MEDIUM | Increased predisposition to lower LDL cholesterol levels. |
| HNF1A | rs2650000 | CC | LOW | Predisposition to normal 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 | SLIGHTLY INCREASED LDL LEVELS | INCREASED LDL LEVELS | HIGHLY INCREASED LDL LEVELS |
|---|---|---|---|
| Lower risk of high LDL levels | Moderate risk of high LDL levels | High risk of high LDL levels. | Very high risk of high LDL levels. |

# Risk of unbalanced Triglycerides/HDL ratio

## - HIGHLY INCREASED TG/HDL RATIO -

### ABOUT

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

| MARKER | LOCUS | VARIANT | RISK | DESCRIPTION |
|---|---|---|---|---|
| HMGCR | rs3846663 | TT | HIGH | Predisposition to higher triglyceride (TG) levels, and higher 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

## - MEDIUM-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 | CT | MEDIUM | Predisposition to slightly 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 | CG | MEDIUM | Increased 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 | AT | MEDIUM | Increased predisposition to insulin resistance. |
| FTO-2 | rs1121980 | AG | MEDIUM | Increased 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-HIGH 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 | CG | MEDIUM | Slightly increased risk of diabetes type 2. |
| PLIN1 | rs2289487 | CT | MEDIUM | Slightly increased risk of diabetes type 2. |
| TCF7L2-2 | rs7903146 | CC | LOW | Normal risk of diabetes type 2. |
| FTO-1 | rs9939609 | AT | MEDIUM | Increased risk of diabetes type 2. |
| MC4R-2 | rs17700633 | AG | MEDIUM | Slight predisposition to obesity increasing the risk of 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 | AG | HIGH | Increased 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 | AG | LOW | Predisposition to increased salt sensitivity associated with increased risk of salt sensitive hypertension. |

### 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

## - SLIGHTLY REDUCED 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 analysed 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 | GA | MEDIUM | Predisposition to slightly reduced hydrogen peroxide detoxification and increased oxidative damage. |
| 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 | AA | HIGH | Predisposition to normal hydrogen peroxide detoxification. |
| CYP1B1 | rs1056836 | CC | HIGH | Predisposition to normal CYP1B1 enzyme activity. |
| CYP1A1-2 | rs1048943 | TT | HIGH | Predisposition to normal CYP1A1 enzyme activity. |
| GSTP1 | rs1695 | AG | MEDIUM | Predisposition to slightly reduced GSTP1 activity leading to lower xenobiotic detoxification and increased susceptibility to oxidative stress. |

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. e. Consider supplementation as suggested at gene level.

LOW ANTIOXIDANT CAPABILITY

Low capability of metabolizing free radicals and cellular toxins. High risk of cellular damage.e. 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 | AG | MEDIUM | Predisposition to slightly reduced 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 | GG | LOW | Predisposition to normal serum levels of calcium. |
| CYP24A1 | rs1570669 | AA | HIGH | Predisposition to 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

## - LOW 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 | GG | LOW | Predisposition to normal serum ferritin and iron levels. |
| TMPRSS6 | rs4820268 | AA | LOW | Predisposition to normal serum iron levels. |
| TF-2 | rs8177253 | CC | LOW | Predisposition to normal 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 | AA | LOW | Predisposition to normal serum magnesium levels. |
| DCDC5 | rs3925584 | CC | HIGH | Predisposition to lower 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

## - MEDIUM-HIGH 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 | AA | HIGH | Predisposition to high 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 | AG | LOW | Predisposition to increased sodium sensitivity associated with increased risk of sodium sensitive hypertension. |



### 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

## - 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 | CC | HIGH | Increased risk of lactose intolerance. |
| MCM6-2 | rs4988235 | GG | HIGH | Increased risk of lactose intolerance. |



### 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-LOW 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 and IL2/IL21) 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.

| MARKER | LOCUS | VARIANT | RISK | DESCRIPTION |
|---|---|---|---|---|
| IL2/IL21-1 | rs6822844 | GT | MEDIUM | Slightly increased risk of celiac disease. |
| HLA-2 | rs2395182 | TT | HIGH | Increased risk of celiac disease. |
| IL2/IL21-2 | rs13119723 | AG | MEDIUM | Slightly increased risk of celiac disease. |
| HLA-4 | rs4713586 | AA | LOW | Normal risk of celiac disease. |
| HLA-5 | rs7454108 | TT | LOW | Normal risk of celiac disease. |
| HLA-6 | rs7775228 | TC | MEDIUM | Slightly increased risk of celiac disease. |



### INDICATIONS

NO ADDITIONAL RISK OF CELIAC DISEASE

No additional risk of celiac disease

MEDIUM-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

## - SLOW 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 | CT | MEDIUM | Increased predisposition to slower caffeine metabolism. |
| CYP1A2 | rs762551 | CA | LOW | Predisposition to slow 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

## - MEDIUM-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 | GC | LOW | 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 | CT | MEDIUM | Increased predisposition to weight loss induced by a low calorie diet. |
| ACSL5 | rs2419621 | CT | MEDIUM | Increased 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

## - 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 | CC | LOW | 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

## - MEDIUM-HIGH 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 | GC | MEDIUM | Increased 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 | AG | LOW | 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 | LOW | No predisposition to weight loss induced by a low fat diet. |
| FTO-1 | rs9939609 | AT | MEDIUM | Increased 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.

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