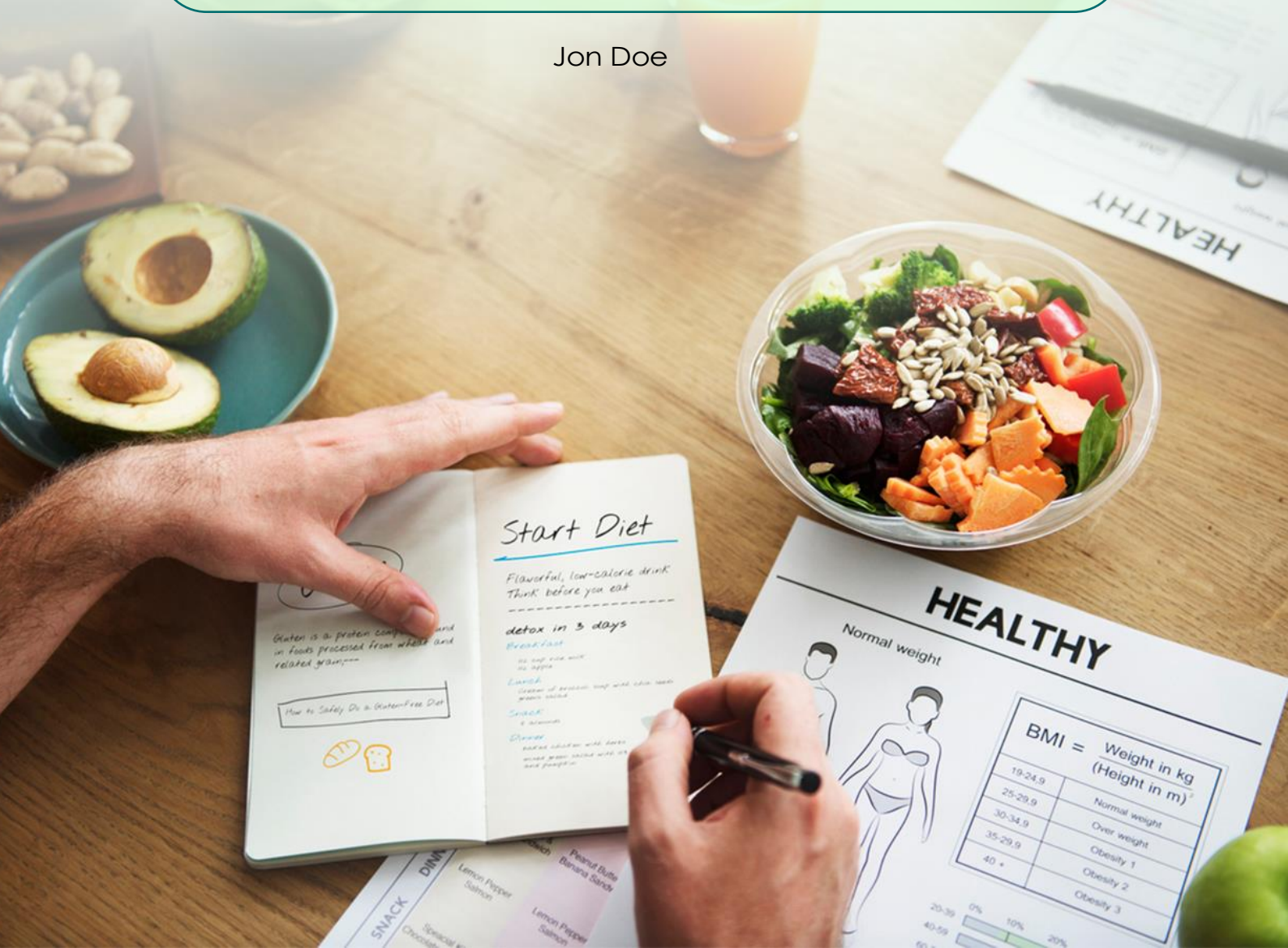


# HealthBioCare GmbH<sup>®</sup>

## Metabolic Health Panel

Jon Doe



### Start Diet

Flavorful, low-calorie drink  
Think before you eat

detox in 3 days

Breakfast

1/2 cup rice with  
1/2 apple

Lunch

1/2 cup of oatmeal, top with blueberries  
or raisins

Snack

1 banana

Dinner

1/2 cup chicken with herbs  
1/2 cup green beans with oil  
and parmesan

Gluten is a protein compound found  
in foods processed from wheat and  
related grains.

How to Safely Do a Gluten-Free Diet



### HEALTHY

Normal weight



BMI =  $\frac{\text{Weight in kg}}{(\text{Height in m})^2}$

19-24.9	
25-29.9	Normal weight
30-34.9	Over weight
35-39.9	Obesity 1
40 +	Obesity 2
	Obesity 3

SNACK  
Dinner

Lemon Pepper Salmon  
Peanut Butter Banana Sandwich  
Lemon Pepper Salmon



Dear Mr. Jon Doe,

Your sample has arrived for analysis in our laboratory and has been evaluated according to the latest scientific findings and the highest standards in laboratory quality. The analysis of your data was subsequently assessed by our staff members and authorized by our head of laboratory. With this, we submit to you your personal report which we generated for you individually. We thank you for your trust and would appreciate to hear your questions and suggestions in order to continuously improve our services.

We hope that the analysis fulfills your expectations.

Best regards,

*Your HealthBioCare Team*





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- What are genes and how are they regulated?
- What is personalized nutrition?

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- Metabolic Typing
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- Epigenetic Markers: Methylation and MicroRNA (miRNA)

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  - Overall Methylation
  - Inflammatory Response
  - Your Prognosis for Weight Loss and Weight Maintenance
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- Summary of Your Analysis Results
- General Information and Recommendations



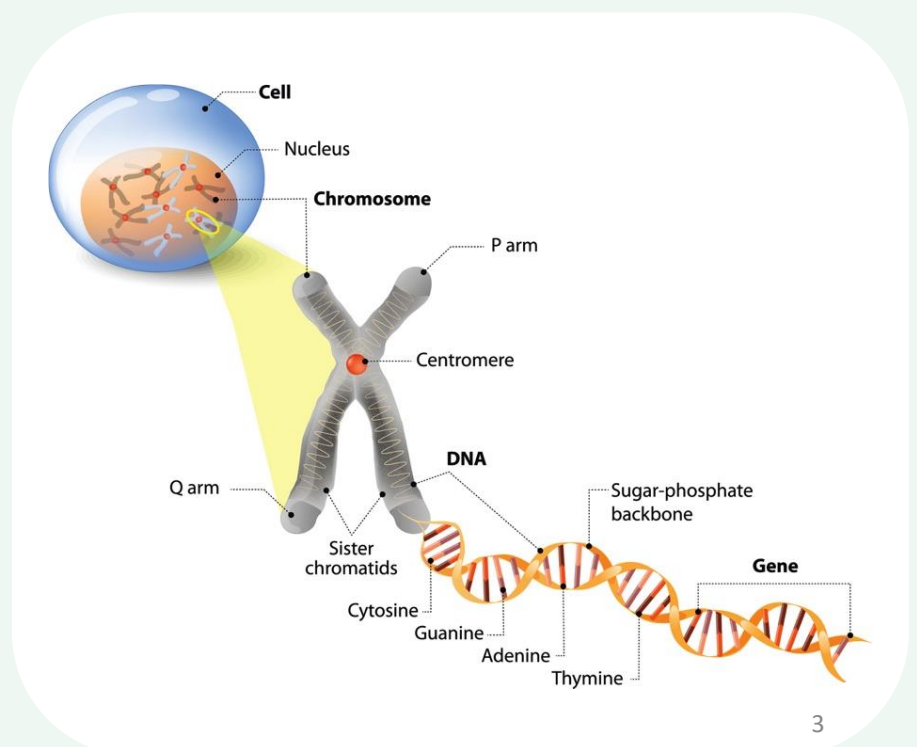
# Basic Principles: DNA and Nutrition

## What are genes and how are they regulated?

Our genetic information is saved in chromosomes. Chromosomes are comprised of a double-strand DNA which is coiled around histone proteins and located in the nucleus of the cell.

DNA, the genetic code, consists of four different nucleotides which are the main building blocks of DNA (A, G, C, and T). These building blocks repeat billions of times in a specific sequence. Genes are sections of DNA where the blueprint for proteins is located. They are read in the cell nucleus. Based on this information, the corresponding protein is then formed. Digestive enzymes as well as muscle tissue are built from these proteins. Small deviations in the sequence of these main building blocks within a gene can affect the function of the protein. One type of genetic variation is called SNP, which is short for single-nucleotide polymorphism.

SNPs represent about 90 % of all genetic variations in the human genome and are either inherited or are randomly formed. Each is individually distinct and remains for life. SNPs are important in terms of health as they can affect many areas such as metabolism as well as increase or reduce the risk of certain diseases.





Epigenetics accounts for the mechanisms of gene regulation that can be influenced by environmental factors, diet, and lifestyle. One of the most important mechanisms of gene regulation is DNA methylation. This is a process by which genes can be switched on and off. The activity of genes can thereby be strengthened or weakened. An example of this, is the amount of an enzyme that is being built. Epigenetic modifications like the methylation in regulatory regions of the genes can change over the course of one's life. External factors such as the environment as well as internal influences such as the specificities of one's diet greatly affect the rate of influence of methylation on metabolism and many other areas of our bodies. With a change in one's lifestyle (diet, exercise, and stress levels), gene activity can be increased and decreased.

## What is personalized nutrition?

The research field of nutrigenomics, which is concerned with the interaction between genes and nutrition, has been a focus of modern nutritional science in an effort to create and secure long-term individual nutrition recommendations.

We all express our genes in a unique way, which influence the functions of the metabolism. Therefore, we differ strongly in metabolic capacities as individuals. Depending on genetic conditions, there are also big differences in our needs for macronutrients (proteins, fats, carbohydrates) and micronutrients (vitamins, nutrients, trace minerals). It is scientifically proven that being overweight can be inherited up to 70 %.

People with a higher genetic predisposition have more difficulty in maintaining a healthy body weight or in losing weight. Specific gene variants may cause a strong feeling of hunger or low levels of satiation. In this case, the risk increases for one to gain weight. The efficacy of exercise related to body weight is also influenced by SNPs.

It is possible through modern gene diagnostics to determine your metabolic type on the grounds of your individual genetic characteristics. It is important to consider the genetic and epigenetic aspects collectively. Therefore, measurement of gene regulation is an additional pillar of the Metabolic Health Panel. Your genes are not your destiny. Our diet has a strong influence on our gene regulation (epigenetics).



Through the combined analysis of genetic and epigenetic markers, we can assess your risk for obesity and diabetes. Your analysis results offer indications such as how easy or how difficult it is, to lose weight and attain a stabilized, healthy body weight through calorie reduction, modulation of macronutrient intake, and by incorporating specific types and durations of exercise. This is the basis for your individual nutrition and exercise recommendations.

## Metabolic Typing

By analyzing twenty-three gene variants (SNPs) and various epigenetic markers (three methylation sites and two miRNAs), we assign you to one of four metabolic types:

- **Carbohydrate Type:** It is possible to metabolize carbohydrates well, but there are difficulties in digesting protein and fat.
- **Fat Type:** Fat is metabolized well, and you can achieve a desired weight with the right intake and lipid composition in your diet.
- **Protein Type:** Proteins are digested well, and you can lose weight with protein rich foods.
- **Balanced Type:** All three macronutrients (carbohydrates, fats, and proteins) are equally well metabolized.

In addition to classification into a respective metabolic type, all analyzed SNPs are evaluated individually and contribute to your personalized nutritional recommendations. These recommendations also include information on corresponding exercise.



## Epigenetic Markers

Epigenetic markers not only can be used to detect various diseases early, but they can also predict weight loss. Interleukin 6 (IL-6) and tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) are important inflammatory biomarkers. Additionally, those who are overweight and those who are at a healthy weight differ in methylation patterns of these genes.

Long interspersed nuclear element 1 (LINE-1) is a marker for BMI, diabetes, insulin resistance, cardiovascular disease, and cancer. Some studies show that the methylation of LINE-1 can predict the risk of the metabolic syndrome before clinical symptoms appear.

MiRNAs are short RNA segments of nineteen to twenty-four nucleotides and have a variety of regulatory tasks in the body. The body's cells specifically target miRNAs, which can be used as biomarkers for certain diseases, for metabolic processes, and as signal molecules in cell-to-cell communication.



Name

Jon Doe

Analysis Number

1

Date

05-02-25

## Analyzed Parameters

Nutrition

Lifestyle

Genotyping

- Metabolic Type
- Exercise Type
- Health Risks
- Nutritional and Metabolic Factors
- Nutricosmetics

Epigenotyping (Methylation and MicroRNA)

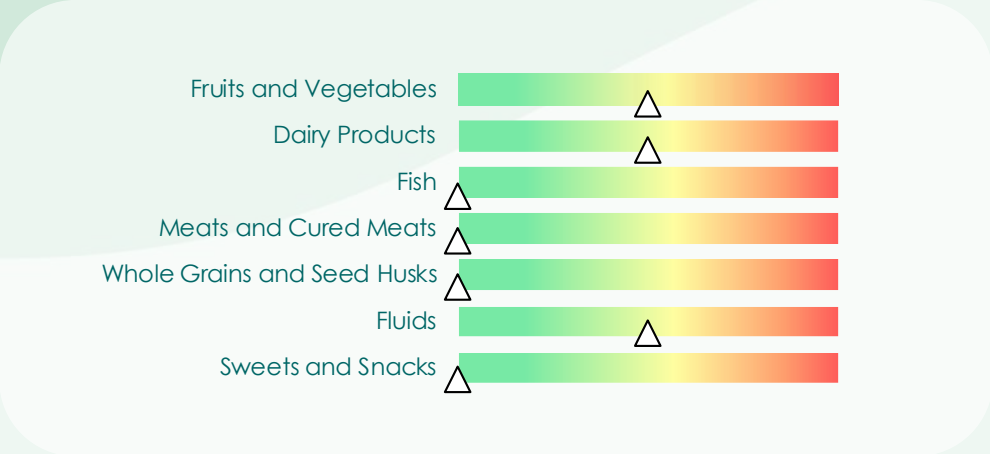
- Overall Methylation (DNA-Stability)
- Inflammatory Response
- Your Prognosis for Weight Loss and Stabilization
- Your Epigenetic Status of Metabolic Regulation





# Evaluation of Your Nutrition and Lifestyle Survey

## Nutrition



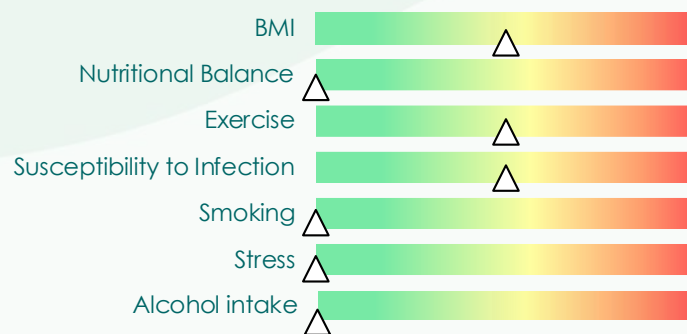
Your diet has been compared with the WHO-based recommendations. The results of each food group are shown using a traffic light system.

Your diet demonstrates a well-rounded combination of nutrients, but there's room for further improvements in certain areas. Increase your fruit and vegetable intake to 5 servings daily. Make sure to consume fermented foods such as yogurt, buttermilk, kefir several times a week. Drink at least 2 liters of fluids in the form of water or unsweetened tea.

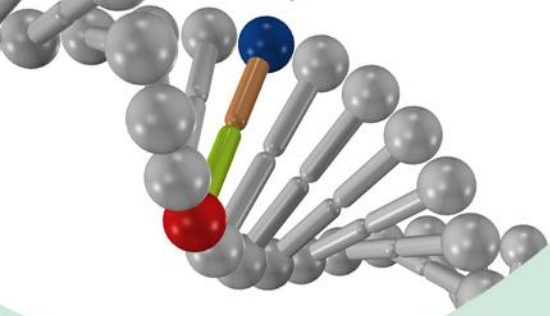


# Evaluation of Your Nutrition and Lifestyle Survey

## Lifestyle



You have a good baseline for a balanced lifestyle, but there is room for improvement. It may be beneficial to establish some healthier habits to further promote your health. Make sure to eat a varied diet and drink enough fluids. Staying hydrated and eating whole foods promotes health, performance and well-being. Increase your sporting activities. An active lifestyle can provide many benefits, including improved physical health, increased well-being and a higher quality of life. A good way to achieve this is to engage in at least 2.5 hours of moderate physical activity weekly. This includes both endurance and strength sports.



# Genotyping Results





The analysis of your gene variations indicates that your metabolic health type is suited the most likely to:  
**Balanced.**

### Your Results in Detail

Gene	Your Genotype	Effects on the Metabolism	Nutritional Recommendations
TCF7L2	C/C Wildtype	Regulation of insulin secretion; No increased risk for increased fasting blood sugar levels or for developing diabetes	Fat-rich foods do not cause any health problems for you.
ADRB3	A/G Heterozygous	Regulation of fat accumulation; Slightly increased fat accumulation and simultaneous moderate reduction of lipolysis rate (fat loss); Slight tendency to be overweight and to develop diabetes	Pay attention to your energy balance and to the types of fats you eat. Add more MCT-fats such as coconut oil (which metabolizes faster and therefore has less risk of being stored as fat, also acts as a satiation signal)
MC4R	T/T Wildtype	Involved in the regulation of energy balance and appetite; Frustration/stress eating	No Tendency for frustration/stress eating; Even so, try to snack less often.
FTOrs99	T/T Wildtype	Regulates energy metabolism, appetite, satiation, and eating habits	For you, an increase in fat intake is beneficial.
PPARG2	C/C Wildtype	Regulates fat storage and insulin sensitivity	You are sensitive to fat but can metabolize carbs very well. Follow your nutritional recommendations. If you reduce calories, you are likely to have an increased weight loss compared to SNP carriers.



Gene	Your Genotype	Effects on the Metabolism	Nutritional Recommendations
ApoA5	A/G Heterozygous	Regulates apolipoprotein which is essential for triglyceride metabolism.	Keep with the fat intake recommendations of your metabolic type. Fats: especially olive oil (monounsaturated), Reduce carbohydrates in favor of healthy fats (olive oil, avocado, fatty fish).
TFAP2B	A/A Wildtype	Expressed in adipose tissue; Fat to carbohydrate ratio	No impact. Keep with the nutritional recommendations for your metabolic type.
LPL	G/G Wildtype	Enzymes cleave triglycerides.	Follow the recommendations of your metabolic type. Pay attention to your fat intake.

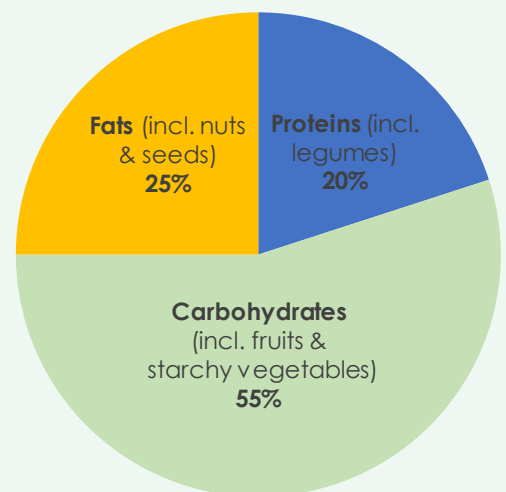


## Balanced Type

Those with a balanced metabolism can follow the recommendations of the DACH-guidelines. We recommend a diet that is based on the general regulations. The distribution of macronutrients is the following: carbohydrates and fiber should make up the majority of your diet with at least 50 %, fats should make up 20-25 %, and proteins should be 20-25 %.

However, make sure to prioritize quality over quantity. Try to gradually eliminate simple carbohydrates and instead consume more complex carbohydrates.

These provide your body with all the essential vitamins and minerals that are lost in processed flour when the outermost shell of the grain is removed. Also increase your intake of fruits and vegetables. They also contain complex carbohydrates, provide important nutrients and are a good source of energy for your gut bacteria, which keeps your metabolism in balance.






# Influence of Genes on Movement and Exercise

## Genetics and Exercise: Which Exercise Type Are You?

Some are successful with endurance sports while others are better suited to and will gain greater health benefits from strength training or a combination of both.

By assessing the variations of the genes ACE and ACTN3, we are able to assign you to different exercise types. Through a specific variation in the gene FTO, we can evaluate, how physical movement effects your body weight.

An alteration (SNP) in the ACE gene leads to a decrease in gene activity. ACE is part of the bradykinin-aldosterone system. Less activity results in a reduced conversion rate of angiotensin I to angiotensin II, which functions as a vasoconstrictor and narrows the blood vessels. When bradykinin increases in the body, the blood vessels widen, and more oxygen-rich blood is delivered to working muscles. This genotype is advantageous for endurance sports since oxygen-rich blood enables the muscles to work more efficiently and for a longer amount of time. The ACE gene is active in those with the wild type genotype in the ACE gene, and therefore those in this group will benefit from strength training.



We can also draw conclusions about your exercise type by analyzing the gene ACTN3. Human muscle tissue is sorted into two categories. Slow-twitch (red) muscle fibers are heavily supplied with blood. This optimal oxygen supply has a positive effect in endurance sports, however these slow-twitch fibers are indeed slow and do not generate a lot of power, therefore fast and powerful movements are limited. On the contrary, fast-twitch (white) muscle fibers have less oxygen and tire sooner. They can, react quicker and more forcefully, rendering these fibers capable of fast and powerful movement.

The gene ACTN3 is generally active in white muscle tissue. With the SNP in this gene, functions of the white muscle tissues decrease and so does the capability for fast movements. Carriers of this variant benefit more from endurance sports and less from power and sprint training.

### General Benefits of Physical Exercise:

Physical activity is an important protective factor in the prevention of a variety of diseases and obesity. Regular exercise contributes to a balanced energy level as it results in the additional consumption of energy. In addition, it promotes the release of hormones, of which some can lower blood sugar levels. Muscles absorb the majority of glucose and fat in our diet and keep blood sugar and triglyceride levels in balance. HDL cholesterol is cardio-protective and is enhanced by exercise. This means that, one can adhere to a personalized diet and exercise plan to prevent diabetes and other common diseases. When we exercise, serotonin and other hormones are released which can prevent and relieve conditions such as depression, chronic pain, osteoporosis, and more.



# Exercise Type

## Analysis of Your Gene Variations According to Your Exercise Type in Detail:

Influence of sport on body weight 

Exercise Type:  
Endurance and Strength

Gene	Your Gene Variation	Physical Activity
ACE	C/G	Endurance sports such as jogging, Nordic walking, biking, and swimming and strength training, such as weightlifting by using your own body weight and with dumbbells
ACTN3	T/C	Strength training, such as weightlifting by using your own body weight and with dumbbells

The results of your analysis for ACE and ACTN3 genes indicate that both methods can be effective training for your body. If you are a beginner, start small. Try to start with 30 minutes of fast walk three times a week. The pace can and should be increased gradually. You can choose your activities freely because you can handle both strength and endurance sports well. In addition, your analysis of the FTO gene has shown that you can lose weight with exercise very well.

IMPORTANT: In the case that you are severely overweight, it is important to start with light intensity and endurance sports. These are gentler to the joints. After a period of healthy weight loss, you can then change to power training and exercises which correspond to your personal exercise type.



## Genetic Risks: Diabetes, Obesity, Nutritional and Metabolic Factors

Diabetes is a metabolic disease caused by an abnormal elevation in blood sugar levels. In type II diabetes mellitus, the pancreas produces insulin, but not in sufficient quantity. In addition the cells in the body can often be resistant to insulin. This means that insulin can no longer optimally perform the vital task of transporting sugar from the blood into the cell. The sugar then, remains in the blood and can cause damage to nerves and small blood vessels. Risk factors for developing diabetes are: genetics, obesity (visceral abdominal fat is particularly relevant) and a flawed nutrition and lifestyle among other things. Obesity is the result of many factors. First, genetic conditions play an essential roll. A disturbed hunger and satiation systems, as well as cravings, often lead to an increased consumption of calories, which are stored immediately in the body in the form of adipose tissue. Genetic risk can be identified through the analysis of gene variations. Further factors, such as the environment (friends, occupation, etc.), lack of exercise, and a poor diet can cause weight gain. Unfortunately, obesity opens the door to a variety of other very serious diseases, such as high blood pressure, impaired blood lipids, and in extreme cases, arteriosclerosis, diabetes, and coronary heart disease. In addition, one's well-being and social life can also suffer.



Our analysis informs you about your genetic predisposition for these diseases and helps you to prevent and reduce your risks with proper metabolic diet and exercise.

For you, we have examined gene variations which influence body weight, obesity, the yo-yo effect, eating habits, diabetes, dyslipidaemia (blood lipids),  $\omega$ -3 und  $\omega$ -6 fatty acid metabolism, HDL-cholesterol, oxidative stress, and salt sensitivity.

## Analysis of Your Gene Variations in Detail:



Your results show that you have no or very little gene variants that affect your eating habits. That means that from a genetic point of view, you are likely to have balanced eating behavior. Nevertheless, having a sweet tooth, craving processed foods, or snacking often are behaviors that can be created out of habit. Therefore, when you experience a hunger attack, try these tips: drink water, chew gum, nuts, or opt for a piece of fruit or vegetable. These tips will help you wean your body off of sweet and/or greasy foods.



The combination of several genes can predict your genetic risk for diabetes and obesity. Your analysis shows that you have a low predisposition. Nevertheless, try to integrate a lot of exercise and a healthy lifestyle into your everyday routine.



Polymorphisms in our genes suggest an additional need for vitamin D, folate, and/or vitamin B. Take care to include an increased intake of these vitamins in your diet. Sources of vitamin D include the sun (exercise in the fresh air), dairy products, fish, eggs, and mushrooms.

Sources of folate and vitamin B are leafy green vegetables, legumes, traditional grains, and animal products.



$\omega$ -3 und  $\omega$ -6 FS Conversion



Carriers of FADS1 SNPs unfortunately have difficulty with forming fatty acids out of  $\omega$ -3 and  $\omega$ -6 fatty acids. For you, it is advised to supplement your diet with fish oil capsules or a vegetarian alternative in order to provide important substances like eicosapentaenoic acid and docosahexaenoic acid.

Blood Lipids



Sensitivity to Salt



Your analysis shows that you have no genetic predisposition to have a disturbed balance of blood lipids. However, if you still have high cholesterol, high LDL, and low HDL levels, it is most likely diet-related. Pay attention to the quality of fats you consume. Reduce consumption of products with processed fats since they contain many saturated and trans fats and raise the risk for disease later on. Consume fats from plant-based sources such as olive oil, avocados, nuts, and healthy fats from animal products such as white meat and fish. These have less cholesterol and contain omega-3/omega-6 fatty acids. An increase in vegetable consumption helps to reduce LDL and increases HDL. In addition, you are slightly more sensitive to increased salt intake. Keep an eye on your blood pressure and reduce the consumption of high-salt foods, e.g. cheese, sausages, bread.

## List of Genes and Gene Variants Used to Calculate Individual Risks

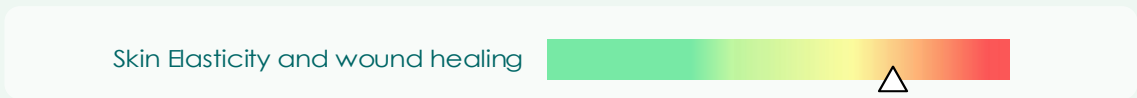
Gene	Your Genotype	Meaning
IL-6	C/G Heterozygot	Diabetes, blood lipids, Omega-3 and 6-fatty acid metabolism; Obesity, weight loss, weight stabilization, Appetite, hunger and satiation, stress eating
TCF7L2	C/C Wildtype	Diabetes, obesity, weight loss
ADRB3	A/G Heterozygot	Diabetes, weight loss
MC4R	T/T Wildtype	Diabetes, obesity, weight loss Appetite, hunger and satiation, snacking
UCP	A/A Wildtype	Diabetes, obesity
PPAR $\gamma$	C/C Wildtype	Diabetes, obesity, appetite, hunger and satiation
FTO	T/T	Obesity, appetite, hunger and satiation
SLC6A14	C/C SNP	Obesity, appetite, hunger and satiation, stress eating
TFAB2P	A/A Wildtype	Obesity
LEPR	A/A Wildtype	Weight loss, appetite, hunger and satiation; Weight stabilization
PLIN	T/T SNP	Weight loss
FADS1	C/T Heterozygot	Omega-3 and 6 fatty acid metabolism
APOA5	A/G Heterozygot	Blood lipids, weight loss
LPL	G/G Wildtype	HDL metabolism, blood lipids
MTHFR	G/A Heterozygot	Genomic DNA methylation (increased amounts of genes which are turned off), elevated homocysteine levels; Formation and repair of DNA
GC	G/T Heterozygot	Immune system, bone formation
ACE	C/G Heterozygot	Salt sensitivity



## Nutricosmetics

Blemishes on the skin, wrinkles, dryness, and elasticity are complex processes which are 60 % reliant on genetics while your lifestyle and environmental factors account for the remaining 40 %. Our goal is to provide you with individualized care and individual anti-aging program matched to your skin condition by analyzing the polymorphisms of the genes IL-6, AQPR, COL3A1, NADPH and SOD2.

Gene	Your Genotype	Used to assess
IL-6	C/G Heterozygot	Skin Elasticity
COL3A1	C/C SNP	Skin Elasticity and wound healing
AQPR	T/T Wildtype	Dryness of Skin
NADPH	G/G Wildtype	Antioxidants
SOD2	G/G Wildtype	Antioxidants



Skin elasticity is affected mostly by pro-inflammatory processes. Take care to get a sufficient intake of  $\omega$ -3 and  $\omega$ -6 fatty acids in your diet. Sources of  $\omega$ -6-FS are: sunflower oil, safflower oil, maize-germ oil; walnuts as well as meat and liver. Sources of  $\omega$ -3 are: fish, linseed oil, rapeseed oil, nuts, and chia seeds. The following also provide anti-inflammatory effects: turmeric, ginger, cinnamon, and cayenne.

A protein deficiency can also cause the connective tissue to slacken. In this case, focus on fish, lean meat, nuts, legumes, milk, and dairy products.



Dryness of the Skin



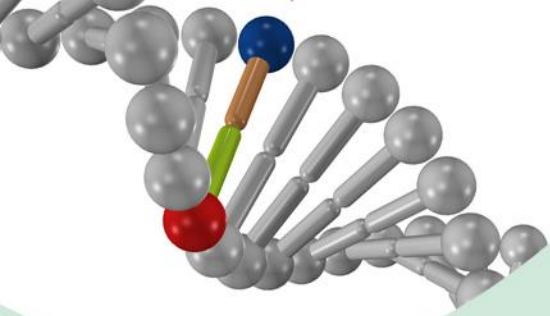
Dehydration dries our skin and can lead to a loss of its tension. Therefore, monitor your good hydration level and make sure to drink at least 2 liters of water or unsweetened tea per day.

Antioxidants



Your analysis shows that your detoxification of radicals is in balance. Free radicals attack and damage the cells. Antioxidants in your diet help to catch radicals and to prevent cell damage. To maintain and support your good status, incorporate the following foods into your meal planning: fruits and vegetables which provide valuable antioxidants (vitamin C and E, carotenoids, selenium, zinc, and polyphenols) such as berries, citrus fruits, spinach, apples, broccoli, tomatoes, garlic, grapes, nuts, legumes, and green tea.





# Epigenetic Analysis



## Methylation

Gene regulation is influenced by DNA methylation among other things. The binding of a small molecule in the methylation group on DNA can turn genes on and off. These epigenetic markers also work as predictive biomarkers for weight loss. They can help to explain and predict individual differences in weight loss following energy (kcal) restriction. For example, those who are overweight and those at a healthy weight show differences in their methylation patterns. We measure the methylation rate at specific sites in your genome and use this information to calculate your personal prognosis for weight loss. We also evaluate your health status graphically with the traffic light system.

### DNA Stability

Met. Line-1 

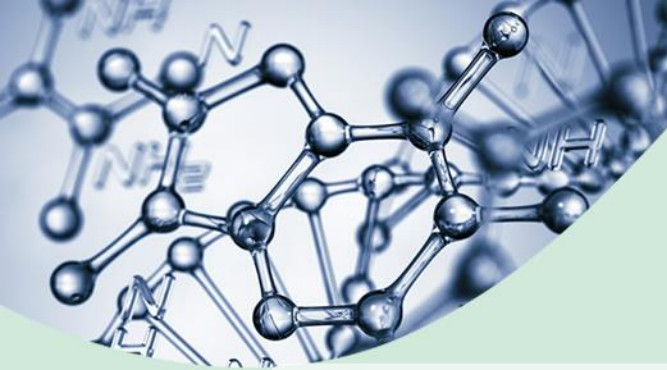
LINE-1 refers to an element of the human genome that is not statically fixed but can change location in the genome. In regard to medicine, the LINE-1 family is of great importance, since some diseases are caused by the activation or inactivation of genes by the LINE-1 element. Those with a higher LINE-1 methylation (green area) respond well to hypocaloric nutrition and have better antioxidant levels. Those who have lower methylation (red area) should increase calorie deficit with exercise and proper diet. A higher intake of foods rich in antioxidants or a supplement (for instance, TIMEBLOCK® inspired by nature) is also advised.

### Inflammation

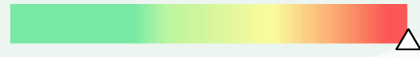
Met. TNF $\alpha$ /IL6 

Both, TNF- $\alpha$  and IL-6 have a central regulatory role in inflammation and immune responses since it influences immune cells. If you are in the green area indicates a lower inflammatory event, whereas the red area means a high level of inflammation. At a value in the red range a higher intake of foods, which have anti-inflammatory effects, or a supplement is advised.

Furthermore, a high occurrence of TNF- $\alpha$  in adipose tissue leads to the deterioration of insulin signaling and can contribute to the development of insulin resistance and further weight gain.



Combination of Relevant Markers for  
Weight Reduction



Your value, calculated to predict successful weight loss, is not in the optimal range. This means that you must reach a higher calorie deficit in order to steadily lose weight. A total energy deficit of 23 to 25 % per day is necessary to lose weight steadily, but this would lead to a big slump in your metabolic performance (resting energy conversion) by reducing muscle mass and diminishing the effects of hormones in the thyroid. Consequently, it would be very difficult to stabilize your optimal weight with calorie reduction since your body has learned to very effectively save energy during reductions or breaks in intake. This mechanism is evolutionarily conditioned, ensuring survival when food was sparse earlier times. The consequence though, is that you would need a third less energy than normal in the future. In practice, this means that you could eat about 300 to 500 less kilocalories than would be normal for your optimal weight. Therefore, make sure that this deficit is mainly achieved through a higher energy turnover (increase in everyday activity) and not just through saving calories through food. In addition, we recommend intermittent fasting instead of a higher energy deficit to ensure a steady weight reduction with subsequent stabilization of the new weight. In this way you can maintain metabolically active body mass and specifically counteract a pronounced reduction in resting energy expenditure (due to very low food intake).

## Your epigenetic Status of microRNA Metabolic Regulation:

MiRNAs are short RNA fragments of 19 to 24 nucleotides. These non-coding RNAs have diverse regulatory functions in the body. A good third of human genes are regulated by miRNAs. They take care of the “fine-tuning” of gene regulation. Cells in the body target miRNAs which function as signal molecules in the communication between cells. These small signal molecules, therefore, serve as biomarkers for the metabolism. We have determined the blood levels of two miRNAs which can be positively influenced by lifestyle.

### Inflammation- and micronutrient-associated miRNA:

Increased inflammation and poor zinc and folate levels increase the amount of this marker in the blood. It is important to strive for a normal BMI if you are in the high or medium status (indicated by red or yellow) and to take care to increase zinc and folate intake.

Inflammation- and Micronutrients-associated miRNA



Your level for the inflammation- and micronutrient-specific miRNA is in an average range. Increase your fiber intake e.g. with whole grain products, which are beneficial for your positive intestinal bacteria and as a result can strengthen your immune system and prevent inflammation. In addition, pay special attention to your zinc and folate intake. Whole grains, legumes, oil seeds, and nuts are good sources of zinc. Increased meat consumption also has a negative effect on this miRNA. If necessary, reduce your intake of meat, especially processed and red meat.

## MiRNA and the Formation of Fatty Tissue:

All humans have white and brown or beige adipose tissue. The latter provides more energy in the form of heat. Certain miRNAs influence whether more brown or beige adipose tissue is formed in relation to white adipose tissue. Brown and beige fat requires more energy which is then released in the form of heat. This increases your basal metabolic rate. A low miRNA level in the blood reduces the negative influence on energy metabolism in FTO-SNP carriers, as more brown or beige adipose tissue is formed from the white. This promotes weight reduction. With regular exercise, the miRNA levels can be lowered.

MiRNA and the Formation of Adipose Tissue

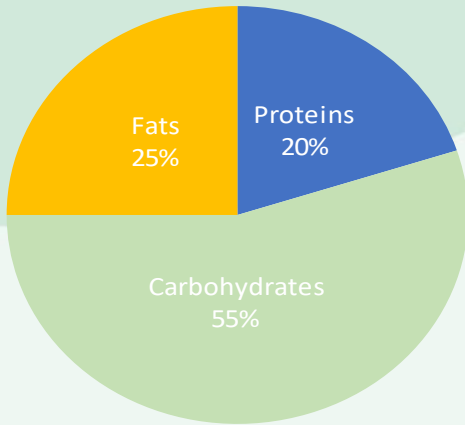


Your level for this miRNA is not in the optimal range. You can positively influence your metabolism by increasing your daily activities. For example, take the stairs more often instead of the elevator or take long walks. Sport in general has a positive effect on this miRNA. If you are already doing a lot of exercise in your everyday life, you can also increase your sporting activities. To improve the value for this miRNA, conscientiously implement the personalized diet and exercise recommendations generated for you. In this way, you can use even more of the described positive effects of this FTO gene-regulating miRNA for your weight loss and your health.

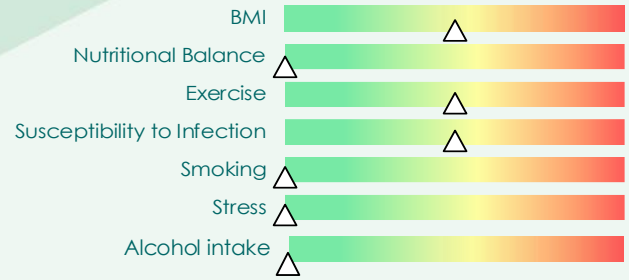
# General Overview

Metabolic Type:  
Balanced.

BMI: 25.2



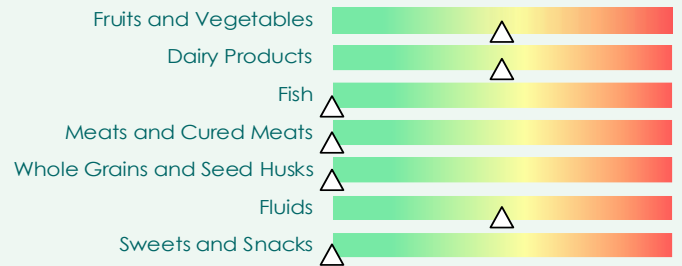
Lifestyle:



Exercise Type:  
Endurance and Strength



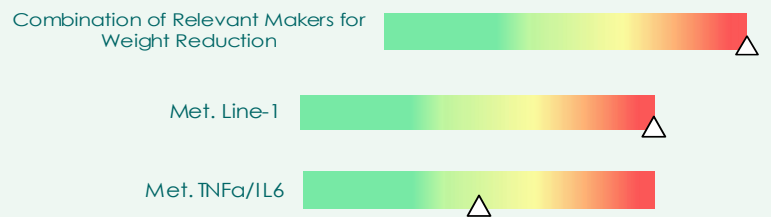
Nutrition:



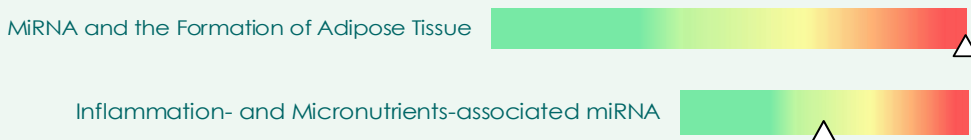
Nutricosmetics:



Methylation:



MiRNA:





## Risks:

### Eating Habits:



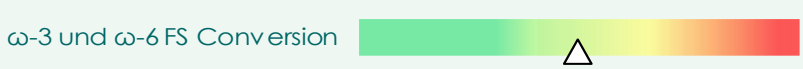
### Diabetes/Obesity:



### Vitamins Intake:

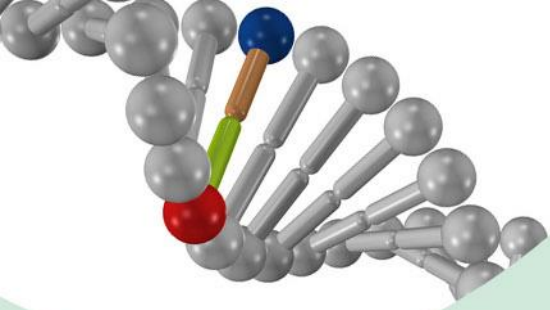


### Omega-3 and Omega-6:



### Blood Lipids:





# Interpretation of Your Nutritional Status







The basal metabolic rate (calculated with the Harris-Benedict formula) indicates how many calories a person needs per day, if it is in a completely quiescent state. This value is to be understood as a guideline and varies depending on each body. Certain activities require more calories and are not taken into account. These will be accounted for in your daily energy demand.

$$\text{BASAL METABOLIC RATE} + \text{ENERGY VOLUME} = \text{CALORIC NEED}$$

Age: 60

Your Basal Metabolic Rate: 1647 kcal

Your Daily Energy Demand: 2338.74 kcal

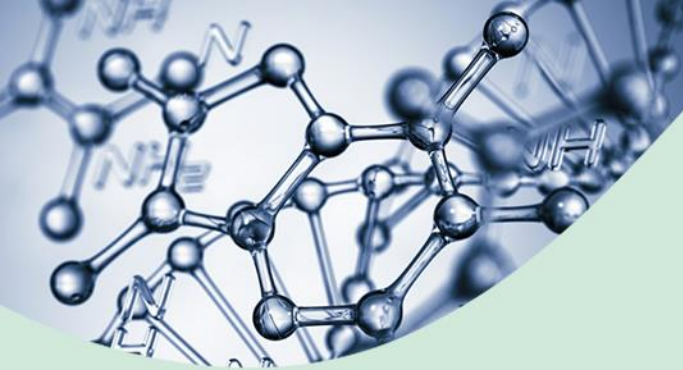
The evaluation of your epigenetic markers for weight reduction show that successful weight loss can result from a 23 % kcal deficit of your energy volume of 2338.74 kcal is 537.74 kcal/day.

Target intake of energy per day during weight loss period: ca. 1800.26 kcal

BMI (Body Mass Index):

25.2

Age	Normal BMI Female	Ideal BMI Female	Normal BMI Male	Ideal BMI Male
<b>19-24</b>	17,5-23,9	20,75	18,5-24,9	21,75
<b>25-34</b>	18,5-24,9	21,75	19,5-25,9	22,75
<b>35-44</b>	19,5-25,9	22,75	20,5-26,9	23,75
<b>45-54</b>	20,5-26,9	23,75	21,5-27,9	24,75
<b>55-64</b>	21,5-27,9	24,75	22,5-28,9	25,75
<b>Über 64</b>	22,5-28,9	25,75	23,5-29,9	26,75



#### Further Advice:

For more information, visit our website, [www.healthbiocare.at](http://www.healthbiocare.at). If you still have questions or concerns, send them to: [office@healthbiocare.at](mailto:office@healthbiocare.at), and one of our experts will take care of your questions immediately.