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*Your guide to personalized nutrition*

# GENE NUTRITION



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**This is a sample report**

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# Introduction

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Have you ever wondered why certain people lose or gain more weight compared to others? And why some foods cause uneasiness in some people? Do you want to know which diet suits you best? The answer lies in your genes.

The way we fuel our bodies with the foods we eat are all impacted by our genetic make-up. The old adage “you are what you eat” plays a major role in determining our health and well-being. Food and its nutrients directly and indirectly influence our gene expressions. Genetic variations affecting certain metabolic traits in turn dictate dietary means and requirements. For instance, the response to food varies from individual to individual explaining why some people can eat as much as they want and not gain weight. These factors may be attributed to the large role that genes play in influencing eating behaviours and metabolism of different foods.

Some interesting facts about genes and nutrition-

- **Craig Maclean, the famous track cyclist and Olympics Gold medalist, and Novak Djokovic, the famous tennis player, were both diagnosed with Celiac disease (gluten intolerance) and owe their success to a gluten-free diet.**
- **A study on weight management conducted by Stanford University found that people who eat and exercise according to their genetic predisposition tend to lose two-and-a-half times as much weight as compared to those who do not.**
- **Approximately 74% of Native American, 90% of Asian Americans, 70% of African Americans and 53% of Mexican Americans are lactose intolerant. Research studies have also showed that there is a considerable reduction in lactase activity among people whose ancestry is from Greek, Italian, Arab, Asian, African, Hispanic or Jewish origin.**
- **According to Centres for Disease Control and Prevention (CDC), 43% of children and 38% of pregnant women suffer from iron deficiency, 1 in 6 women suffer from Vitamin A deficiency and 17.3% of the global population has Zinc deficiency.**
- **Fast metabolizers of caffeine, who drank up to 3 cups of coffee per day, have almost 52% lower risk of heart attack as compared to slow metabolizers.**

In this report, we profile genes that have been shown to influence nutritional traits like diet and weight management, micronutrient requirements, food intolerance and several other attributes relevant to nutritional well-being.

We hope that this report will help you understand your body better and to align your diet to your genetic type to get the best results.

# Introduction

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**Human health is a complex interplay between genetics and the environment (lifestyle, diet, activity, stress, etc.). Your genes, training and diet, all play a vital role in your well-being.**

This report is presented in a user friendly language and format. The following tips will help you get the best information value out of the report.

## **1. The word “likely” is used often in the report. What does it mean?**

People generally know that high cholesterol can lead to heart conditions. However, there are individuals with high cholesterol who do not develop heart disease. Similarly, smoking can lead to lung disease, but not always. Hence, certain genetic parameters can lead to certain outcomes but other factors may modify the outcome. “Likely” means, it is more likely that one will see the outcome, but other factors may modify it.

## **2. What does the term “average” mean in the report?**

Average implies neither high nor low, rather an intermediate outcome. For example, average likelihood of weight gain is an intermediate level between high and low likelihood. Average can also be understood in the context of “Normal” or “Typical” or “Moderate”

## **3. How do I know which result is applicable to me?**

Only results with a check mark (✓) or exclamation (!) are applicable to you, the others are not applicable. All possible outcomes are provided in the table to provide a context to your outcome.

## **4. Where did the information contained in the report come from?**

The genetic markers that are used in this report are based on scientific studies published in international journals. A list of references is available for you to read on our web blog.





## **5. Some sentences are colored in green and others in red, why?**





Attributes that are advantageous in nutritional well-being are indicated in green and those that are not advantageous are in red. Moderate or Neutral outcomes are indicated in black.





## **6. In the vitamins and Micro Nutrient section, what does normal intake indicate?**

Normal intake refers to the Recommended Dietary Allowance (RDA) of the specific vitamin or mineral.





# YOUR SUMMARY RESULTS





Trait Name	Your Result	Your Outcomes
<p><b>Tendency to Overeat</b> Genetic variations in overeating tendency <a href="#">Learn More</a></p>		<p>Highly likely to overeat</p> <p>Highly likely to overeat</p> <p>Highly likely to overeat</p>
<p><b>Eating between Meals or Snacking</b> Genetic variations in frequency of snacking <a href="#">Learn More</a></p>		<p>Highly likely to eat between meals or snack</p> <p>Highly likely to eat between meals or snack</p> <p>Highly likely to eat between meals or snack</p>
<p><b>Emotional Eating</b> Genetic variations in emotional eating behavior <a href="#">Learn More</a></p>		<p>Highly likely to eat when stressed, sad, or bored</p> <p>Highly likely to eat when stressed, sad, or bored</p> <p>Highly likely to eat when stressed, sad, or bored</p>
<p><b>Carbohydrate Intake and Weight Gain Tendency</b> Genetic variations in weight gain upon higher carb intake <a href="#">Learn More</a></p>		<p>Highly likely to gain weight upon higher carb intake</p> <p>Highly likely to gain weight upon higher carb intake</p> <p>Highly likely to gain weight upon higher carb intake</p>

<p><b>Tendency to Regain Weight</b>  Genetic variations in weight regain tendency after a weight loss program  <a href="#">Learn More</a></p>		<p>Genetic variations in weight regain tendency after a weight loss program</p>
<p><b>Body Mass Index</b>  Genetic variations influencing higher BMI  <a href="#">Learn More</a></p>		<p>Genetic variations influencing higher BMI</p>
<p><b>Adiponectin Levels</b>  Genetic variations in adiponectin levels  <a href="#">Learn More</a></p>		<p>Genetic variations in adiponectin levels</p>
<p><b>Fiber Intake and Weight Loss Tendency</b>  Genetic variations in weight loss upon higher fiber intake  <a href="#">Learn More</a></p>		<p>Genetic variations in weight loss upon higher fiber intake</p>

<p><b>Protein Intake and Weight Loss Tendency</b>          Genetic variations in weight loss upon higher protein intake  <a href="#">Learn More</a></p>		<p>...</p>
<p><b>Saturated Fats Intake and Weight Gain Tendency</b>          Genetic variations in weight gain upon higher SFA intake  <a href="#">Learn More</a></p>		<p>...</p>
<p><b>Response to MUFA Intake</b>          Genetic variations in weight loss upon higher MUFA intake  <a href="#">Learn More</a></p>		<p>...</p>
<p><b>Response to PUFA Intake</b>          Genetic variations in weight loss upon higher PUFA intake  <a href="#">Learn More</a></p>		<p>...</p>



<p><b>Mediterranean Diet Response</b>          Genetic variations in weight loss tendency on Mediterranean diet.  <a href="#">Learn More</a></p>		<p>Genetic variations in weight loss tendency on Mediterranean diet.</p>
<p><b>Tendency to Prefer Bitter Foods</b>          Genetic variations in bitter taste perception  <a href="#">Learn More</a></p>		<p>Genetic variations in bitter taste perception.</p>
<p><b>Tendency to Prefer Fatty Foods</b>          Genetic variations in fat taste perception  <a href="#">Learn More</a></p>		<p>Genetic variations in fat taste perception.</p>
<p><b>Tendency to Prefer Sweet Foods</b>          Genetic variations in sweet taste perception  <a href="#">Learn More</a></p>		<p>Genetic variations in sweet taste perception.</p>

<p><b>Cilantro Taste Aversion</b>          Genetic variations in cilantro preference due to differences in soapy taste perception  <a href="#">Learn More</a></p>		<p>Genetic variations in cilantro preference due to differences in soapy taste perception</p>
<p><b>Vitamin A Levels</b>          Genetic variations in vitamin A requirements  <a href="#">Learn More</a></p>		<p>Genetic variations in vitamin A requirements</p>
<p><b>Vitamin B12 Levels</b>          Genetic variations in vitamin B12 requirements  <a href="#">Learn More</a></p>		<p>Genetic variations in vitamin B12 requirements</p>
<p><b>Vitamin B6 Levels</b>          Genetic variations in vitamin B6 requirements  <a href="#">Learn More</a></p>		<p>Genetic variations in vitamin B6 requirements</p>



## TENDENCY TO OVEREAT

**Lower: Less likely to overeat**

People with certain genetic types have an increased tendency to over-consume foods. We analyze genes known to influence various hunger and satiety hormones such as Leptin,

### Recommendations:

- You may have a low genetic tendency to overeat.
- If you do tend to overeat, it could be due to stress, access to high-calorie snacks, or other

**Genes Analyzed:** FTO, MC4R, BDNF, DRD2, CLOCK, LMX1B

**Number of Gene Markers Found:** 8

**Number of Gene Markers Analyzed:**8



## EATING BETWEEN MEALS OR SNACKING

**Lower: Likely to have reduced snacking behavior**

Snacking helps bridge the hunger gap between two meals. It helps curb your appetite and control your meal portion sizes. However, the wrong snack choices or snacking too frequently can lead to overconsumption of calories during the day. This could lead to weight

### Recommendations:

- You may have a genetic tendency for reduced snacking behavior (eating between meals). This means that you are less likely to consume excess calories, which can be good for your health

**Genes Analyzed:** MC4R

**Number of Gene Markers Found:** 1

**Number of Gene Markers Analyzed:**1



## EMOTIONAL EATING

**Higher: Likely to exhibit high emotional eating behavior**

People don't always eat in response to hunger. Eating for comfort, pleasure, stress relief, etc., is known as emotional eating. People who eat emotionally usually go for high-sugar, high-fat, unhealthy junk foods. These are called trigger foods that can generate a temporary

### Recommendations:

- You may have a genetic tendency for increased emotional eating behavior. This means that you may tend to eat more and have higher chances of gaining weight.
- Try to manage the psychological triggers for emotional eating like stress eating, stocking calorie-laden foods in pantry, etc.

**Genes Analyzed:** DRD2, ADIPOQ, MC4R

**Number of Gene Markers Found:** 3

**Number of Gene Markers Analyzed:**3



## CARBOHYDRATE INTAKE AND WEIGHT GAIN TENDENCY

**Average: Moderately likely to gain weight on high carb intake**

Carbohydrates are the main sources of energy, and they provide the kilocalories for weight maintenance. The Dietary Reference Intake suggests that carbohydrates make up 45 to 65 percent of your total daily calories. Corn, rice, potatoes, pasta, and bread are sources of starch. Fruits and fruit juices have natural sugars, while desserts, candies, and soft drinks

### Recommendations:

- You may have a moderate genetic risk for weight gain on a carbohydrate-rich diet.
- Eat a balanced diet.

**Genes Analyzed:** FTO, TCF7L2, IRS1

**Number of Gene Markers Found:** 3

**Number of Gene Markers Analyzed:**4



## TENDENCY TO REGAIN WEIGHT

**Average: Moderately likely to regain weight after weight loss**

People with certain genetic types tend to quickly regain weight after having been on a weight

### **Recommendations:**

- You may have a moderately increased genetic tendency for regaining weight after an interventional strategy.
- Follow a healthy lifestyle and eating pattern to ensure better weight maintenance.
- Do not skip breakfast as a good breakfast curbs hunger. Avoid processed food and

**Genes Analyzed:** BDNF, PPARG, NEGR1

**Number of Gene Markers Found:** 3

**Number of Gene Markers Analyzed:**4



## **BODY MASS INDEX**

**Average: Likely to have moderately higher BMI**

Body mass index (BMI) is an estimate of body fat based on height and weight. The BMI is a method used to broadly categorize a person as underweight, normal weight, overweight, or obese based on tissue mass and height. Several factors, such as age, sex, disease, genetics, and lifestyle, affect BMI measurements, and normative standards must be applied for

### **Recommendations:**

- You may have a genetic tendency for an increased body mass index. This means that you may have to take more efforts to maintain an ideal weight.
- Maintain a healthy and balanced lifestyle with a proper diet and regular exercise program.
- Moderate your intake of foods rich in simple carbohydrates, saturated or trans-fats, diets rich in salts and sugars. Avoid consumption of cold drinks or sugar-sweetened juices, or other beverages.

**Genes Analyzed:** FTO, MC4R, OLR1, TCF7L2, BDNF, IL-6, NPPA, CNR1

**Number of Gene Markers Found:** 14

**Number of Gene Markers Analyzed:**14



# Disclaimer

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Xcode provides genetic assessment services for research or investigational use, and Xcode's reports should be interpreted or used exclusively by professional practitioners, including but not limited to certified physicians, dietitians, nutritionists, sports therapists, and others in similar professions ("Professional Practitioners"). Xcode does not provide any direct medical advice to individual patients. Only a qualified medical practitioner can provide relevant medical or healthcare advice, diagnosis, or treatment based on this report. Genetic information must always be considered in conjunction with other information about your health, such as lifestyle, family history, risk factors, biomedical data, diet, nutrition, and physical activity, among other factors. A single gene mutation is not the only factor that influences health conditions or outcomes; several other factors like environment and lifestyle may influence the health outcome. You are responsible for ascertaining that your Professional Practitioner is qualified to consider the genetic information indicated in this report in conjunction with all other information made available to them about you, including your family health history, lifestyle, bio-medical data, and any other information that you may provide to the Professional Practitioner. Xcode shall not be held responsible for any misinterpretation of this report by your Professional Practitioner or any matter arising out of this report.

Only full genome sequences are exhaustive. All other forms of genetic tests only provide a limited subset of genetic information relevant to specific conditions. Since this report is not generated by conducting a whole genome sequence test, the results reported are limited to a specific set of mutations known to be associated with specific conditions. Genetic information is also subject to revision based on the latest advances in scientific research. Therefore the interpretation of results reported herein may vary or be altered subject to ongoing research. Sometimes, the interpretations may vary from company to company based on which studies are being given a higher preference compared to others.

Xcode's role is limited to providing genetic test results and a broad set of recommendations. More detailed recommendations that may be specific to you are to be made by qualified Professional Practitioners only. General guidelines provided in our report are for information purposes only and are meant to aid your Professional Practitioner in rendering the relevant professional or medical advice and treatment. While assessing your genetic parameters and providing the report and recommendations, we do not consider your past or existing health conditions and any medication you took (either in the past or currently), even if you may have provided us with such information. Our report and recommendations are to be acted upon in consultation with a medical or other health and wellness professional practitioner.

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