GX slim Personal Report

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MediPro™ DIRECT

Welcome To Your GxSlim Personal Report

GxSlim Personal Report
January, 28 2016

Congratulations! You are about to receive insights about your body that, up until now, have never been available. The science of the human body only recently evolved enough to allow scientists to identify and analyze a person's DNA. With the decoding of the human genome in 2003 and subsequent advances in technology that more easily allow us to analyze a person's genetic makeup, you now can see the blueprint for your body. This report not only provides you with a roadmap of your specific genes, but gives direction on how you can potentially optimize your health and well-being with this knowledge.

We tend to spend a lifetime trying to learn more about ourselves, especially how our body works and how our health is affected by our habits and behaviors. Traditionally, we have learned what works and what doesn't through trial and error. But experience alone doesn't always give us the information we need. GxSlim will help you to better understand the factors that can affect how your body ticks.

What is Genetic Testing?

Genetic testing utilizes a physical specimen from the body (saliva, blood, or other tissues) to reveal information about a person's chromosomes or their genes. In addition to identifying key genes, information is evaluated about areas on each gene that may differ between people, these areas are known as single nucleotide polymorphisms (SNPs). We use the term genotype to describe the outcome of your individual genetic tests.

Which Body Traits Were Analyzed?

To produce your results for GxSlim, We look at genes that are related to four major categories: Weight Loss Ability, Macronutrients in the Diet, Micronutrients in the Diet and Response to Exercise.

What Can Your Results Tell You? or Why Is Your Genotype Important

We have established stringent criteria for studies that can be used to help us evaluate the potential impact of your genotype for each gene tested. The largest and most scientifically valid genome-wide association studies have been used to calculate a score for the different genes or gene combinations for all genes tested. Your results indicate which gene combinations you have in each category, and you will receive a rating for each trait in a category.

Your ratings reflect your potential level of response to body weight management through healthy lifestyle behaviors (e.g.,

balanced diet and regular exercise) based upon your genetic analysis. Keep in mind that the presence of certain genotypes does not mean that an outcome is certain. How genes are expressed is affected by your lifestyle, as well as other environmental factors. So while your analysis might show that you have an increased or decreased potential for a certain health trait, it does not mean that you will, in fact, express that trait. The analysis simply suggests that there is a greater chance that you will, but behavioral, environmental and other factors can also play a role in whether you will express that trait and exhibit that result. But these results may provide insights into how your body might perform optimally. So, based on this information, along with an analysis of personal factors that you report which may also influence your body weight management, we provide personalized suggestions that can help you achieve optimum results.

Personalized medicine, or individualized advice based on a person's genetic profile, is still in its infancy because there is still much to be understood about genes and their interactions with each other and other influences such as diet, exercise and the environment. Genetic research is a relatively new field and many new discoveries are being made every day. We will maintain a continually updated research database, with analyses that will be modified as new and better research becomes available.

On the following pages you will see a summary of your results, followed by a detailed explanation and success strategy. While we can't change our genes, we can change our behaviors to take advantage of what our genes say about our bodies.

What You'll Learn About You

On the following pages you will see a summary of your results, followed by a detailed explanation and success strategy. While we can't change our genes, we can change our behaviors to take advantage of what our genes say about our bodies.

REPORT SUMMARY

WEIGHT LOSS ABILITY

FOOD

NUTRIENTS

EXERCISE

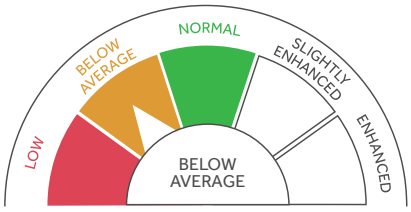
REPORT SUMMARY

	RATING	GENES
WEIGHT LOSS ABILITY		
Weight Loss Ability with Diet and Exercise	BELOW AVERAGE	FTO, TCF7L2, MTNR1B, PPARG, BDNF, ABCB11
FOOD		
Protein Utilization	NORMAL	FTO
Fat Utilization	LOW	PPARG, TCF7L2, APOA5, CRY2, MTNR1B, PPM1K
Carb Utilization	ENHANCED	IRS1
NUTRIENTS		
Vitamin B9 – Folate Tendency	BELOW AVERAGE	MTHFR
Vitamin A Tendency	NORMAL	BCMO1
Vitamin B6 Tendency	BELOW AVERAGE	NBPF3
Vitamin B12 Tendency	LOW	FUT2
Vitamin C Tendency	NORMAL	SLC23A1
Vitamin D Tendency	LOW	GC, NADSYN1, CYP2R1
EXERCISE		
Fat Loss Response to Cardio	LOW	DRB2, LPL
Fitness Response To Cardio	BELOW AVERAGE	AMPD1, APOE
Body Composition Response to Strength Training	ENHANCED	NRXN3, GNPDA2, LRRN6C, PRKD1, GPRC5B, SLC39A8, FTO, FLJ35779, MAP2K5, QPCTL-GIPR, NEGR1, LRP1B, MTCH2, MTIF3, RPL27A, EC16B, FAIM2, FANCL, ETV5, TFAP2B
HDL Response to Cardio	NORMAL	APOE
Insulin Sensitivity Response to Cardio	ENHANCED	LIPC
Glucose Response To Cardio	ENHANCED	PPARG

WEIGHT LOSS ABILITY

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile is rated BELOW AVERAGE for Weight Loss Ability. Your score reflects the fact that among the 6 genes investigated, you had a few of the unfavorable gene combinations that may make you slightly resistant to both losing weight and keeping it off. This means that you may lose less weight than you expect when you make lifestyle changes by cutting calories in your diet and by burning extra calories when you exercise. This result also suggests that you may be at a slightly higher risk of later regaining the weight you lose.



Does this result mean that you cannot lose weight? Absolutely not! Remember that these results only indicate your potential ability to lose weight based on genetic factors, but they are not certain since many factors affect the outcome. Even if you have the genotypes that may decrease your ability to lose weight, whether those genes are expressed or not depends upon diet, exercise and environmental influences. However, your results do suggest that it may be a good idea to employ strategies that will ensure that you stick with the lifestyle changes you make in order to ensure the most success.

Your genetic profile indicates that your weight loss ability is BELOW AVERAGE.

You may lose slightly less weight or body fat than expected from a lifestyle intervention. So make sure to choose a well-designed plan and employ strategies to stick with it for the long term.

RELATED GENES / SNPS

FTO, TCF7L2, MTNR1B , PPARG, BDNF, ABCB11

The six genes and their associated SNPs that are included in this category have all been shown in scientifically sound studies to have statistically significant associations with a person's ability to lose weight and keep it off. Several large studies have shown that people who participated in intensive and long-term diet and exercise programs exhibited significantly different weight loss responses based upon their genetic profile. Those people who carried the most 'unfavorable' pairs of genes, or genes, lost weight with the diet and exercise program—but, on average, they tended to lose less weight compared to other participants who had fewer, or who did not carry the 'unfavorable' genotypes. Also, after completing the diet and exercise program, people with more of the 'unfavorable' genes were, on average, also likely to regain some of the weight that they had lost. Keep in mind, however, that great individual variation is seen in research studies like these. The stated results are an average of all those within

SUCCESS STRATEGIES

Weight loss comes from reducing the number of calories you eat and increasing the number of calories that you burn. The most powerful—and permanent—weight loss comes when you do both. Here are some tips to help maximize your success:

DIETING:

Choose a plan that is most likely to work for you. Following the suggestions from the genetic testing of your MACRONUTRIENT genes may help you identify foods that make it easier to lose weight. But also pay attention to

WEIGHT LOSS ABILITY

influences that may make it hard for you to choose the right foods or stick to a diet. Also, see if you can identify triggers that make you overeat or make less-healthful food choices, or reasons why you didn't stick to past diets. Develop back-up plans so that you aren't derailed from your diet if the same, or similar, circumstances arise again. For example, if you know that you will eat an entire bag of chips or package of cookies if you keep them at home, then take them off your shopping list. But give yourself a back-up snack that you can go to when you are having an I-Need-A-Cookie moment. It might be a nutritious nut energy bar or simply some fresh blueberries in the fridge.

EXERCISE:

Perhaps the smartest thing you can do is to make sure that you are choosing the most effective type of exercise, and then doing the amount and intensity that will give you the best results.

a group, but there can still be differences even among those with the same genotype.

Our analysis investigated which genotype for each of these 6 genes was present in your DNA. Your rating of either NORMAL, BELOW AVERAGE or LOW reflects whether your genotypes included those that carried a risk of reduced weight loss ability.

- If you are trying to burn more calories through exercise, then you need to favor the kind of exercise that burns the most calories in the amount of time that you spend exercising. This tends to be cardio workouts like walking, running, cycling, swimming, aerobics, dancing and any of the cardio machines. You can also get a sizable calorie burn from a fast-paced boot camp-style or circuit training weights workout.

- Intensity is key for most people: The harder you work, the more calories you can burn. But if you are not fit enough to work hard, you'll need to start easy and work up to workouts that last longer and feel harder. Start with 10-20 minute walking sessions if you need to and over weeks add more time to the sessions and work at a harder intensity.

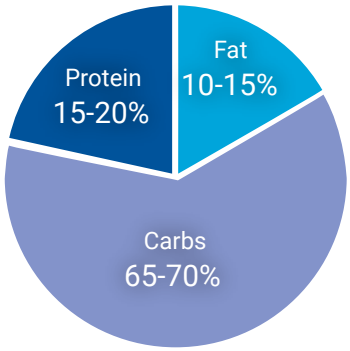
- For the most effective results for body weight management, aim to get in a minimum of 150 minutes and up to 300 minutes per week—or more—of moderate-to-vigorous cardio exercise (e.g., jogging, walking, swimming, etc.). Ideally, you should incorporate some cardio every day, at least 5 days per week.

- Reduce your sitting time! While standing more or moving around throughout the day is not considered 'exercise', the physical activity does add up and can help you burn more calories all day and also improve health risk factors.

- Weight-training should absolutely be a part of your diet-and-exercise routine. Not only can weight training help you to become stronger, when you lift weights you can prevent or minimize the loss of muscle that occurs with dieting alone. You only need to lift weights 2-4 times per week, with a rest day in between. Sessions can be short: 20-40 minutes, as long as you target all your major muscle groups in the upper and lower body. Yoga and Pilates are good for flexibility and balance, but do not appear to be the best choice for building and preserving muscle that you may lose with dieting.

SUMMARY

What foods do I need to eat?



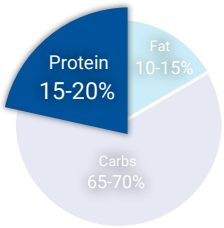
Your genotype suggests that you may have a better response to a weight-loss diet if daily calories come from the following proportions of fat, carbohydrates, and protein. You can monitor this with a diet log.

Based on your gender, age, height, current weight and current activity level, we recommend a diet of approximately 2,012 calories per day. This number was calculated estimating your total energy expenditure, or the number of calories your body needs each day. Since you are interested in losing weight, you will need to eat fewer calories than your total energy expenditure. We suggest a modest calorie reduction of 21%. So if you eat around 2,012 calories per day, you can expect to lose weight. This is not a drastic calorie reduction, so you should not feel hungry or like you are denying yourself food if you eat this many calories.

	RECOMMENDATION	PERCENT	GRAMS	CALORIES
	PROTEIN Choose a reduced-calorie diet that is between 15-20% protein from primarily plant food sources.	15% to 20%	75g to 101g	302 to 402
	FAT Choose a diet low in fat and saturated fat.	10% to 15%	22g to 34g	201 to 302
	CARBOHYDRATES Choose a reduced-calorie diet that is between 15-20% protein from primarily plant food sources.	65% to 70%	327g to 352g	1,308 to 1,408

The total number of calories or grams of each macronutrient shown represents a recommended amount to consume each day. Keep in mind that most foods have a combination of either protein and fat, carbohydrates and fat, or protein, carbohydrates and fat. So the best way to know if you are achieving these macronutrient goals is to use a dietary tracking app to assess your macronutrient breakdown at the end of each day.

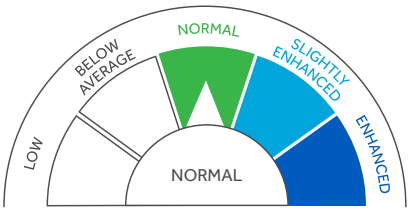
FOOD



PROTEIN UTILIZATION

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits a NORMAL utilization of protein. Your score reflects the fact that your genotype did not carry the unfavorable allele combinations. This suggests that the amount of weight or body fat that you lose from a diet is not likely to be affected by the percentage of protein that you eat.



Your genetic profile indicates that your response is NORMAL.

This indicates that the amount of weight you lose from a diet is not likely to be affected by the percentage of protein that you eat. Choose a diet that is 10 to 30% protein from plant or animal food sources.

SUCCESS STRATEGIES

Your genotype suggests that you are not likely to benefit in terms of weight loss more from eating either a lower or a higher protein diet. However, it is important to note that the percentage of protein that you should eat is relative to the total amount of daily calories you take in and so what is a "low" vs "high" amount can vary depending upon how many calories you take in overall. The body must get a certain amount of protein for normal functioning. So, a minimum amount of protein must be eaten to support processes such as enzyme and hormone production, cell repair and synthesis of skin and hair cells. This means that you may need to opt for a higher or lower protein diet, depending upon how many total calories you are eating.

Excess protein is not stored in the body if you consume more calories than you burn. Instead, the insulin release that is also triggered by dietary protein (as well as by carbohydrates) spurs any excess to be converted to fat to be stored.

Again, it's a good idea to get a sense of how much you are getting by recording your food intake for at least a week in a diet app or nutrition log.

RELATED GENES / SNPS

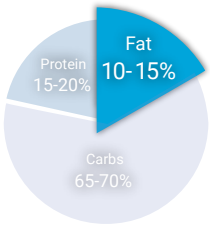
FTO

The gene and associated SNP included in this category has consistently been shown to be associated with body fat mass and BMI. One large study found that people with the unfavorable genotype who dieted lost more weight, body fat and fat in the torso if they ate a moderate-to-high protein diet (25% of total daily calories) compared to a lower protein diet (15% of total daily calories), regardless of fat and carbohydrate distribution. However, they also lost more non-fat mass—which includes muscle—with the weight loss.

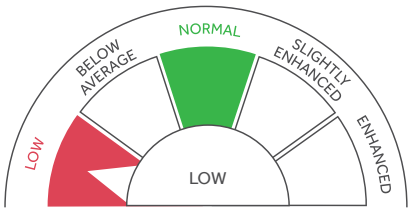
Our analysis of your genes investigated which genotype for this SNP was present in your DNA. Your rating of either NORMAL, SLIGHTLY ENHANCED or ENHANCED reflects whether your genotype included those alleles that exhibited protein sensitivity because their presence resulted in increased weight and fat loss on a moderate-to-high protein, reduced-calorie diet.

FOOD

FAT UTILIZATION



WHAT YOUR GENES SAY ABOUT YOU:



Our analysis indicates that your genetic profile exhibits an LOW utilization of fat. Your score reflects the fact that for the 6 genes investigated, your genotype includes some of the unfavorable allele combinations. This means that you may be sensitive to the amount and type of fat in your diet. Research has shown that people with a similar genotype profile tend to have more body fat when they have more fat in their diet and they lose less weight when they are on a diet that contains a high amount of fat, especially saturated fat. This result also suggests that you may have a reduced level of fat oxidation, or fat-burning ability, when you eat a high fat diet.

Your genetic profile indicates that your utilization of fat is LOW.

You may be sensitive to too much total fat and/or too much saturated fat in your diet. If you are reducing calories to create a negative energy balance, you may experience less weight loss with a higher-fat diet. Aim for a low total fat and low saturated fat, reduced-calorie diet.

SUCCESS STRATEGIES

Since your genes suggest that you may be sensitive to the fat in your diet and that you may be less efficient at burning fat when you eat a high fat diet, following a low fat diet and keeping saturated fat to a minimum may help you to control your body weight and body fat, and to lose more weight when you diet.

So how much fat should you eat—what is considered "low fat?" The Acceptable Macronutrient Distribution Range (AMDR) for dietary fat that is recommended by the Institute of Medicine is a daily fat intake that is between 20% and 35% of total daily calories. Generally, it is recommended to eat less than 10% of calories from saturated fats.

Studies that look at dietary fat vary in how they quantify fat and there is no clear consensus on what constitutes a "high fat" vs. a "low fat" diet. A "high

RELATED GENES / SNPS

PPARG, TCF7L2, APOA5, CRY2, MTNR1B , PPM1K

The six genes and their associated SNPs that are included in this category all have been shown in scientifically sound studies to have statistically significant associations with how sensitive people are to eating a diet high in fat. In other words, these studies showed that the amount of fat in the diet affected how much weight individuals lost from a lifestyle intervention depending on the genotype at these genes.. One study found that those people with an unfavorable genotype were more likely to have more body fat, a larger waist size and a higher BMI the more fat they ate, compared to others without the same genotypes. Another study found that people with a protective genotype appeared to be able to consume greater amounts of fat, but without exhibiting higher BMIs. Another study found that people who went on a low-calorie diet that was higher in fat lost less weight if

FAT UTILIZATION

they had an unfavorable genotype.

Our analysis of your genes investigated which genotype for each of these 6 genes was present in your DNA. Your rating of either NORMAL or LOW reflects whether your genotypes included those that carried a risk of reduced weight loss ability from a diet that was high in fat.

fat" diet is usually considered to be eating the amount of fat on the upper end of the AMDR range, so from 30% to 40% of the day's total calories. People who eat a lot of fast food and animal foods like meat and cheese can have fat intakes that are 50% or greater. Some research studies consider diets that are 20% to 25% fat to be "low", although others suggest that less, around 10% to 15% as is seen in vegan diets where processed foods such as oils are not used, is "low."

What many people do not realize is that foods that contain fat tend to contain an array of all of the different types of fatty acids —saturated and the unsaturated types (mono and poly.) But foods tend to be high in a certain type over another and so whatever is considered to be the prevalent type is how a food is characterized. So all animal foods contain both saturated and unsaturated fats, but they are especially high in saturated fats which is why if you tend to eat meat and/or dairy foods at every meal, your diet is likely to not only be high in total fat, but high in saturated fat as well. Diets high in either saturated fat or animal foods have been associated with higher risks of certain diseases such as heart disease.

Since your genetic profile indicates that you might benefit from a lower-fat diet, it is suggested that you aim for the lower end of the fat intake range, so from 10% to 20% of total calories coming from fat, and very little saturated fat. You might find it helpful to determine how much fat you are currently eating so that you can identify ways to decrease it to desired levels if it is too high. You can use one of the many weight-loss apps or a diet log to monitor your diet for at least 1 week. If you are eating more fat than is recommended, analyze what you eat and use the tips below to reduce the fat.

Easy ways to reduce your total fat

- Stick to a plant-based diet: Eat fewer—or cut out completely—animal foods (meat, poultry and dairy foods).
- If you eat animal foods, choose leaner or lower-fat versions. Since even lean meats still contain fat, including saturated fat, control portion sizes and avoid eating meat at every meal, or even every day.
- Substitute plant versions of animal foods: Try almond, soy or coconut-based yogurts, substitute plant milks (soy, almond, rice, etc.) for dairy milk.
- Identify foods that you prepare that you normally add fat to (oil, butter, cream, cheese, meat) and try to find a non-fat substitute. For example, if you normally add oil and bacon to cooked beans, skip both and add red peppers and jalapenos for flavor instead. Or if you butter your toast, spread with a bean dip instead.
- Reduce the amount of oil you use, or omit completely.

FAT UTILIZATION

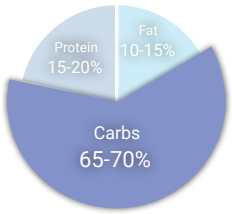
To reduce saturated fat

- Try vegan cheeses (such as nut cheeses made from cashews, almonds or macadamia nuts), but control portions since they still contain unsaturated fats.

- Use oils instead of butter or cream for cooking or seasoning, but control portions since they still contain unsaturated fats and can add to your daily total fat intake.

- Choose plant-based spreads instead of using butter. Use peanut butter, hummus, pesto sauce, avocado, etc. Watch portions since the unsaturated fats can still add to your total fat intake.

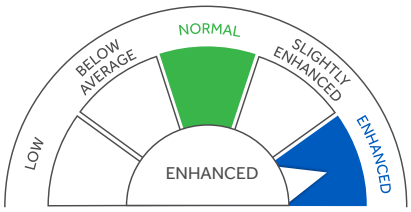
FOOD



CARB UTILIZATION

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits an ENHANCED utilization of carbohydrates. Your score reflects the fact that your genotype appears to favor a higher carbohydrate and lower fat diet. You may experience better weight loss results from a diet that focus on complex carbohydrates that make up around 65% of your daily calories and a lower fat diet that is around 20% of your daily calories.



Your genetic profile indicates that your utilization of carbohydrates is ENHANCED.

This suggests that you will experience better weight loss results if you follow a diet that is higher in complex (unprocessed) carbohydrates, including beans, whole grains, nuts, seeds, fruit and vegetables, and that is lower in fat.

SUCCESS STRATEGIES

People who eat diets high in complex carbohydrates tend to be leaner and this diet approach provides optimal energy for people who exercise regularly. Complex carbs are unprocessed carbs. So strive to eat whole plant foods as opposed to processed, junky carbs. So eat a potato instead of potato chips, eat beans instead of white bread, eat whole fruits instead of fruit juices. High carb diets should include legumes (beans), whole grains (such as brown rice, quinoa and oats), nuts, seeds, vegetables and fruits.

People with your genotype seemed to experience better results with a lower fat diet. To reduce the fat in your diet:

- Choose plant-based proteins such as beans, whole grains such as quinoa and meat substitutes over meat.

RELATED GENES / SNPS

IRS1

The gene and associated SNP included in this category has been shown to be associated with a person's insulin sensitivity and the effects of carbohydrates in the diet. Insulin is a hormone produced by the body that helps cells take in glucose, or sugar, that is present in the blood after the digestion of carbohydrates in foods. All cells use glucose for fuel, and brain cells and red blood cells use glucose as a primary source of energy. If cells have trouble absorbing blood sugar, the body releases greater amounts of insulin to help. Increased amounts of insulin can lead to insulin resistance. People who are overweight and/or physically inactive are at higher risk of insulin resistance and the condition can lead to diabetes, or uncontrolled high blood sugar. Greater amounts of insulin released can also encourage fat storage.

Since carbohydrate intake triggers insulin release, many people assume that eating more carbs is not healthy and can lead

FOOD

CARB UTILIZATION

- If you eat animal foods, choose leaner or lower-fat versions. Since even lean meats still contain fat, including saturated fat, control portion sizes and avoid eating meat at every meal, or even every day.

- Substitute plant versions of dairy foods: try almond, soy or coconut-based yogurts, substitute plant milks (soy, almond, rice, etc.) for dairy milk.

- Reduce or omit the amount of oil, butter, cream or cheese that you use when cooking.

to body fat and weight gain, as well as diabetes. But the relationship is not that simple: many people who eat a high carbohydrate diet are not overweight and do not have diabetes. The type of carbs consumed as well as other foods in the diet and physical activity levels can all play a role. The gene in this category seems to influence insulin resistance and the body's response to carbs in the diet. One long term study found that people with a variant of this gene who ate a high carbohydrate, low fat diet, that consisted of high fiber, whole plant foods, as opposed to processed, lower fiber carbs, had greater insulin sensitivity—and lower levels of insulin and insulin resistance—and experienced greater weight loss compared to a lower carb, higher fat diet.

Our analysis of your genes investigated which genotype for this gene was present in your DNA. Your rating of either NORMAL or ENHANCED reflects whether your genotype included those genes that increase risk of reduced weight loss ability from a low carb, higher fat diet.

SUMMARY

What nutrients do I need?

NUTRIENT	TENDENCY	GOOD SOURCES INCLUDE
Folate	BELOW AVERAGE	Pinto Beans, Asparagus, Broccoli
Vitamin A	NORMAL	Carrots, Kale, Tuna
Vitamin B6	BELOW AVERAGE	Pistachios, Watermelon, Potatoes
Vitamin B12	LOW	Lean meat, Seafood, Fortified Dairy Product
Vitamin C	NORMAL	Red Bell Peppers, Strawberries, and Oranges
Vitamin D	NORMAL	Salmon, Egg Yolks, Fortified Dairy Milk

The total number of calories or grams of each macronutrient shown represents a recommended amount to consume each day. Keep in mind that most foods have a combination of either protein and fat, carbohydrates and fat, or protein, carbohydrates and fat. So the best way to know if you are achieving these macronutrient goals is to use a dietary tracking app to assess your macronutrient breakdown at the end of each day.

DO YOUR RESULTS SHOW THAT YOU ARE LOW IN NUTRIENTS?

If you scored LOW or BELOW AVERAGE, your genotype results show that you may have a higher risk for having blood levels of certain nutrients that may be in the lower end of the normal range. These results do not show that you are low, or that you are deficient in a certain nutrients, however.

The only way to know for sure if you are in the low end of the normal range for a nutrient or actually deficient is to consult with your physician and get a blood test.

SHOULD YOU TAKE A SUPPLEMENT?

Most nutritionists recommend that nutrients be obtained first through food. Research studies have shown more favorable outcomes from food sources of nutrients than from supplements. But some people believe that unhealthy modern farming practices mean that some foods are not as nutritious as they should be, or that “more is better.” So they choose to supplement even when there is no known deficiency.

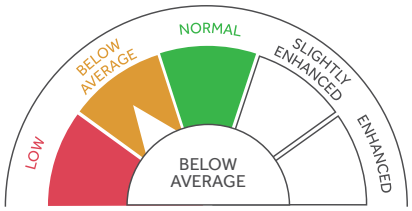
Most supplements are considered safe. But be cautious with dosing because there are ranges called the Upper Intake Level, or UL, beyond which toxic effects can occur. It is difficult to reach the UL through food sources, but it is very easy to reach these high risk levels from supplementation.

If you do choose to supplement, read food labels and use dietary software to help estimate your food intake so that you make sure not to overdose. Also consult with your doctor because some supplements, including Vitamin A and Vitamin B6, can interact with medications you may be taking.

VITAMIN B9 – FOLATE TENDENCY

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile is BELOW AVERAGE. Your score reflects the fact that your genotype showed a higher risk allele combination. This means you have a chance of having slightly reduced blood levels of folate. This suggests that you may be at risk for higher levels of homocysteine, which is a risk factor for heart disease, and your Vitamin B12 blood levels may be low.



Your genetic profile indicates that your response is BELOW AVERAGE.

This suggests that you may have a chance of having slightly-reduced levels of folate. You may want to ask your doctor to take a blood test to assess your levels of serum folate, Vitamin B12 and homocysteine. Getting enough by eating plant foods every day and supplementing with folate if your levels are low may be beneficial.

SUCCESS STRATEGIES

- You may want to discuss with your physician whether you should get a blood test to check for anemia, as well as folate, Vitamin B12 and homocysteine status. Your genes only predict your risk, but a blood test can give you concrete information about your body levels of this nutrient.

- All women should ensure they get enough folate in their diet. Because you are at a risk of having lower levels, you may want to eat even greater amounts of folate. You will get folate that is added to whole grains in cereals and breads, but you should also eat food sources of folate. The foods highest in folate include legumes, fruits and vegetables, especially greens.

- Some of the folate is diminished with heat from cooking or oxidation during storage. To minimize potential losses, eat plant foods at every

RELATED GENES / SNPS

MTHFR

This gene and its associated SNPs have been shown to have significant associations with a person's folate, or vitamin B9, status. Folate plays many important roles in the body, including acting as a coenzyme in DNA creation and in energy metabolism reactions. Folate also plays a role in biochemical processes that affect the metabolism of an amino acid, homocysteine. One SNP associated with this gene is associated with enzyme activity that can lead to higher levels of homocysteine. Since homocysteine is a risk factor for heart disease, high levels may be of concern. In child-bearing women, getting sufficient amounts of folate is important because low levels can lead to neural tube birth defects. As a public health measure, grains are fortified with folate to ensure that women of childbearing age get enough. Low levels of folate can also lead to anemia.

In studies on this gene, people who carried the most unfavorable pairs of genes, or

VITAMIN B9 – FOLATE TENDENCY

alleles, had only a 10%-20% efficiency at processing folate. And those with the below average allele had a 60% efficiency at processing folate. People with more of the unfavorable alleles are more likely to have high homocysteine and low Vitamin B12 levels. Poor ability to process folate may be fairly common: Around 53% of women appear to have these unfavorable genotypes.

meal to make sure you get enough, eat fresh produce quickly after purchase, and incorporate some raw plant foods into your meals.

- You can also supplement your diet with folate. However, since low levels of Vitamin B12 can mask anemia if folate is taken, it is a good idea to supplement with both folate and Vitamin B12.

- Smoking can also decrease folate levels. So you may need to consume more if you smoke—or better, quit smoking!

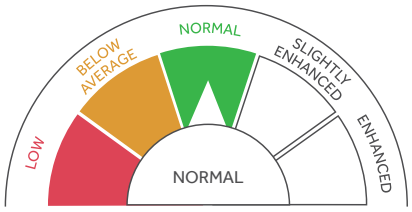
FOLATE-RICH FOODS TO INCLUDE IN YOUR DIET:

Lentils, pinto beans, asparagus and broccoli are excellent sources of folate.

VITAMIN A TENDENCY

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits a NORMAL ability to process Vitamin A from a beta carotene supplement. Your score reflects the fact that, for the gene investigated, your genotype showed few, if any, of the unfavorable allele combinations. This means that if you take a beta-carotene supplement, your ability to convert the nutrient into an active form of Vitamin A is not likely to be reduced.



Your genetic profile indicates that your response is NORMAL.

This suggests that your ability to convert beta-carotene from a supplement into an active form of Vitamin A is unlikely to be reduced.

SUCCESS STRATEGIES

Vitamin A is needed for good vision and needs may increase in women who are pregnant or lactating. It is easy to get Vitamin A in foods, and the plant forms of beta-carotene also act as a free-radical fighting antioxidant.

RELATED GENES / SNPS

BCMO1

The gene and its associated SNPs that are included in this category have been shown to have statistically significant associations with a person's blood levels of Vitamin A. Vitamin A promotes good vision, is involved in protein synthesis that affects skin and membrane tissues, and helps support reproduction and growth. The nutrient is found in plant foods in its precursor forms such as beta-carotene. Beta-carotene is converted by the body into different active forms of Vitamin A: retinol, retinal and retinoic acid. Animal foods, such as meat and dairy, provide the retinol form of Vitamin A.

It is rare to overconsume beta-carotene in plant foods to reach toxic levels. However, it is possible to consume toxic levels of Vitamin A from organ meats or fortified foods. Pregnant women are advised to eat liver no more than once every two weeks.

Vitamin A in the form of beta-carotene is found in foods such as vegetables,

NUTRIENTS

VITAMIN A TENDENCY

especially leafy greens like spinach and orange foods such as carrots, sweet potatoes, apricots, mango and cantaloupe, as well as in the retinol form in dairy and in organ meats like liver.

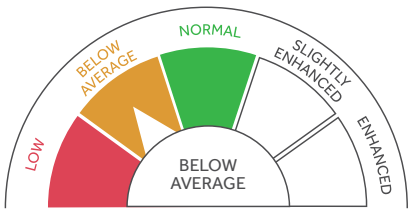
VITAMIN A-RICH FOODS TO INCLUDE IN YOUR DIET:

Broccoli, Swiss chard, collard greens, kale, carrots, butternut squash, apricots, goat's cheese, liver, tuna.

VITAMIN B6 TENDENCY

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile response is BELOW AVERAGE. Your score reflects the fact that your genotype showed an unfavorable allele combination. This means that there is a risk that your blood levels of B6 may be slightly lower than normal. Keep in mind that increased risk does not mean that your blood levels are low. You can only know this by requesting a blood test from your physician.



Your genetic profile indicates that your response is BELOW AVERAGE.

You may want to get a blood test to check levels of Vitamin B6. Eat enough B6-rich foods if you are low.

SUCCESS STRATEGIES

Since you are at risk for having lower levels of Vitamin B6 in your blood, it is especially important that you get adequate amounts of this nutrient in your diet. You may find it useful to get a nutrient analysis of your food intake to see how much Vitamin B6 you consume. You can do this using many diet apps.

If your blood tests show low levels, you may wish to take a Vitamin B6 supplement. Be sure to avoid high doses, as they can cause nerve damage.

VITAMIN B6-RICH FOODS TO INCLUDE IN YOUR DIET:

Pistachios, pinto beans, wheat germ, bananas, watermelon, carrots, spinach, peas, squash, potatoes, avocados, yellowfin tuna, sunflower seeds.

RELATED GENES / SNPS

NBPF3

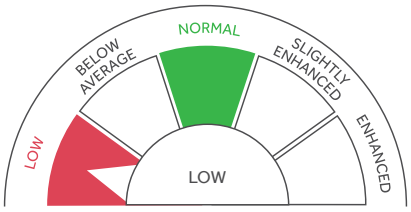
The gene and its associated SNPs included in this category have been shown to have statistically significant associations with a person's blood levels of Vitamin B6. In one large study, people who carried the most unfavorable pairs of genes, or alleles had lower levels of Vitamin B6.

Vitamin B6 is important for nerve cell function, energy metabolism and the production of hormones, such as serotonin and epinephrine. Low levels of B6 are also linked to higher levels of homocysteine, which increases heart disease risk. B6 is found in many foods including grains, legumes, vegetables, milk, eggs, fish, lean meat and flour products.

VITAMIN B12 TENDENCY

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic response is LOW. Your score reflects the fact that your genotype showed a higher risk allele combination. This suggests that you may have a chance of having blood levels of Vitamin B12 that are at the low end of the acceptable range. Since Vitamin B12 is stored in the body and is also recycled for reuse, it can take several years before deficiency symptoms may appear.



Your genetic profile indicates that your response is LOW.

This suggests that your blood levels of Vitamin B12 may be at the low end of the acceptable range. Ask your doctor to check your B12 levels. If you are low, in addition to getting more Vitamin B12 through foods, you may wish to supplement.

SUCCESS STRATEGIES

Since you may be at risk of having lower B12 levels, it is recommended to speak to your doctor about getting periodic blood tests to monitor your levels of Vitamin B12 and methylmalonic acid (MMA.) Getting a nutrient analysis of what you eat can give you an indication of how much of a nutrient you are consuming. A blood test can assess how well nutrients are absorbed. If absorption is impaired, your blood levels may be low and you may wish to supplement with B12. If absorption is a problem, it is often recommended to bypass the digestive system with either under-the-tongue tablets that are absorbed into the mouth, or injections or a nasal gel are available by prescription.

RELATED GENES / SNPS

FUT2

The gene and associated SNPs included in this category have been shown to have significant associations with a person's blood levels of Vitamin B12. In one large study, those women who carried the most unfavorable pairs of genes, or alleles, had slightly lower levels of Vitamin B12, although they were in the acceptable, but low, end of the range. Around 70% of people have genotypes that suggest they may be at risk for having blood levels of B12 that are at the lower end of the normal range. There are several reasons why blood levels of B12 can be low. Some people do not get enough in their diet and so they are simply not getting enough of the nutrient. Some other people get enough, but do not absorb it efficiently. A small percentage of people over 50 or those who have had gastrointestinal surgery or GI disorders such as Crohn's disease may also have reduced abilities to absorb it.

Vitamin B12 is important for many processes in the body, including red blood

NUTRIENTS

VITAMIN B12 TENDENCY

VITAMIN B12-RICH FOODS TO INCLUDE IN YOUR DIET:

Lean meat, seafood, dairy products, eggs, fortified breakfast cereals, certain brands of fortified nutritional yeast.

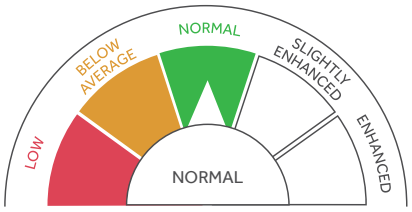
cell formation, neurological function and cognitive performance. Deficiencies of B12 can cause pernicious anemia, and is also associated with high levels of homocysteine, which may impair arteries and increase risk of heart disease.

Vitamin B12 is produced by microorganisms found in soil and water, and in both the guts of animals and humans. In the modern world, highly-sanitized food processing systems have eliminated many naturally-occurring sources of B12-providing bacteria in plant products. So B12 is typically obtained from animal foods such as meat, or fortified foods such as dairy and plant milks or breakfast cereals. Certain mushrooms and seaweed may provide some B12, but are not considered to be reliable sources.

VITAMIN C TENDENCY

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile suggests that you are likely to have NORMAL levels of Vitamin C. Your score reflects the fact that for the gene investigated, your genotype did not show the unfavorable allele combinations. This means that if you consume enough Vitamin C in the foods you eat, blood levels of L-ascorbic acid should be in the normal range.



Your genetic profile indicates that your response is NORMAL.

If you eat enough Vitamin C-rich foods, you should have normal levels in your blood.

SUCCESS STRATEGIES

- To ensure your body gets the Vitamin C it needs, make sure to include a wide variety of plant foods, including citrus in your diet.
- If you wish to supplement with Vitamin C, avoid very high doses because they can cause diarrhea and gastro-intestinal distress.

VITAMIN C-RICH FOODS TO INCLUDE IN YOUR DIET:

Broccoli, red bell peppers, kiwi fruit, Brussels sprouts, strawberries, oranges, watermelon, pinto beans.

RELATED GENES / SNPS

SLC23A1

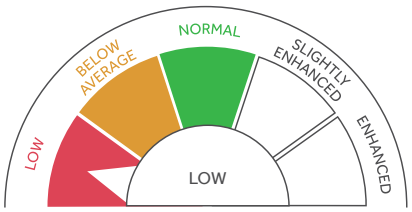
The gene and associated SNP included in this category has been shown to have statistically significant associations with a person's blood levels of L-ascorbic acid, or Vitamin C. Those people who carried more unfavorable pairs of genes, or alleles, were more likely to have lower blood levels of the nutrient.

Vitamin C is a nutrient that has many functions in the body, including acting as an antioxidant, and is needed for skin and membrane tissues. Low levels have also been associated with diseases such as heart disease and cancer. Vitamin C also helps with the absorption of iron. The nutrient must be obtained from foods since the human body cannot make its own, as some other animals can. Vitamin C can be found in citrus fruits, but is also in many fruits, vegetables and legumes.

VITAMIN D TENDENCY

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic response is LOW. Your score reflects the fact that for the 6 genes investigated, your genotype showed many of the unfavorable allele combinations. This means you have a risk of having very low levels of Vitamin D.



Your genetic profile indicates that your response is LOW,

so your levels of Vitamin D may be extremely low. Get your blood tested for Vitamin D, increase your sun exposure and add more Vitamin D-containing foods or supplements, if your levels are low.

SUCCESS STRATEGIES

- Get tested! Even though you may be at risk of having low Vitamin D levels, you will not know if you do unless you get a blood test from your doctor.
- Getting outside on most days of the week for a few minutes is crucial to generate your body's production of Vitamin D.
- Expose yourself to the sun on most days of the week for at least 10 to 15 minutes (30 to 50 minutes if you have naturally dark skin). Spend more time outdoors in winter months, or if you live in northern latitudes.
- If you are deficient in Vitamin D, do a nutrient analysis to determine how much Vitamin D you consume, then eat more foods that contain Vitamin D.
- If you are low, you may wish to take a Vitamin D supplement. Avoid overly-high doses, unless by prescription through your doctor, as they may cause adverse effects.

RELATED GENES / SNPS

GC, NADSYN1, CYP2R1

The genes and their associated SNPs that are included in this category have been shown to have statistically significant associations with a person's blood levels of Vitamin D (which is actually a hormone). One study found that several SNPs linked to low levels of Vitamin D were from genes that may play a role in the Vitamin D conversion and delivery process. Those people who carried unfavorable pairs of genes, or alleles, had a higher risk of low levels of Vitamin D, and those who carried several unfavorable SNPs had a much higher chance of being deficient in Vitamin D.

Vitamin D has been proven in research to be crucial for bone health. Low levels of Vitamin D have been associated with a variety of health conditions, including heart disease, diabetes, depression and cancer.

A blood test from your doctor can determine your blood levels of Vitamin D. Vitamin D is primarily produced by the

NUTRIENTS

VITAMIN D TENDENCY

VITAMIN D-RICH FOODS TO INCLUDE IN YOUR DIET:

Salmon, mackerel, sardines, egg yolks, fortified almond, soy or other plant milk, fortified dairy milk, fortified breakfast cereals.

body from exposure to ultraviolet rays from sunlight, and this is considered to be the optimal source since Vitamin D generated by the body lasts longer in the body than Vitamin D taken in supplement form. Your levels are likely to be higher if you live in the southern latitudes and during the summer. However, it is not uncommon for people with lots of exposure to the sun to still have low levels of Vitamin D. In general, only 10 to 15 minutes of sun exposure to bare skin per day during the summer months is needed for a Caucasian to produce the Vitamin D he or she needs. Darker skinned people will need to spend 2-5 times more time in the sun. Since Vitamin D is stored in the body, stores can be built up during warmer months and may compensate for less sun exposure during winter months.

Vitamin D can be obtained through foods such as oily fish and egg yolks, as well as fortified dairy and plant milks, and fortified cereals. Vitamin D can also be taken in supplements. If you test low and choose to take a Vitamin D supplement, be careful of taking higher doses because there can be adverse effects.

SUMMARY

How much should I exercise?

Any regular exercise will enhance weight loss from dieting. But, the more calories you burn through exercise, the better. Achieve this by exercising harder at a higher intensity or at moderate pace for longer sessions.

CARDIO EXERCISE

FREQUENCY (days per week)

INTENSITY

DURATION (minutes per week)

Perform moderate to vigorous intensity cardiovascular exercise 5 or more days a week for minimum of 300 minutes per week. You can achieve greater results by lengthening the duration of moderate intensity cardio, focusing on endurance activities like biking or running.

STRENGTH TRAINING

Lift weights 2 to 3 days per week using weights that are heavy enough to challenge you at the end of each of 2 to 3 sets of 8 to 15 reps. If by the end of each set of repetitions, you feel like you could keep performing the exercise, the weight you are using is too light to provide a sufficient muscle-strengthening stimulus. As you near the end of the exercise, you should feel like the last 2 to 3 reps are difficult to complete while maintaining good form.

SUMMARY

WHAT IS THE DIFFERENCE BETWEEN HIGH INTENSITY AND STEADY AEROBIC?

How hard you exercise is a reflection of the intensity of your workout. There are different ways to gauge your intensity, but the simplest is to use a subjective scale where you estimate your perception of your effort level.

Generally speaking, a moderate intensity exercise session is a cardio workout that leaves you slightly breathless but not gasping or out of breath. You are able to sustain the effort for extended periods because you are pushing past your comfort zone, but you are not pushing too hard.

A high intensity or vigorous cardio workout is one that is challenging. It feels 'hard' or 'very hard' and you are breathing heavily. How hard you push is subjective. A fitter person can generally work at higher intensities. And 'high intensity interval training' may include short bouts of explosive bursts of super-high intensity effort. These generally only last 15 seconds to 2 minutes, however. They are followed by a recovery interval of anywhere from 1 minute to 5 minutes or more moving at an easier intensity to catch your breath.

Weight lifting moves are also gauged by intensity and generally, for traditional strength training, the harder you work your muscle, the more benefit you'll see. When performing strength exercises, you will do a certain number of repetitions, such as 12. One set of these is followed by a rest of 1 or 2 minutes and then another 1 to 2 sets of 12 reps are repeated. A rule of thumb is to aim to use a weight that is heavy enough that by the end of each set of 12 (by the last 2 or 3 reps), you are working hard to move that weight. If it feels easy by the last few reps, the weight is likely too light to be sufficiently challenging your muscle to become stronger. Other types of resistance training, such as kettlebell, TRX or barbell-endurance workouts use slightly different approaches.

HOW HARD SHOULD I WORK?

Intensity is subjective and what might be hard for someone just starting an exercise program, might be easy for another person who has been exercising regularly for years. For most people, a casual stroll would be an easy or low intensity. But for a person who is recovering from an injury or surgery, or who has never exercised, a casual stroll can be a challenging moderate-to-high intensity workout.

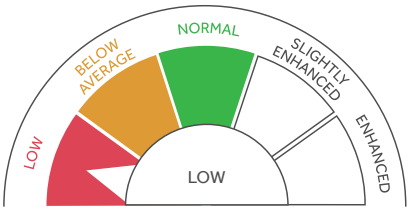
Research shows most people can attain greater benefits from exercising at higher intensities. For a given amount of time, a person will burn more calories jogging at a higher intensity compared to walking at a more moderate intensity. Higher intensities also provide a greater stimulus to muscle fibers, the cardiovascular system and may be more effective at burning fat in the belly, hips and thighs.

Whether it's weights or cardio, if you are not used to exercising or have not done so in a while, it is best to start with easier and shorter workout. Work your way up to harder levels as you get fitter.

FAT LOSS RESPONSE TO CARDIO

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits a LOW fat loss response to cardio. Your score reflects the fact that among the genes investigated, you had the 'unfavorable' gene combinations. This means that, based on your genes, you have a greater chance of showing a reduced fat loss response to doing cardio exercise for 30 to 50 minutes 3 days per week. Thus, you may lose little fat if you follow a similar cardio exercise program.



Keep in mind that having an 'unfavorable' genotype does not mean that you cannot lose body fat, it only suggests that you may have a more difficult time losing as much as someone else with a more favorable genotype. Genetic predisposition plays a role in fat loss, but other factors also affect how much fat you lose. However, your results suggest that it is smart to choose the most effective program for you and to adopt behaviors that help you to stick to the lifestyle changes.

Your genetic profile indicates that your fat loss response to cardio is LOW.

You are likely to experience fat loss with cardio exercise, but it may be minimal if you do not obtain more than the average amount of recommended cardio exercise. You are likely to get optimal fat loss results by exercising for at least 200 to 300 minutes per week.

SUCCESS STRATEGIES

Your genetic profile predicts that you may not lose as much fat as you expect from doing cardio exercise 3 days per week while working out at a moderate-to-high intensity. So you may benefit more from following a different regimen.

- While it is possible to lose fat and weight from exercise alone, you will experience faster fat loss if you focus on sticking to a reduced-calorie diet, in addition to exercise. Follow the tips from the GxSlim analysis of your Weight Loss Ability and Food(Macronutrients) for optimal results.

RELATED GENES / SNPS

ADRB2, LPL

The genes and their associated SNPs that are included in this category have been shown in a study to have significant associations with a person's ability to lose fat from a regular program of cardio exercise.

A large study investigating these genes put sedentary men and women on a 20-week endurance exercise program. They exercised on a bike 3 times per week, starting at a moderate intensity for 30 minutes per session over the first few weeks. They built up to a longer, slightly harder workout that lasted 50 minutes for the last 6 weeks. Men in the study did not appear to have a different response based on their genotype. However, women who

FAT LOSS RESPONSE TO CARDIO

- Official exercise recommendations suggest that exercising 3 days per week for 150 or fewer minutes is not enough to manage body weight. So for optimal fat loss and weight loss results from exercise, increase one or all of the following: the number of days per week you exercise, the length of time of your exercise session, and/or the intensity of your exercise session.

- For optimal fat and weight loss results from exercise, aim for 5 or more days per week of cardio exercise for a total of at least 300 minutes per week.

- Incorporate cardio interval training where you alternate very intense bursts of activity with intervals of exercise at a more moderate intensity. You can do this by doing cardio only or with weight training. During cardio, you might walk for 10 minutes at an easy pace to warm up, then jog or run for 30 seconds to 2 minutes. Then return to an easy pace walk for 3 to 5 minutes and then jog or run again for 30 seconds to 2 minutes. As you get fitter, you can lengthen the high-intensity intervals and shorten the recovery intervals.

- Make sure to include muscle-strengthening moves 2 to 3 days per week.

carried the most 'unfavorable' genotypes lost fat from the exercise program—but they tended to lose less fat compared to other participants who did not carry the 'unfavorable' genotypes.

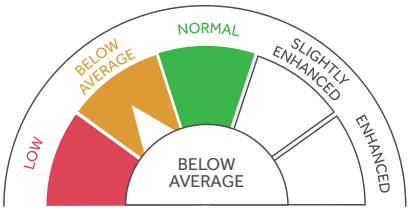
No matter the genotype, even though some fat loss was seen with the 3 days per week, 90-to-150-minutes-per-week regimen in this study, for dramatic decreases in body fat that also result in weight loss, most people will get better results if they do more exercise per week.

Our analysis investigated which genotype for each of these genes was present in your DNA. Your rating of either NORMAL, BELOW AVERAGE or LOW reflects whether your genotypes included those that carried a risk of reduced fat loss response from a regular program of cardio exercise.

FITNESS RESPONSE TO CARDIO

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits a BELOW AVERAGE fitness response to high-intensity exercise. Your score reflects the fact that your genotype showed the 'unfavorable' gene combinations. This means you have the potential to perform sub-optimally during high-intensity cardio workouts. The good news is that you might be able to attain the same cardiovascular benefits by working at lower intensities.



Your genetic profile indicates that your fitness response to moderate-to-high-intensity cardio is BELOW AVERAGE.

You may be less likely to experience optimal cardiovascular fitness improvements from high-intensity cardio. You will likely see greater gains from longer, moderate-intensity workouts. Or you may benefit from endurance-based resistance workouts such as circuit training and power training.

SUCCESS STRATEGIES

Your genotype suggests you might benefit most from sticking to moderate intensity workouts. Therefore, you might see better fitness results from longer endurance workouts.

Aim for more moderate-intensity cardio workouts on 4 or more days per week that last longer over time. Start with 20 to 30 minute sessions and work up to 60 to 90 minutes. You may want to consider training for an endurance event like a charity bike race or a 10K, half-marathon, or even a full marathon.

RELATED GENES / SNPS

AMPD1, APOE

The genes and associated SNPs included in this category have been shown to have significant associations with a person's response to moderate-to-high intensity exercise.

Many factors play roles in being able to push hard without feeling overly fatigued when exercising. One reflection of fitness is oxygen capacity, also known as VO2 Max. As a person becomes fitter, their ability to take in more oxygen improves, which helps them to work out harder and longer. The greater one's VO2 Max, the more exercise they can handle since they can take in more oxygen that working muscles need during intense physical activity.

Several large studies investigating these genes had sedentary men and women do cardio exercise 3 to 4 days per week for 5 to 6 months. They used a variety of cardio machines (bike, treadmill, rowing machine, step-climber, etc.) for up to 50 minutes.

EXERCISE

FITNESS RESPONSE TO CARDIO

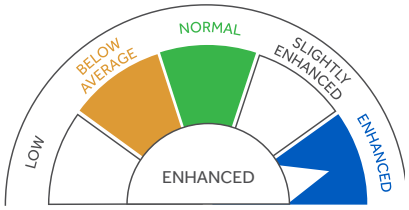
Those people with the 'unfavorable' genotype experienced smaller gains in their cardiovascular fitness from the training. They seemed to show a decreased ability to perform at higher effort levels, suggesting their optimal fitness response may be better achieved at a lower intensity of exercise.

Our analysis investigated which genotype for these genes was present in your DNA. Your rating of either NORMAL, BELOW AVERAGE OR LOW reflects whether your genotypes included those that carried a risk of reduced cardiovascular fitness response from moderate-to-higher-intensity exercise.

BODY COMPOSITION RESPONSE TO STRENGTH TRAINING

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits an ENHANCED body composition response to muscle-strengthening exercise. Your score reflects the fact that your genotype showed the 'favorable' gene combinations. This means that you are likely to experience weight loss and a reduction in your body fat percentage from weight training.



Your genetic profile indicates that your body composition response to strength training is ENHANCED.

You are more likely to decrease your body fat percentage with weight training. So make sure to include resistance exercise 2 to 3 times a week.

SUCCESS STRATEGIES

Make sure to lift weights that are heavy enough to work at a moderate-to-hard intensity, performing 2 to 3 sets of 8 to 15 repetitions of each exercise. When the exercises become easy, add more weight to continue to obtain the benefits.

You will experience greater fat and weight loss by incorporating cardio workouts on most days of the week, aiming to accumulate 150 to 300 minutes or more of physical activity per week.

RELATED GENES / SNPS

NRXN3, GNPDA2, LRRN6C, PRKD1, GPRC5B, SLC39A8, FTO, FLJ35779, MAP2K5, QPCTL-GIPR, NEGR1, LRP1B, MTCH2, MTIF3, RPL27A, SEC16B, FAIM2, FANCL, ETV5, TFAP2B

The genes and their associated SNPs that are included in this category all have been shown to have significant associations with a person's ability to improve their body composition and decrease their body fat percentage from resistance exercise. Resistance training, or weight training, improves strength and the amount of muscle a person has. Weight training can also reduce the percentage, and sometimes amounts, of body fat. An improved body composition, which is a higher proportion of muscle to body fat, contributes to a leaner look and, potentially, a greater number of calories burned each day.

Although resistance training alone has

BODY COMPOSITION RESPONSE TO STRENGTH TRAINING

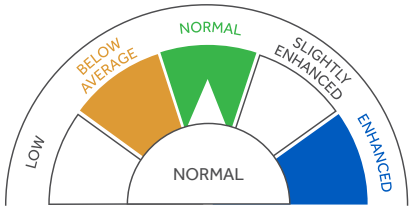
not been shown to produce clinically-significant weight loss (because weights workouts do not burn as many calories as cardio), people with the more 'favorable' genotype in a large study experienced an improved ability to lose weight and reduce their body fat percentage with resistance training. Those with the 'unfavorable' genotypes showed a decreased ability to lose weight and reduce body fat percentage from resistance training. When you are trying to lose weight, it is very important to include resistance training in your routine. Resistance training can minimize or prevent that loss of muscle mass that occurs with weight loss when you are dieting.

Our analysis investigated which genotype for these genes was present in your DNA. Your rating of either ENHANCED, NORMAL or BELOW AVERAGE reflects whether your genotypes included those that carried a risk of an enhanced or reduced HDL response to cardio exercise.

HDL RESPONSE TO CARDIO

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits a NORMAL HDL response to cardio exercise. Your score reflects the fact that your genotype showed a few of the 'unfavorable' gene combinations. This means that you can boost your HDL with cardio exercise, but likely only by a modest amount.



Your genetic profile indicates that your HDL response to cardio is NORMAL.

You may be able to boost your response more with more cardio. Exercise at least 5 days per week and aim for longer sessions and/or higher intensities. Keep other cholesterol levels in check by eating plenty of beans, nuts and other plant foods.

SUCCESS STRATEGIES

You may be able to bump up your levels of HDL even more by working out for longer periods, more frequently or at higher intensities.

- Aim to perform cardio exercise at least 4 to 5 days per week.
- Include high exercise intensities. You should feel breathless and as if you are working out 'hard', or even 'very hard.' But work up gradually to working out at more intense levels.
- What you eat is crucial to help normalize all of your cholesterol levels. A diet high in fiber-filled plant foods and low in saturated animal fats will help lower your total cholesterol, LDL cholesterol and triglyceride values. Incorporate more beans, nuts, fruits and vegetables into your diet, as all have been shown to improve cholesterol levels.

RELATED GENES / SNPS

APOE

The gene and associated SNPs included in this category have been shown to have significant associations with a person's HDL cholesterol response to cardio exercise. HDL is a protein particle in the blood that carries cholesterol to the liver, helping to clear it from the blood. Excess cholesterol lingering in the blood can contribute to plaque that causes heart disease. So having higher levels of HDL is beneficial—which is why it's considered "good" cholesterol. Even one session of cardio exercise can boost HDL, and regular exercisers tend to have higher HDL.

This gene plays a role in the HDL response to cardio. One large study had men and women exercise for 30 to 50 minutes, 3 times a week for 5 months. Those people with the more "favorable" genotype experienced greater than average boosts to their HDL levels. Those with the 'unfavorable' genotype showed a decreased response: smaller increases in HDL.

EXERCISE

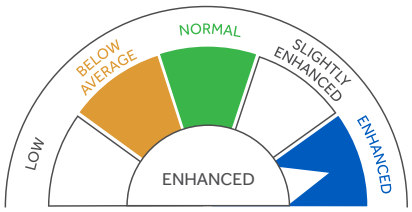
HDL RESPONSE TO CARDIO

Our analysis investigated which genotype for this gene was present in your DNA. Your rating of either ENHANCED, NORMAL or BELOW AVERAGE reflects whether your genotypes included those that carried a risk of an enhanced or reduced HDL response to cardio exercise.

INSULIN SENSITIVITY RESPONSE TO CARDIO

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits an ENHANCED insulin sensitivity to cardio exercise. Your score reflects the fact that your genotype showed the 'favorable' gene combinations. This suggests that you are likely to see beneficial improvements to your insulin sensitivity if you exercise regularly.



Your genetic profile indicates that your insulin sensitivity response to cardio is ENHANCED.

Performing 3 or more days of cardio per week should improve your glucose uptake. You can optimize these effects by working out more than 3 days per week and including resistance training in your workouts.

SUCCESS STRATEGIES

- For optimal insulin response, perform cardio exercise more than at least 3 to 4 times a week and stick to it. The more often you exercise, the greater the benefits.

- Strength training can also improve insulin sensitivity, so include some form of resistance training 2 to 3 times per week, targeting all the major muscle groups as part of your weekly routine.

RELATED GENES / SNPS

LIPC

The gene and associated SNPs included in this category have been shown to have significant associations with a person's insulin sensitivity in response to cardio exercise. Insulin is a hormone that plays a crucial role in delivering glucose, a form of sugar, in the blood to cells in the body that use it for energy. In a healthy person, cells are sensitive to this action of insulin and blood glucose levels are kept in their optimal range. If insulin sensitivity declines, a person may become insulin resistant. This keeps blood glucose levels high and diabetes can develop.

Even one session of exercise can improve insulin sensitivity. Exercise also helps keep blood glucose levels low because exercising muscles can absorb glucose without needing insulin to do so. Exercise over time can prevent diabetes—and it can help those who already have it.

INSULIN SENSITIVITY RESPONSE TO CARDIO

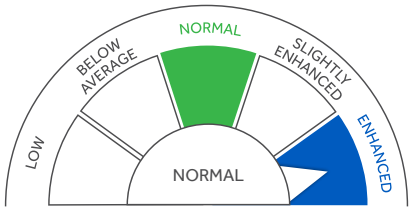
This gene seems to play a role in the insulin sensitivity response to cardio. One large study had men and women perform cardio exercise at a moderate-to-high intensity for 30 to 50 minutes, 3 times a week. Those people with the more 'favorable' genotype experienced greater than average improvements in their insulin sensitivity. Those with the 'unfavorable' genotype were less likely to improve their insulin sensitivity by exercise.

Our analysis investigated which genotype for this gene was present in your DNA. Your rating of either ENHANCED, NORMAL or BELOW AVERAGE reflects whether your genotypes included those that carried a risk of an enhanced or reduced HDL response to cardio exercise.

GLUCOSE RESPONSE TO CARDIO

WHAT YOUR GENES SAY ABOUT YOU:

Our analysis indicates that your genetic profile exhibits an ENHANCED glucose response to cardio exercise. Your score reflects the fact that your genotype showed the 'favorable' gene combinations. This means that you are likely to experience decreases in glucose and, as a result, improved insulin resistance from doing cardio exercise at least 2 to 3 times per week.



Your genetic profile indicates that your glucose response to cardio is ENHANCED.

You are likely to experience beneficial decreases in blood glucose from 2 to 3 days per week of cardio exercise. You can enhance the benefits of exercise by working out harder and/or longer, and adding resistance training to your routine.

SUCCESS STRATEGIES

While you may experience improvement in blood glucose from exercising 2 to 3 days per week, you are likely to experience greater benefits by exercising more. So aim for at least 3 to 4 days per week of cardio.

- Find ways to stick to your routine, because the beneficial effects of exercise on blood glucose come from consistency.
- Add resistance training 2 to 3 nonconsecutive days per week to your workout routine to enhance the benefits of regular exercise.

RELATED GENES / SNPS

PPARG

The gene and associated SNPs included in this category have been shown to have significant associations with a person's glucose response to cardio exercise. Glucose is one of the body's main sources of energy and it comes from the breakdown of carbohydrates in the diet. Brain and nerve cells, as well as red blood cells, exclusively use glucose for energy. That's why blood glucose is maintained at constant levels—so that all the cells in the body that need it can access it. If blood glucose levels rise and stay high, eventually insulin resistance and diabetes can develop. Exercise helps regulate blood glucose levels because every session of exercise uses glucose in the muscle for energy, and the blood glucose supply is then tapped into to replenish the muscle reserves.

GLUCOSE RESPONSE TO CARDIO

This gene seems to play a role in the glucose response to cardio and appears to be a reliable indicator of whether exercise will have beneficial effects on insulin resistance. Several studies involved a variety of individuals, both diabetics and non-diabetics, performing regular cardio for 2 to 3 days per week for up to 5 months. Those people with the more 'favorable' genotype experienced greater-than-average clearance of blood glucose. Those with the 'unfavorable' genotype showed a decreased response, or smaller drop in glucose levels. People with this genotype also had a decreased weight-loss ability—they loss less weight compared to people with different genotypes.

Our analysis investigated which genotype for this gene was present in your DNA. Your rating of either ENHANCED or NORMAL reflects whether your genotypes included those that carried a risk of an enhanced or reduced glucose response to cardio exercise.

LINKS TO RELATED STUDIES:

WEIGHT LOSS ABILITY

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Genetic predictors of weight loss and weight regain after intensive lifestyle modification, metformin treatment, or standard care in the Diabetes Prevention Program

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Association of the Pro12Ala polymorphism in the PPAR-gamma2 gene with 3-year incidence of type 2 diabetes and body weight change in the Finnish Diabetes Prevention Study

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LINKS TO RELATED STUDIES:

FOOD – FAT UTILIZATION

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