



# YOUR GENOTYPE REPORT

|                |             |
|----------------|-------------|
| Client Name:   | Sample Name |
| Date of Birth: | 14/04/1990  |
| Sample Number: | HS1234      |
| Date of Test:  | 27/09/2014  |



**DNAFit**<sup>®</sup>  
PREMIUM FITNESS



Developed By:

**DNAFit**<sup>®</sup>  
ACHIEVE YOUR GENETIC POTENTIAL



## WELCOME TO YOUR PERSONAL DNAFit PREMIUM REPORT!

It gives us great pleasure to enclose your unique DNA results. Our laboratory has tested your swabs for your response to a selection of key genes that are associated with health and fitness. Your individual results are presented for you in this report, along with a basic grounding in genetic science and the role genetics can play for our personal wellbeing, as well as our athletic potential. We have also included with this report our full DNAFit Genotype Support Guide to help you learn more about where your individual results lie in the larger genetic landscape.

The recent explosion in genetic science has revealed new connections between genes and exercise trainability. To fulfill your fitness or sporting objectives, it can therefore be extremely important to make the appropriate choices to best match your unique genetic make-up. By helping you understand how your genetic profile affects you, DNAFit provides unparalleled insight and knowledge to help you optimize your physical health and fitness.

## WHAT DOES MY DNAFIT PREMIUM REPORT TELL ME?

From your DNA results, we reveal a unique scientific deep-dive in to the following key areas -



### Endurance / Power profile

Reveal your body's response to key genes associated power or endurance potential. Understand how best to train for your body, whatever your personal goal may be.



### Aerobic potential (VO2 Max)

VO2 max is the most commonly used marker for endurance potential, we can help you understand your genetic VO2 max potential.



### Post-Exercise Recovery

Everybody has a different recovery ability - understand what your genes say about your natural recovery speed, and how to plan your exercise regime accordingly.



### Recovery Nutrition

Get to know your body's genetic need for certain vitamins and micronutrients. Learn how this can help you manage your recovery strategy after hard exercise.



### Injury risk

Some people are more genetically prone to injury than others, we help you identify where your genes put you on the injury risk scale.



## LEGAL DISCLAIMER

This report is based on your unique DNA results obtained by testing your swabs for your response to a selection of key genes that are associated with health and fitness.

Any assertions or recommendations in the report as to an exercise regime or diet, whether specific or general, are based on the following assumptions:

1. that you are in a good state of health and do not have any medical problems that you are aware of;
2. that you have not had any recurring illness in the past 12 months;
3. that no medical practitioner has ever advised you not to exercise;
4. that you are not on any prescribed medication that may affect your ability to exercise safely or your diet;
5. that you do not have any food allergies; and
6. that there is no other reason why you should not follow the assertions or recommendations in the report.

If you have any concerns at any time about whether or not these assumptions are correct in your particular circumstances, before acting, or not acting, on any of the assertions or recommendations, you must consult a medical practitioner.

You are at all times responsible for any actions you take, or do not take, as consequence of the assertions or recommendation in the report, and you will hold DNA Fit Limited, its officers, employees and representatives, harmless against all losses, costs and expenses in this regard, subject to what is set out below.

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## UNDERSTANDING GENETICS

Before reading your full report, please take a moment to read this background information to help you better understand your results and to guide you on how best to make use of what you learn from your DNAFit results.

The DNAFit Premium report is designed for people of any fitness level. Whether you are an absolute beginner just wanting to train the best way for your body, a personal trainer keen to offer the very best service to your clients, or a professional athlete seeking that extra edge, our report can help you.

### WHAT ARE GENES?

A gene is a segment of the DNA (short for deoxyribonucleic acid) molecule that contains the instructions for how, when and where your body makes each of the many thousands of proteins required for life. Each gene is comprised of thousands of combinations of four letters that make up your genetic code: A, T, C, and G. Each gene's code combines these "letters" in various ways, spelling out the "words" that specify which amino acid is needed at every step in the process of making the proteins required for your body to develop and function. Increasingly, your genes can also tell you whether you are predisposed to specific health risks.

### WHAT ARE GENE VARIATIONS?

With the exception of identical twins, all people have small differences in the information that their DNA contains and it's these differences that make each of us unique. Gene variations are slight changes in the genetic code that are present in at least one percent of the population.

For example - one genetic "letter" (A, T, C, or G) may be replaced by another. These variations can lead to different processes in the body, just as altering one letter in a word can completely change its meaning. When the variation affects only one genetic letter, as in the goat/coat example above, it is called a "single nucleotide polymorphism" (or SNP, pronounced "snip").

### ARE GENE VARIATIONS "BAD"?

For a given population, one genetic code for a gene may be found more frequently than other genetic codes for that same gene. The genetic codes for those genes that appear less frequently are referred to as "variants". Variations should not be thought of as "good" or "bad," rather genetic variations are simply the differences in the forms of the genes present in our bodies. The key is to know which form of the gene you carry, so that you can make the right exercise, dietary and lifestyle choices to reduce your health risks.

### WHAT IS NUTRIGENETICS?

Nutrigenetics is concerned with the effects of our individual genetic variations in response to our diet, exercise and lifestyle, all of which can cause the genes to be "expressed" in a positive or negative way. Nutrigenetics testing enables us to identify where we are on our journey towards achieving our individual, optimal health potential.



## YOUR PERSONAL GENETIC REPORT

The following pages outline your genetic results. By identifying and analysing your unique pattern of genetic characteristics, it becomes possible to adjust your training, diet and lifestyle to match your individual needs for success in exercise and sport.

### Remember:

**Your genes cannot change, but your lifestyle can.**

This is why we consider the two together; by identifying genetic strengths and weaknesses, we can make appropriate exercise, dietary and lifestyle recommendations.

## YOUR DNA OVERVIEW



In your training mix power and endurance activities to benefit from your intermediate profile.



Include both performance and power activities in your training program to improve on your intermediate VO2 max tendency.



Your genetic variation may result in slower free radical clearance. You have variations in genes related to inflammation & recovery.



Your genetic results indicate a raised requirement for dietary antioxidants and increased amounts of omega 3 fatty acids.



Your genetic results indicate that you have an overall higher than average risk of a sports related soft tissue injury.



## POWER / ENDURANCE PROFILE

Endurance training is defined as lower intensity activity, performed for a longer period time. Power training is identified as high intensity exercise performed quickly, but over shorter time periods. We have collated your body's response to key genes associated with either power or endurance training to create the below summary of where your genetics lie on the spectrum.

### Example Endurance Activities



Long-distance running



Mountain climbing



Road cycling

### Example Power Activities



Sprinting



Power lifting



Track cycling

### YOUR PERSONAL POWER / ENDURANCE RESPONSE



42.9 % ■ Power Potential

57.1 % ■ Endurance Potential

The above graph shows your percentage of genetic endurance and/or power results.

| POWER |        |        |
|-------|--------|--------|
| Gene  | Result | Effect |
| ACE   | ID     | +      |
| AGT   | TT     | -      |
| ACTN3 | TT     | -      |
| TRHR  | TT     | -      |
| PPARA | CG     | +      |
| VEGF  | CG     | -      |
| VDR   | TT     | -      |
| IL6   | CG     | -      |

| ENDURANCE |        |        |
|-----------|--------|--------|
| Gene      | Result | Effect |
| ACE       | ID     | +      |
| ADRB2     | GG     | -      |
| ADRB2     | CG     | +      |
| ACTN3     | TT     | ++     |
| BDKRB2    | CC     | -      |
| COL5A1    | TT     | +      |
| NRF       | AA     | -      |
| PPARGC1A  | AG     | -      |
| PPARA     | CG     | +      |
| CRP       | GG     | -      |
| VEGF      | CG     | -      |





## POWER / ENDURANCE PROFILE

Your DNAFit assessment has determined that your genetic profile is almost equally balanced between power and endurance activities, based on variations in your genes.

In your training mix power and endurance activities to benefit from your intermediate profile.

### What does my power / endurance profile mean for me?

These results give you an indication of where your genetic results fall on the power / endurance spectrum.

N.B. It is important to note that this result should not change your sporting or fitness goal - rather it should help you understand how best for you to reach that goal, by taking advantage of your genetic pre-disposition. Training in purely one way, be it all endurance or all power without a balance between the two can often have a negative impact, so make sure you give yourself some variation no matter what your power/endurance profile.





## YOUR AEROBIC POTENTIAL (VO2 MAX)



**VERY LOW**

**LOW**

**MEDIUM**

**HIGH**

**VERY HIGH**

Your body needs oxygen when exercising. VO2 max is a test used by scientists to measure the maximum or optimum rate at which an individual's body can effectively use oxygen during exercise. It is commonly used as a way of measuring a person's individual aerobic ability and it is an extremely popular measure of progress amongst endurance athletes.

There are certain gene results that can help you understand your natural VO2 max capacity, and we have tested your DNA to help reveal your individual markers.

| VO <sub>2</sub> Max Genes |        |        |
|---------------------------|--------|--------|
| Gene                      | Result | Effect |
| ADRB2                     | GG     | +      |
| ADRB2                     | CG     | +      |
| CRP                       | GG     | -      |
| PPARGC1A                  | AG     | +      |
| VEGF                      | CG     | +      |

Your DNAFit assessment has determined that your genetic profile predicts a tendency towards an intermediate VO2 max based on variations in your genes. In order to make the most of your natural VO2 Max capacity, you will need to cross-train by consistently including both endurance and power activities in your training program.

Include both performance and power activities in your training program to improve on your intermediate VO2 max tendency.





## UNDERSTANDING YOUR VO2 MAX SCORE

The best way to calculate your own VO2 max score is to find a local health clinic or gym who should be able to perform a short VO2 max test, either on a treadmill or an exercise bike. Otherwise, the below guide will help you calculate your VO2 max score at any gym equipped with a step machine.

### Calculating your own VO2 Max

Use this simple 3-minute step test to monitor your VO2 max:

Step in time up and down on a step at a rate of 22 steps per minute for females, and 24 steps per minute for males. After 3-minutes, remain standing and immediately measure your pulse rate for 10 seconds by lightly pressing your index and middle fingers on your neck or wrist and counting the total number of pulsing beats you feel. (Note: Do not press too firmly on your neck or wrist when feeling for a pulse.)

To get your heart rate, simply count the number of heart beats per minute for 10 seconds and then multiply the number of beats counted by 6, which will give you your standing heart rate.

Heart Rate = # of beats in 10 seconds x 6.

Now use the following equations to calculate your VO2 max:

- **Males:**  $VO_2 \text{ max} = 111.33 - (0.42 \times \text{Heart Rate})$
- **Females:**  $VO_2 \text{ max} = 65.81 - (0.1847 \times \text{Heart Rate})$

Simply multiply your heart rate x 0.42 and then subtract that number from 111.33 for males, and multiply your heart rate x 0.1847 and then subtract that number from 65.81 for females = VO2 max.





## RECOVERY

When exercising, some people are lucky enough to recover very quickly - ready to exert themselves again after very little rest, whereas others don't seem to bounce back quite as fast, needing a longer break between hard training bouts. Research has shown that certain genetic variations infer a delayed recovery from hard exercise training; those with these markers should take extra care with their training plan and nutrition strategy.

### YOUR POST-EXERCISE RECOVERY PROFILE



VERY SLOW

SLOW

MEDIUM

FAST

VERY FAST

Recovery is one of the most important aspects of any training program. Without the proper rest between sessions we can push our bodies too hard and compromise our future workouts.

| Gene Response |        |        |
|---------------|--------|--------|
| Gene          | Result | Effect |
| GSTM1         | D      | **     |
| GSTT1         | I      | -      |
| SOD2          | TT     | -      |
| IL6           | CG     | *      |
| IL6R          | AA     | -      |
| CRP           | GG     | **     |
| TNF           | AG     | *      |

Your DNAFit assessment has determined that you have variations in gene(s) important in free radical removal [GSTM1]. In order to support your genetic profile, DNAFit recommends that you consume adequate amounts of antioxidants in your daily diet.

Your DNAFit assessment indicates variations in gene(s) related to immune support and recovery [IL6, TNF, CRP]. In order to complement this genetic component, DNAFit recommends that you include omega-3 fatty acids in your daily diet.



## RECOVERY

### Your Post-Exercise Nutrition Needs

Every time we push our bodies through exercise, we can cause inflammation and oxidative stress in our cells. It is important to refuel and repair your muscles so your body is ready for the next event or training session. If you neglect post-exercise nutritional support and recovery time, you risk running low on energy during your next exercise session and harming your overall training plan.

| Recommended Micronutrient Doses |                               |
|---------------------------------|-------------------------------|
| Nutrient                        | Your Recommended Daily Intake |
| Vitamin A                       | 2,700 IU / 810 µg             |
| Beta carotene                   | 5.4 mg                        |
| Vitamin C                       | 105 mg                        |
| Vitamin E                       | 15 IU / 13.5 mg               |
| Omega-3                         | 3 g                           |
| Cruciferous vegetables          | 3-4 servings per week         |
| Alpha Lipoic Acid               | 100 mg                        |





## INJURY RISK

Though of course injury is always a default risk when undertaking any form of exercise, some people do appear to be more predisposed to injury than others, and some of this is based on genetics. Scientific evidence has shown that certain genetic variations can affect injury risk; we have taken the results from your DNA test and collated them to provide you with an overall injury risk score. Those with a higher genetic injury risk may need to adjust their training plan to include more injury prevention sessions than the average person.

### Your Personal Injury Risk



VERY LOW

LOW

MEDIUM

HIGH

VERY HIGH

| Injury Risk Gene Table |        |        |
|------------------------|--------|--------|
| Gene                   | Result | Effect |
| GDF5                   | CT     | *      |
| COL1A1                 | GG     | *      |
| COL5A1                 | TT     | **     |
| IL6                    | CG     | *      |
| IL6R                   | AA     | -      |
| CRP                    | GG     | **     |
| TNF                    | AG     | *      |

Your genetic results indicate that you have an overall higher than average risk of a sports related soft tissue injury. This should be taken into consideration when planning training schedules and the information should be communicated to your personal trainer.

Your Fitness assessment indicates variations in gene(s) related to general inflammation – should you suffer from a soft tissue injury your levels of inflammation could have an impact on recovery. You are advised to inform your therapist about this possibility



## UNDERSTANDING YOUR FULL GENOTYPE BREAKDOWN

The table below provides a full breakdown of each of the genes we have tested your DNA for, and your individual allele response to that gene. We have also detailed the effect that your particular allele response is associated with.

| Endurance / Power profile & VO2 max potential |            |               |  |
|---|------------|---------------|--|
| Gene  | Variation  | Allele Result | Effect   |
| ACE   | rs4646994  | ID            | Endurance / Power mix  |
| ADRB2   | rs1042713  | GG            | Lower VO2 max capacity   |
| ADRB2   | rs1042714  | CG            | No measured impact on fitness  |
| AGT   | rs699      | TT            | No measured impact   |
| ACTN3   | rs1815739  | TT            | Associated with Endurance, very rare in elite power athletes         |
| BDKRB2  | rs1799722  | CC            | No measured impact   |
| COL5A1  | rs12722    | TT            | Associated with endurance  |
| CRP   | rs1205     | GG            | Lower VO2 max, lower endurance                                       |
| IL6   | rs1800795  | CG            | No measured impact on Power/Endurance                                |
| NRF   | rs7181866  | AA            | No measured impact on fitness  |
| PPARA   | rs4253778  | CG            | Intermediate associations with both power and endurance              |
| PPARGC1A                                      | rs8192678  | AG            | Lower VO2 max, lower endurance profile                               |
| TRHR  | rs16892496 | TT            | No measured impact on fitness  |
| VEGF  | rs2010963  | CG            | Intermediate VEGF production   |
| VDR   | rs731236   | TT            | No measured impact on fitness  |
| Post Exercise Recovery & Injury Risk          |            |               |  |
| CRP   | rs1205     | GG            | Greater time required for recovery                                   |
| GSTM1   | INDEL      | D             | Nutritional support to promote recovery and neutralize free radicals |
| GSTT1   | INDEL      | I             | No measured impact on fitness  |
| IL6   | rs1800795  | CG            | Nutritional support to promote recovery, lower endurance             |
| IL6R  | rs2228145  | AA            | No observed impact on fatigue or recovery times                      |
| SOD2  | rs4880     | TT            | No measured impact on fitness  |
| TNF   | rs1800629  | AG            | Nutrients for support of recovery                                    |
| COL1A1  | rs1800012  | GG            | May be more prone to ligament injury                                 |
| COL5A1  | rs12722    | TT            | Associated with increased tendinopathy risk                          |
| GDF   | rs143383   | CT            | Intermediate tendinopathy risk                                       |

### Want to know more about your genetic results?

Included with your DNAFit Premium Report is our full Genotype Support Guide. To understand some more about your individual results, why not grab a pen and mark cross-reference your results from the table above to see where you lie in relation to every possible gene response?





## GLOSSARY

**Aerobic::**

*Anything relating to, involving, or requiring oxygen. E.g. "Aerobic exercise"*

**Allele:**

*An allele is an alternative form of a gene (one member of a pair) that is located at a specific position on a specific DNA chromosome. E.g. "You have the ID allele of the ACE gene."*

**Cruciferous Vegetables:**

*Relating to or denoting plants of the cabbage family.*

**Endurance:**

*A sport or activity that requires the ability to perform for long periods of time at low intensities, such as marathon running and cross-country skiing.*

**Genotype:**

*The genetic constitution of an individual organism.*

**Nutrigenetics:**

*A branch of nutritional science, which aims to identify nutritional recommendations for individuals based on their DNA.*

**Power:**

*A sport or activity that requires the ability to perform at a high intensity for short periods of time, such as sprinting and power lifting.*

**Tendinopathy:**

*A chronic injury to a tendon, often also referred to as tendonitis.*





## WHAT'S NEXT?

We hope that you have found this report insightful and interesting. So, now that you have a full understanding of your body's genetics, what to do with this information?

With this report you're now equipped with the most advanced knowledge possible for your health and fitness, and we want to help you make the most of it to reach your goal.

We offer a selection of bespoke training programmes for whatever your goal may be, from training for the London Marathon to natural bodybuilding. Our team of Olympic athletes, professional sportspeople and world-renowned experts can deliver training programmes individually tailored exactly to your genetic results, taking in to account all of the areas we test for – power / endurance potential, VO2 max, recovery speed, nutrition needs, and injury risk.

Please visit [www.dnafit.com](http://www.dnafit.com), call +44 (0) 845 463 4653 or email [info@dnafit.com](mailto:info@dnafit.com) to find out about our bespoke DNA-based training programmes.



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