

GHR

Gene Report

REPORT CATEGORIES —



WEIGHT & BODY FAT



LONGEVITY



JOINT & TENDON
HEALTH



BONE HEALTH



SEX HORMONES



PHYSICAL FEATURES

Sample Client

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DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

Personal information

NAME

Sample Client

SEX AT BIRTH

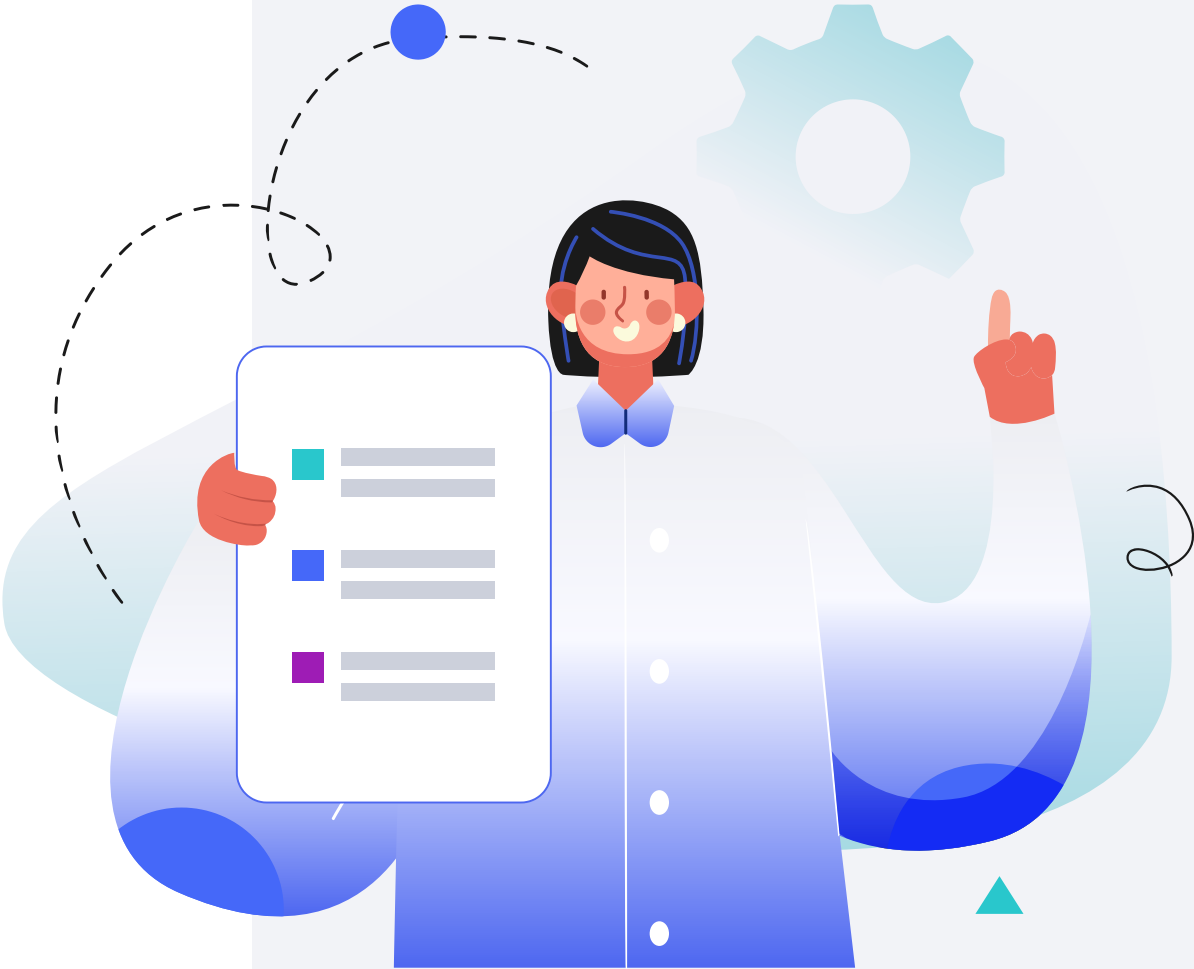
Male

HEIGHT

5ft 5" 165cm

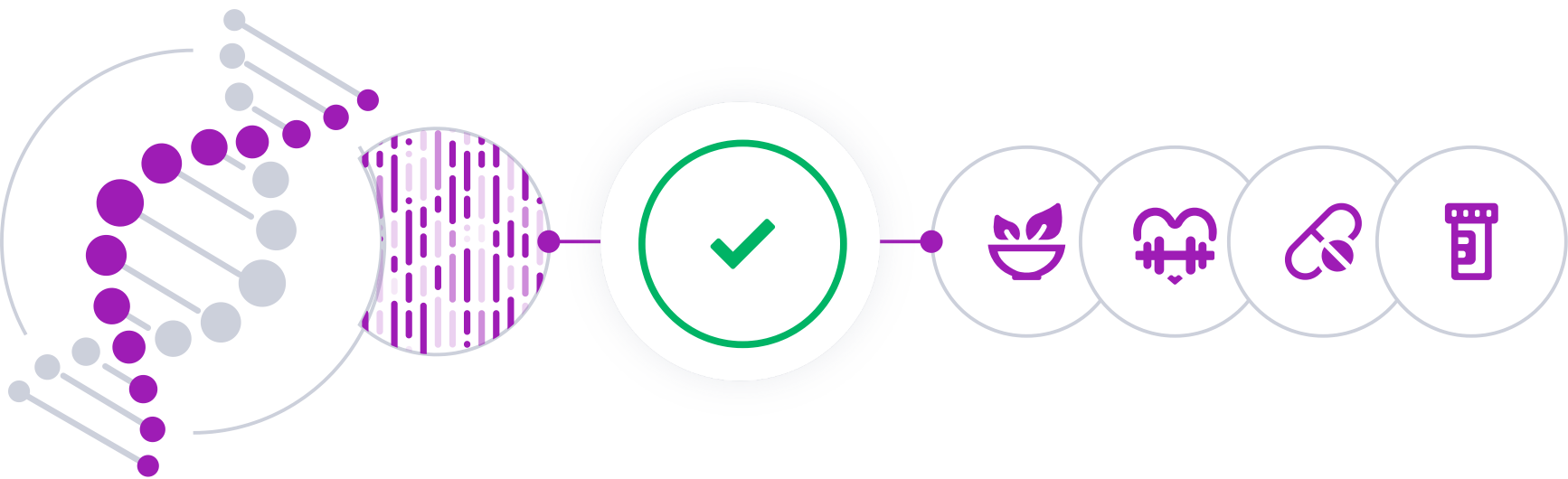
WEIGHT

137lb 62kg



How this works

Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.

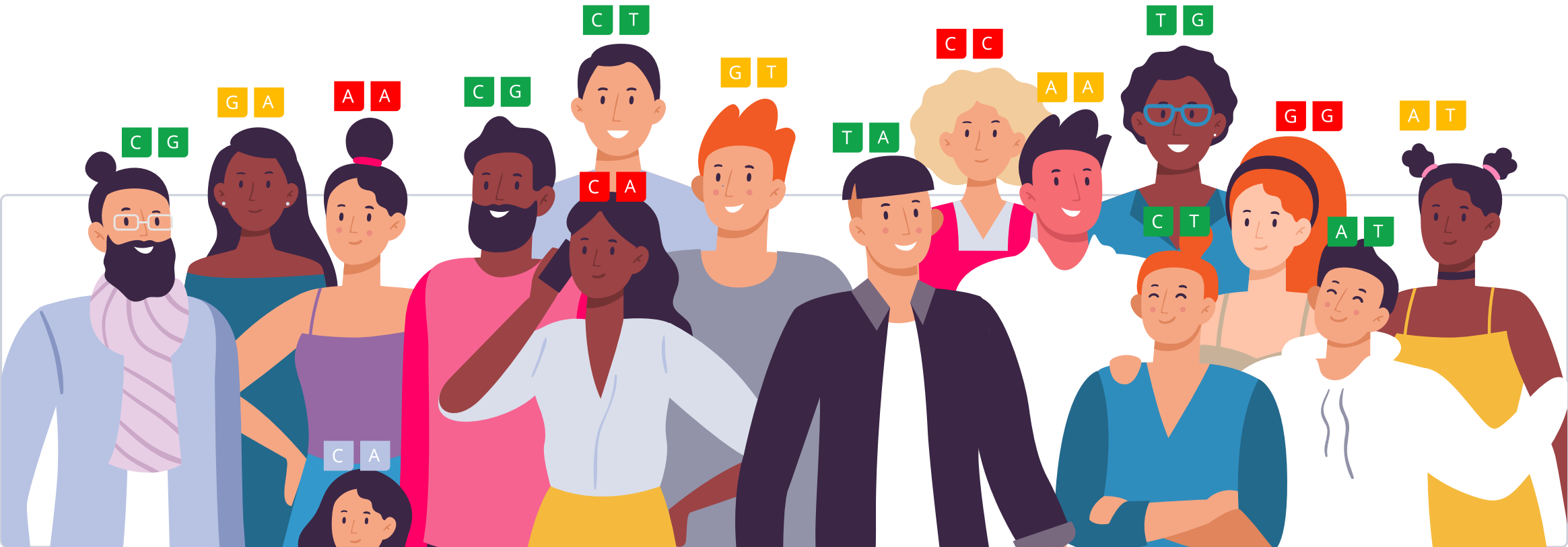


Similarly, our Trait Reports look at how your DNA influences your traits.



Your DNA is like an instruction manual — it contains a lot of information.
You can think of it as a blueprint for your body.

Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



We use artificial intelligence and machine learning to analyze all this information.
We then summarize your results as a risk score or display it on a gauge.

In total, we analyze up to 83 million genetic variants.

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

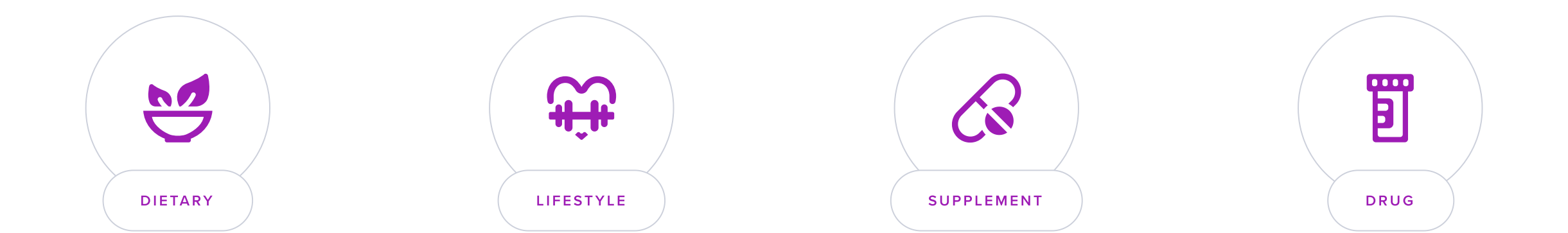
You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.

Our recommendations come in four categories: lifestyle, diet, supplements and drugs. The following icons tell you which category a recommendation falls into:



Our team of scientists also ranks each recommendation.
We rank based on impact and the strength of evidence in the medical literature.

Impact shows how strongly a recommendation will affect your health in a certain area.
Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):



Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

Recommendation Evidence

- 5 / 5
- Recommendations that are considered effective and generally recommended by experts and medical bodies.
-
- 4 / 5
- Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.
-
- 3 / 5
- Recommendations that are considered possibly effective and have many studies supporting them
-
- 2 / 5
- Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.
-
- 1 / 5
- Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.
-
- 0 / 5
- No evidence in humans.

Genotype-specific Evidence

- High-quality
- Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).
-
- Medium-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).
-
- Low-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).
-
- Indirect
- A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).
-
- In theory
- A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

The [GHR](#) gene encodes the [growth hormone](#) receptor, found in the outer membrane of cells and most abundant in the liver [\[R\]](#).

The receptor has three major parts: an extracellular region that sticks out from the surface of the cell, a transmembrane region that anchors it to the cell membrane, and an intracellular region that transmits signals to the interior of the cell. The extracellular region binds to the growth hormone (GH), which triggers signaling via the intracellular region of the receptor. This signaling also leads to the production, primarily by liver cells, of another important growth-promoting hormone called insulin-like growth factor I (IGF-I) [\[R\]](#).

GH signaling is important for a number of functions, including:

- Normal growth and development during childhood and adolescence
- Metabolism of fats, carbohydrates, and proteins
- Maintaining skin elasticity

Both GH deficiency and overproduction can result in health issues for children and adults. **GH deficiency** comes in three types [\[R\]](#):

- Congenital (born with the genetic mutations)
- Acquired (generally through damage to the pituitary gland)
- Idiopathic (unknown cause)

It can **decrease muscle mass, increase body fat, reduce bone density**, and more. If present since childhood, it can cause **short stature or dwarfism** [\[R\]](#), [\[R\]](#).

Mutations in the *GHR* gene have been associated with [\[R\]](#):

- **Laron syndrome:** a rare form of short stature that is also characterized by obesity, a distinctive facial appearance, and other signs and symptoms affecting multiple body systems.
- **Acromegaly:** a disorder characterized by increased levels of growth hormone.

GHR Genetics

By far, the most widely-researched *GHR* polymorphism consists of the presence or absence of a region called the ‘exon 3’, which is located in the extracellular region of the receptor. The isoform lacking this region (deficient or d3-GHR) shows enhanced growth hormone signaling compared to the isoform including it (full-length or fl-GHR). The [rs6873545](#) SNP serves as a marker for this polymorphism, with the minor ‘C’ allele corresponding to d3-GHR and the major ‘T’ allele corresponding to fl-GHR [\[R\]](#).

The minor ‘C’ allele has been associated with:

- Decreased risk of GH deficiency [\[R\]](#)
- Increased baseline height in people with GH deficiency [\[R\]](#)
- Enhanced response to recombinant GH therapy [\[R\]](#), [\[R\]](#)
- Higher bone mineral density and decreased risk of osteoporosis [\[R\]](#)
- Longer lifespan in men [\[R\]](#)
- Decreased risk of type 2 diabetes [\[R\]](#)
- Slightly enhanced male fertility [\[R\]](#)

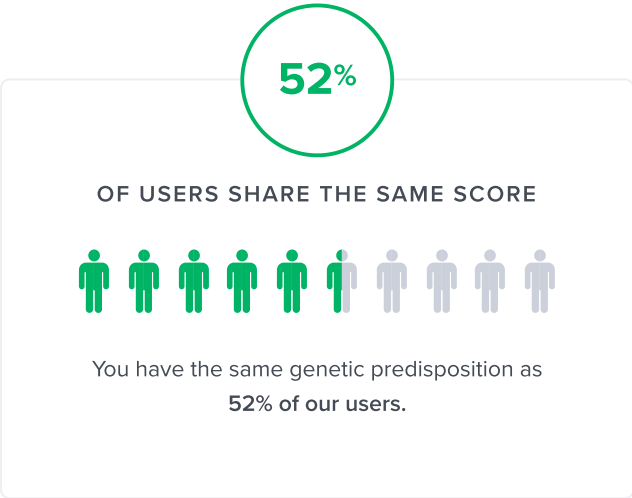
However, this variant has also been associated with:

- Increased risk of non-small cell lung cancer in ever smokers [\[R\]](#)
- Higher central adiposity [\[R\]](#)
- Symptomatic hip osteoarthritis in women [\[R\]](#)
- Increased risk of PCOS and worse metabolic profile [\[R\]](#)



HIGHER ACTIVITY

Likely higher GHR activity based on the genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GHR	rs6873545	CT

The number of "risk" variants in this table doesn't necessarily reflect your overall result.