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# Epigenetic Results Report

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# Understanding of epigenetics

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Thankfully now the world of genomics has delved further still with the emergence of a new and exciting area of science called epigenetics.

The Greek prefix “epi” in epigenetics meaning “on top of” or “in addition to” controls how your genes behave and function, and is the intersection’ between genetics, nutrition, environment and how diet, micronutrients, exercise, stress and sleep can all change the methylation and expression of our genes.

DNA methylation (DNAm) is a process where tiny chemical markers called methyl groups will attach to your DNA and largely control the way that they function. As we naturally age these methyl groups will either hypo (low) or hyper (high) methylate regions across your genome, which will then affect how specific genes and biological processes function, such as your eye sight, hearing, memory and inflammation.

While external characteristics can sometimes give us an insight into our internal health, in many instances we can simply misinterpret external factors such as bigger muscles, faster running times or eating a certain type of diet as they do not actually actuate to being healthier.

Simply having “Good genes” will offer no guarantees to our health and wellbeing, nor does it on living to 100. Epigenetic methylation and modifications after birth now do not change what a gene originally codes for, but how they express themselves or if they are expressed at all.

How you live your day to day life both in terms of your lifestyle and environment will then go on to affect those modification markers sitting above your genes, which will then cause a multitude of outcomes with regards to your health and wellbeing.

## Epigenetic inheritance

The latest research has also shown that your lifestyle and environment will not only affect your health but may then go on to affect your children and grandchildren in a process called “Transgenerational epigenetic inheritance”.

This is where your lifestyle experiences such as your diet, exercise, sleep, stress and the pollution you have been exposed to and subsequent epigenetic information that it creates can then be passed on down to future generations, which will then either have a positive or negative effect on your child’s genetic traits.

TBG is pioneering the science of genetics and epigenetics. Allowing each of their users the ability to understand their genetic blueprint, but to then be able to see how their day to day lives such as their diet, exercise, sleep and environment are affecting them at an epigenetic and cellular level.

The \$64,000 question and the key to epigenetics is that if we only look at one of these areas, we miss the influence and power of the other.

# Summary of your results

## AGE AT SAMPLE

50

Sample 1  
14-08-2020

Biological Age

60.7



STATUS:UNHEALTHY

Eye Age

51.9



STATUS:HEALTHY

Hearing Age

57.9



STATUS:UNHEALTHY

Memory Age

55.3



STATUS:UNHEALTHY

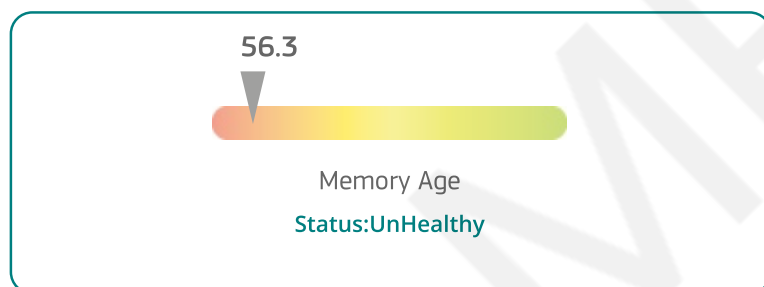
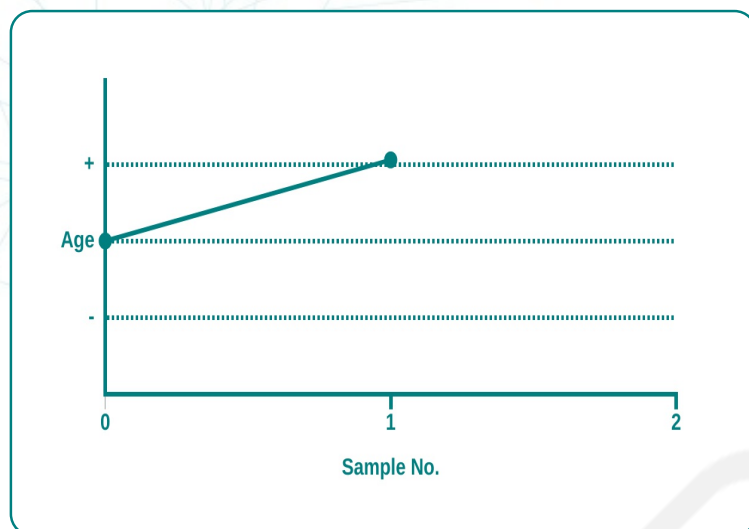
Inflammation Score

247



STATUS:HEALTHY

# Memory Age



## Outcomes

There are a variety of lifestyle changes that you can make to both your diet and exercise, which can improve cognitive health and working memory.

## Recommendations

Outlined below are a few of the main areas, which, if incorporated into your day to day life, could help improve the genetic markers that we have identified to calculate your memory score.

- Exercise
- L-Glutamine
- Omega 3 fatty acids

## Exercise

Exercise increases the expression of BDNF (Brain derived neurotrophic factor), which will improve your cognitive performance, memory and help alleviate anxiety and the physical symptoms of stress.

Aerobic exercise such as cycling, running and swimming being amongst the best types, but more specifically HIIT (High intensity interval training) which has shown to induce the greatest amounts of BDNF.

BDNF is fundamentally important for your brain cells to remain healthy, with low levels linked to poor memory, depression and possibly Alzheimer's and Dementia.

## Memory Age

Memory is how we encode information that has been stored in the brain. It's a processing system that is imperative to everyday life and is often split into working (short-term) memory and long-term memory.

There are ever increasing links between ageing and memory loss or more serious brain diseases such as alzheimer's and dementia. Taking steps to improve your memory (or slow down the memory loss and your ability to learn) will play an important part of our lives as we grow older.

The difference between your memory age and chronological age is calculated by taking the average methylation status of the genes associated with your memory for people within your age range.

Methylation is a chemical process that sits above your genes and regulates their function and how they express themselves.



### **L-Glutamine**

L-Glutamine is a nutrient that you may not have heard of before, but it has a strong association with memory and concentration levels. L-glutamine is also an important amino acid, which is located throughout the body with heavy concentrations found within the muscles tissue, intestinal walls and central nervous system.

You can find glutamine in a variety of foods such as meat, dairy, and vegetables, but unfortunately it is an extremely heat-sensitive nutrient with much of it being lost in the cooking process. Therefore, it would be more beneficial to have your vegetables uncooked and to also take a separate glutamine supplement.

### **Omega 3 fatty acids**

There are various health benefits that are associated with both types of omega-3 fatty acids, that is EPA, DHA, which are found in fish, and ALA, which is located in flaxseeds, walnuts and Brussels Sprouts.

From building the nerve endings within your brain to reducing chronic fatigue and inflammation (which has been shown to help reduce cognitive decline and ageing), the effects of Omega 3 fatty acids have many positive memory-boosting properties.

Avocados, while not having high levels of ALA Omega 3, are packed full of other beneficial nutrients such as potassium, folate, magnesium, and vitamin k.

They also offer a carotenoid called lutein, which has been shown to boost your working memory and cognitive health.