

THE
DNA
COMPANY

CASE STUDY

Genomic insights for brain health & longevity



William Cooper

Disclaimer: names have been changed for privacy reasons.

Any resemblance to actual persons is purely coincidental.

Case history

Subject: William Cooper (61 years old)

Background information

William is a founding partner of an investment holding company with global reach. Alongside his business background, he also has a pharmacology degree. William's primary goal in receiving genetic testing is enhancing his brain health and longevity.

As a man in his early 60s, William still has plenty of time to make changes based on his genetic profile that will improve his overall health and enjoyment of life. He has a rare version of the FOXO3 gene that is associated with longevity. The enzyme produced by this gene maintains healthy stem cell populations, which is key to repairing and replacing damaged cells in the body.

One medical problem that William has encountered is mild hypertension. He is currently taking an angiotensin-converting enzyme (ACE) inhibitor as prescribed by his doctor, but he hopes to try some alternate approaches based on his genetic profile and eventually reduce or eliminate the need for blood pressure medication.

Potential genetic problems

While William has a remarkably healthy genetic profile, no one is completely devoid of sub-optimality. He should take note of the following potential issues seen in his genetic results.

1. Poor glutathionization pathway

There are several elements to the body's process of clearing toxins from the body. One key part of this process is known as glutathionization, which involves using an antioxidant called glutathione to clear heavy metals from the body. Unfortunately, William has a suboptimal glutathionization pathway as determined by his genes.

This genetic result is at odds with William's extremely resilient [endothelial lining](#). In fact, only about 5% of the population have such a strong 9P21 gene. It seems that William's hypertension troubles come as a result of his poor glutathionization pathway rather than from suboptimal blood vessels. While William's endothelial lining is able to withstand high amounts of inflammation due to his 9P21 gene, his body is quite slow at removing heavy metals because he lacks sufficient glutathione. An increased load of heavy metals could be straining his reduced glutathione levels even more.

2. Slow vitamin D3 activation

In order for the body to maintain sufficient vitamin D levels, it needs to take the inactive vitamin D2 it absorbs from the sun and plant-based foods and turn it into vitamin D3, which is used for a variety of functions in the body. William's CYP2R1 gene is suboptimal, meaning his body is slow to convert vitamin D2 into vitamin D3.

Thankfully, the rest of William's [vitamin D profile](#) is ideal, so he has no problem binding vitamin D to the vitamin D receptor and using it throughout his body. Because he is slow to convert vitamin D into its activated form, he may suffer from low vitamin D levels that can be managed with proper diet and supplementation.

3. Suboptimal clearance of dopamine and noradrenaline

The enzymes responsible for clearing dopamine and noradrenaline from William's body are slow due to having a suboptimal catechol-O-methyltransferase (COMT) gene. This gene variant makes these neurochemicals last longer in the brain, making William feel these emotions for a longer amount of time than normal.

Holding onto dopamine for a long period of time could make William more prone to [binge-watching](#) and other bingeing tendencies. This is because it's difficult to let go of the pleasurable feeling that comes from long-lasting dopamine. When it comes to noradrenaline, William may experience higher levels of anxiety because it takes longer for the noradrenaline to clear from his brain. As a result, he might spend lots of time dwelling on stressful situations.

4. Fast serotonin clearance

Serotonin is a key hormone that helps you tune out background noises and maintain emotional stability. William has a suboptimal serotonin profile, which means his body clears serotonin quickly and doesn't respond to serotonin as efficiently.

William may find it difficult to concentrate in a disorganized and noisy environment. He might also struggle with mood swings and irritability. If William experiences depressive tendencies, selective serotonin reuptake inhibitors (SSRIs) might not be as effective for him as for others.

Treatment plan

Goals of treatment

This treatment plan is designed to help William meet his goals of improving his brain health and longevity. It is also meant to decrease William's hypertension and reduce or eliminate his need for blood pressure medication.

In addition, this plan focuses on mitigating the possible effects of other genetic issues. While William's genetic profile does not automatically mean he will suffer from the problems listed above, it's best to be proactive so he can stay as healthy as possible throughout his life.

Recommended treatment

1. Poor glutathionization pathway

The cardiovascular system is closely linked to brain health and longevity. While William has an extraordinarily resilient endothelial lining, he has a suboptimal glutathionization pathway. Because it is difficult for his body to clear heavy metals, it is important for him to reconsider his pescatarian diet.

If William decreases the amount of fish he consumes, he won't be adding as many heavy metals to the load his body is struggling to clear. With oral NAC and glutathione supplements, he can improve his ability to detox these metals. Because William has an optimal methylation pathway, his system can handle methyl B12 and methylfolate supplementation as well. These treatment ideas should relieve his hypertension and result in other health benefits too.

2. Slow vitamin D3 activation

Due to his slow activation of vitamin D3, William needs to pay attention to what kind of vitamin D he consumes. There are some foods that contain vitamin D3 in the activated form that does not need to be converted by the body, including egg yolks, red meat, liver, and oily fish. These foods are ideal for someone who is slow to convert vitamin D2 into vitamin D3.

Of course, William needs to be careful that he does not eat too much fish because of the heavy metal detox issue. He may need to add red meat and eggs to his diet instead of increasing his fish consumption. If he is unwilling or unable to consume these animal products, he can look into adding special types of algae to his diet instead.

3. Suboptimal clearance of dopamine and noradrenaline

Since William's COMT gene results in slower neurochemical-clearing enzymes than normal, it takes a while for him to get rid of dopamine and noradrenaline. In order to bring his neurochemical state into balance, he would be wise to develop a meditation practice and find a sustainable hobby or two.

William can also try adding adaptogens to his treatment plan such as rhodiola, ashwagandha, and L-theanine. With these dietary and lifestyle changes, William can maintain a healthy, balanced relationship with his anxiety and dopamine levels.

4. Fast serotonin clearance

As someone with low serotonin levels, William needs to be mindful of his work and emotional environment. He should find a quiet space to work and keep his workspace free of clutter. To aid his mental and emotional focus, he might want to find a few supportive people who can be a trustworthy outlet for sharing his feelings.

In addition, William can increase his serotonin levels by adding plenty of avocados, bananas, cherries, pumpkin seeds, cocoa, and oats to his diet. He should also consider drinking a calming tea as part of his evening routine. This will help him relax and let go of the stress from a long day rather than carrying it with him to the next day and beyond.

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