

1 Methylation

Methylation is a vital biochemical process in which a methyl group—comprising one carbon atom and three hydrogen atoms—is transferred from one molecule to another. This process occurs in every cell of the body and plays a crucial role in various biological functions, including DNA synthesis, DNA repair, gene expression, detoxification, and neurotransmitter production.



1 Report Panels

10 Gene Variants

The methyl group is typically donated by nutrients such as folate (a natural form of vitamin B9), vitamin B6, and vitamin B12. This section explores the genetics related to methylation, providing insights into methylation capacity and potential risks.

Genetic Influences on Methylation

Genetic variations in key genes involved in the methylation pathway—such as MTHFR, COMT, and others—can influence your body's methylation efficiency. These variations may affect detoxification, DNA repair, gene expression, and neurotransmitter levels, potentially leading to imbalances in these processes. Understanding your genetic predispositions can show how your body processes and uses essential nutrients like folate, vitamin B12, and other cofactors involved in methylation.

Overmethylators versus Undermethylators

Overmethylators have an excess of methyl groups in their body, while undermethylators have insufficient methyl groups. This core difference results in opposing effects on neurotransmitter levels, leading to distinct symptoms and requiring different approaches to treatment. Genetic mutations, particularly the MTHFR gene, can predispose a person to methylation issues, but genetic testing alone cannot determine if a person is an over- or under-methylator. Because symptoms can overlap, a proper diagnosis requires blood tests to measure whole blood histamine and homocysteine levels.

Supporting Optimal Methylation

Maintaining proper methylation is important for overall health and well-being. Lifestyle choices, diet, and targeted supplementation can support methylation capacity. This includes ensuring adequate intake of methyl-donating nutrients, adopting a diet rich in whole foods, managing stress, and making lifestyle choices that promote methylation balance.

METHYLATION PROPENSITY



UNDERMETHYLATION RISK

UNDERSTANDING WHAT THIS MAY MEAN

Genetic variations associated with this result suggest that their bodies may have reduced capacity or efficiency in methylation, leading to potential imbalances in various biochemical pathways. Undermethylation can impact overall health and may be linked to conditions such as mood disorders, allergies, and cardiovascular issues. It is important for individuals with this result to work with healthcare professionals to support optimal methylation through appropriate supplementation, diet, and lifestyle modifications. Supporting micronutrient levels such as B vitamins, zinc, choline, and magnesium can be beneficial to support this system.

