# Could a BHMT Gene Variant Be Slowing Your Methylation and Detox?

**This gene helps recycle homocysteine—supporting liver function, mood, and energy.**

## What Is the BHMT Gene?

**BHMT** stands for **Betaine-Homocysteine Methyltransferase**. It plays a key role in the **shortcut pathway** of methylation, converting **homocysteine** back into **methionine** using **betaine (trimethylglycine)**—bypassing the slower folate and B12 route.

This shortcut is especially important in the **liver and kidneys**, where detox, hormone metabolism, and nutrient recycling happen 24/7.

## What Happens When the BHMT Gene Is Compromised?

BHMT gene variants may reduce the enzyme's efficiency, leading to:

- **Elevated homocysteine**
- **Sluggish methylation**
- **Poor detoxification**
- **Mood imbalance** (due to low SAMe production)
- **Hormonal symptoms** (due to estrogen detox issues)

**Symptoms that may be linked to a BHMT variant:**

- Low energy or burnout
- Poor stress resilience
- Brain fog or irritability
- Digestive sluggishness or liver congestion
- Histamine intolerance or skin issues
- Hormone imbalance or PMS
- Chemical or alcohol sensitivity

## How to Support a BHMT Gene Variant

The key is to **support the BHMT shortcut pathway** and relieve pressure on the methylation system overall.

**1. Nutrients That Support BHMT Function:**

- **Betaine (TMG)** – Primary fuel for this pathway
- **Zinc** – A key cofactor
- **Choline** – Especially helpful for liver and brain support
- **B2 (riboflavin)** – Needed for related enzyme activity

**2. Lower Homocysteine Gently**

- Use betaine, B6, B12, and folate (especially methylated forms)
- Avoid excess protein if homocysteine is elevated

**3. Support the Liver and Gallbladder**

- Bitter herbs like dandelion or artichoke
- Phosphatidylcholine for bile flow
- Regular movement and hydration

**4. Consider Genetic Balance**

- If you also have MTHFR or CBS variants, you may need a more personalized protocol

## Key Takeaway

A **BHMT gene variant** can affect your ability to recycle homocysteine and produce key methyl donors like **SAMe**—which impacts your **energy, detox, hormones, and mental health**.

Supporting this gene with the right nutrients can restore balance and resilience.