Lifecode
FROM INSIGHT TO FORESIGHT

WOMEN'S HEALTH SERIES

5 Hormone Genes Every Woman Should Understand

Your genes shape how your body handles hormones, metabolism, energy, and mood. This guide explains the 5 most important ones — in plain language.

International Women's Day 2026

Free educational guide | 8-minute read

www.lifecode.life

This guide is for educational purposes and does not replace medical advice.

Before You Begin

A letter from our team and our promise to you

Dear Reader,

If you've ever been told "it's just hormones" — this guide is for you.

If you've tried multiple diets and none of them worked. If you sleep 8 hours and still wake up tired. If your mood swings seem to come from nowhere. If your blood tests say "normal" but you don't feel normal.

You're not imagining it. And you're not alone.

Your genes play a significant role in how your body produces, processes, and responds to hormones. Two women can eat the same food, follow the same routine, and experience completely different outcomes — because their genetic blueprints are different.

This guide introduces you to 5 genes that influence some of the most common health concerns women face: weight, energy, mood, hormonal balance, and nutrient absorption. For each gene, we explain:

- What it does in your body
- What happens when it carries certain variants
- What symptoms you might recognise
- What to discuss with your doctor or nutritionist

This is not a diagnostic tool. It's a starting point — a way to understand your body through a lens that standard blood tests don't offer.

Because understanding your body is not a luxury. It's a right.

Warm regards,
Team Lifecode
From Insight to Foresight

IMPORTANT NOTE

This guide is educational. Genetic predispositions indicate tendencies, not certainties.

Always consult a qualified healthcare professional for personalised medical decisions.

1

ESR1

Estrogen Receptor Alpha | Chromosome 6

"The gene that shapes how your body listens to estrogen."

What This Gene Does

ESR1 produces the estrogen receptor alpha protein — a molecular "antenna" that detects estrogen signals throughout your body. It's present in your uterus, breasts, bones, brain, skin, and cardiovascular system.

Think of estrogen as a message. ESR1 determines how clearly your body receives that message. Different variants can make the receptor more or less sensitive — meaning two women with identical estrogen levels can experience very different symptoms.

Why It Matters for Women

ESR1 variants have been associated with differences in menstrual cycle regularity, bone mineral density, mood fluctuations, fat distribution patterns, and how women experience perimenopause. Research also suggests ESR1 plays a role in uterine receptivity, which may be relevant for fertility planning.

Women with certain ESR1 variants may be more sensitive to estrogen fluctuations, experiencing stronger PMS, more intense perimenopausal symptoms, or greater mood variability during hormonal transitions.

Symptoms You Might Recognise

- → Intense PMS or PMDD that disrupts daily life
- → Mood changes that feel "out of proportion" to the situation
- → Bone density concerns, especially post-35
- → Heavier or irregular periods without a clear cause
- → Difficulty with fertility despite "normal" hormone levels

What to Discuss With Your Doctor

"Could my estrogen receptor sensitivity be contributing to my symptoms?"
"Should I monitor bone density earlier than the standard recommendation?"
"Are there nutrition or lifestyle strategies that support estrogen balance?"

Did You Know?

ESR1 is one of the genes Lifecode analyses in both the hormones AND fertility sections of the Women's Health Blueprint — because its influence spans multiple systems. While ESR1 genotyping is not yet part of routine clinical practice, emerging research suggests it may help personalise wellness and lifestyle strategies.

2

MTHFR

Methylenetetrahydrofolate Reductase | Chromosome 1

"The gene behind your body's ability to use folate — and so much more."

What This Gene Does

MTHFR produces an enzyme that converts folate (vitamin B9) into its active form, methylfolate. This active form is essential for methylation — a biochemical reaction that happens billions of times per second in your body.

Methylation affects energy production, DNA repair, neurotransmitter synthesis (serotonin, dopamine), detoxification, and homocysteine regulation. When MTHFR carries certain variants (C677T or A1298C), folate conversion can slow by 30–70%.

Why It Matters for Women

An estimated 30–40% of the Indian population carries at least one MTHFR variant. For women, these variants can be associated with elevated homocysteine levels, changes in neurotransmitter production, and potential pregnancy considerations.

According to the CDC, people with MTHFR variants can still process all types of folate, including synthetic folic acid. When adequate folic acid is consumed, blood folate levels increase regardless of genotype. However, monitoring homocysteine levels may be valuable for women with a family history of related conditions.

Symptoms You Might Recognise

- → Persistent fatigue that doesn't respond to rest or iron supplements
- → Brain fog, difficulty concentrating, memory lapses
- → Mood changes — anxiety, irritability, low mood
- → Elevated homocysteine on blood work
- → Recurrent pregnancy loss or difficulty conceiving

What to Discuss With Your Doctor

"Can you test my homocysteine levels and check my folate status?"
"Is my current folic acid intake adequate for my health needs?"
"Could methylation-related pathways be contributing to my fatigue or mood?"

Did You Know?

The CDC confirms that standard folic acid supplementation raises blood folate levels effectively even in MTHFR variant carriers. What matters most is ensuring adequate intake. The Lifecode Blueprint flags both MTHFR 677 and 1298 variants plus homocysteine accumulation tendency — helping you and your doctor monitor the pathways that matter for energy, mood, and pregnancy planning.

3 FTO

Fat Mass and Obesity-Associated Gene | Chromosome 16

"Not a 'fat gene.' A hunger signalling gene. That distinction changes everything."

What This Gene Does

FTO has been misleadingly called the "fat gene." In reality, it influences appetite regulation, satiety signalling, and food reward pathways in the brain.

When you eat, your brain should receive a "you're full" signal. FTO variants can delay or weaken that signal — meaning you may genuinely feel hungry after an adequate meal. This isn't about willpower. It's about how your brain processes hunger cues.

Why It Matters for Women

For women, FTO is particularly relevant because hormonal fluctuations (menstrual cycle, pregnancy, perimenopause) can amplify its effects. Many women notice increased cravings during the luteal phase (days 15–28) — and FTO variants can make those cravings feel overwhelming rather than manageable.

Understanding your FTO status transforms how you approach nutrition. Instead of generic calorie restriction (which often backfires for FTO carriers), strategies like protein-forward meals and satiety-focused eating may be far more effective.

Symptoms You Might Recognise

- → Feeling hungry soon after eating a full meal
- → Difficulty feeling "satisfied" even with adequate portions
- → Weight gain that doesn't respond to standard diets
- → Stronger food cravings, especially for high-calorie foods
- → Weight loss significantly harder than peers on same diet

What to Discuss With Your Doctor

"Could my hunger patterns have a genetic component?"
"Should my nutrition plan focus on satiety rather than calorie restriction?"
"What protein and fibre strategies work best for appetite regulation?"

Did You Know?

Research shows FTO carriers who exercise regularly can reduce the gene's effect on BMI by up to 27%. Physical activity appears to partially "override" FTO's hunger signalling. Lifecode maps FTO alongside MC4R, ADRB2, and PPARG — giving a complete metabolic genetic profile, not just a single gene in isolation.

4 COMT

Catechol-O-Methyltransferase | Chromosome 22

"The gene that decides how fast your body clears stress — and why it matters for mood."

What This Gene Does

COMT produces an enzyme that breaks down catecholamines — dopamine, adrenaline, and noradrenaline. It also plays a role in estrogen metabolism.

The key variant (Val158Met) creates two "speeds": fast COMT (Val/Val) clears stress hormones quickly, while slow COMT (Met/Met) clears them more gradually. Neither is "better" — each comes with trade-offs for focus, anxiety, and stress resilience.

Why It Matters for Women

For women, COMT is doubly important: it metabolises both stress hormones AND estrogen. During high-estrogen cycle phases, slow COMT carriers can experience a "traffic jam" — estrogen and dopamine competing for the same enzyme, leading to amplified PMS, anxiety, and emotional sensitivity.

This explains why some women experience premenstrual anxiety that feels disproportionate — it's not "just PMS." It's a measurable interaction between estrogen levels and COMT enzyme speed that affects neurotransmitter balance.

Symptoms You Might Recognise

- → Anxiety that intensifies before your period
- → "Wired but tired" — can't relax but feel exhausted
- → Rumination, overthinking, difficulty switching off at night
- → Caffeine sensitivity (jittery after small amounts)
- → Emotional sensitivity during hormonal transitions

What to Discuss With Your Doctor

"Could my premenstrual anxiety have a genetic component?"
"Should I adjust caffeine intake based on my COMT status?"
"Are there stress management techniques suited to my neurotransmitter profile?"

Did You Know?

Slow COMT carriers often respond better to magnesium glycinate and L-theanine than to high-dose caffeine. Lifecode analyses COMT alongside serotonin synthesis, serotonin degradation, and dopamine degradation pathways — giving a complete picture of your neurochemical tendencies, not just one enzyme.

5 CYP19A1

Aromatase | Chromosome 15

"The gene that controls how much estrogen your body actually produces."

What This Gene Does

CYP19A1 produces aromatase — the enzyme that converts androgens (like testosterone) into estrogens. It's the body's primary estrogen "factory."

Aromatase is active in the ovaries, fat tissue, brain, bone, and skin. Genetic variants can make it more or less active, directly affecting estrogen levels. This differs from ESR1 (response to estrogen) — CYP19A1 affects how much estrogen you make.

Why It Matters for Women

CYP19A1 is relevant to three conditions affecting millions of Indian women:

PCOS: PCOS is multifactorial and not caused by aromatase variation alone. However, altered aromatase activity may contribute to androgen–estrogen imbalance and related symptoms (acne, facial hair, scalp hair thinning) as one factor among many.

Endometriosis: Higher aromatase activity in endometrial tissue may fuel tissue growth.

Weight: Aromatase in fat tissue means more body fat can produce more estrogen, creating a cycle that's hard to break without understanding the genetic tendency.

Symptoms You Might Recognise

- → PCOS symptoms (irregular cycles, acne, excess facial/body hair)
- → Endometriosis indicators (severe period pain, pain during intercourse)
- → Estrogen-dominant symptoms (heavy periods, breast tenderness, bloating)
- → Weight concentrated around hips and thighs
- → Mood and energy fluctuations tied to estrogen peaks

What to Discuss With Your Doctor

"Could my androgen/estrogen balance be influenced by aromatase activity?"
"Should my PCOS treatment consider aromatase activity patterns?"
"Are there dietary strategies that support healthy estrogen metabolism?"

Did You Know?

Cruciferous vegetables (broccoli, cauliflower, cabbage) contain DIM and I3C that may support healthy estrogen metabolism. Lifecode maps CYP19A1 alongside SHBG, CYP17A1, ESR1, and FSHR — giving your doctor a complete hormonal gene map, not just individual data points.

What Comes Next?

These 5 genes are just the beginning. Here's how to go deeper.

What You've Learned

- **ESR1** shapes how your body responds to estrogen – cycle, mood, bone health
- **MTHFR** controls folate metabolism – impacting energy, mood, and fertility
- **FTO** influences hunger signals – explaining why diets fail against biology
- **COMT** determines stress hormone clearance – affecting anxiety, sleep, PMS
- **CYP19A1** regulates estrogen production – connecting to PCOS, endo, weight

The Full Picture: Lifecode Women's Health Blueprint

This guide covered 5 genes. The Women's Health Blueprint analyses 200+ markers across:

Hormones • Metabolism • Fertility • Immunity • Skin & Beauty • Longevity
Heart Health • Bone Density • Mental Wellness • Nutrition Response

Every report includes a one-on-one consultation with our genetic expert — so you're never left alone with data. You leave with a preventive roadmap designed for YOUR biology.

It uses a simple buccal swab (a gentle swab of your inner cheek). No blood. No hospital. Your DNA doesn't change. This test is relevant for the rest of your life.

Ready to understand your body?

Book a free 15-minute genetic consultation – no pressure, just clarity.

www.lifecode.life | +91 98844 55488 | care@lifecode.life

"Your doctor tells you WHAT. Your genes tell you WHY. Together, they plan your future."

— Lifecode

Lifecode Genorex Pvt Ltd | No.18, 2nd Floor, Gopalapuram 1st St, Chennai 600086