



How Birth Control Pills Affect Nutrient Levels, Gut & Liver Health

Explore how oral contraceptives may deplete nutrients, impact gut and liver health—and learn functional medicine strategies to safely support detox and hormonal balance, with recent scientific studies as references.

The Science Behind Nutrient Depletion

Multiple recent sources report evidence that oral contraceptives can lower levels of essential nutrients. The research spans from 2024 to 2025, providing current insights into how birth control pills affect our nutritional status.

A July 2025 article from *Verywell Health* notes that birth control pills may decrease levels of vitamins B6, B12, folate, and magnesium, though the evidence varies, and recommends monitoring and supplementation when needed.

A 2025 *Health.com* article also highlights potential depletion of vitamins B6 and B12, folate, zinc, selenium, and magnesium—advising long-term users may benefit from supplementation.



- ⓘ Older—but still frequently cited—research supports depletions in B vitamins, vitamin C, zinc, magnesium, and selenium, alongside elevations in copper and iron.

Key Nutrients Commonly Affected

B Vitamins

- Vitamin B6 (pyridoxine)
- Vitamin B12 (cobalamin)
- Folate (B9)

Essential for energy production, mood regulation, and DNA synthesis

Essential Minerals

- Magnesium
- Zinc
- Selenium

Critical for immune function, hormone production, and cellular repair

Antioxidant Vitamins

- Vitamin C
- Vitamin E

Protect against oxidative stress and support immune system function

A 2025 study from *The Times of India* lists oral contraceptives as one contributing factor to magnesium deficiency in women, while a 2024 review referenced by Nutri Advanced cautions women of childbearing age to maintain folate supplementation.

Impact on Gut Microbiome Health

Newer human microbiome studies provide a nuanced picture of how birth control pills affect our gut health. The research reveals both compositional and functional changes in the gut microbiota.

2021 Environmental Microbiology Study

Found that combined hormonal contraceptives were associated with a modest decrease in gut microbiota diversity and shifts in specific bacterial taxa among healthy pre-menopausal women.

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2025 Journal of Applied Physiology

Reported altered gut microbiota β -diversity in physically active women on hormonal birth control, with reduced abundance of taxa involved in producing short-chain fatty acids.

2025 J Med Microbial Study

Found no overall change in microbial diversity after starting oral contraceptives—but observed increases in metabolic pathways related to amino acid biosynthesis and NAD metabolism.

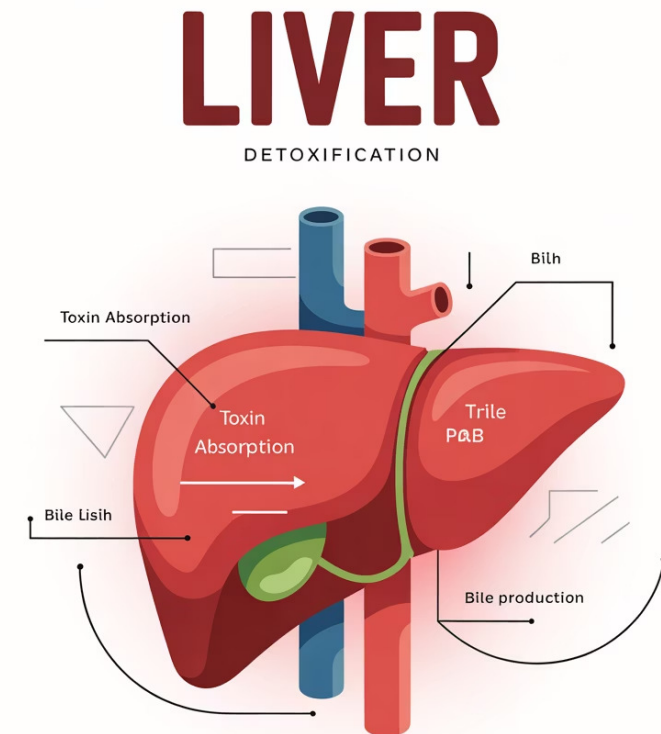
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Liver Function & Hormonal Detoxification

Emerging Research Findings

Emerging animal research and clinical observations shed light on how the liver handles synthetic hormones. A 2022 study in mice found that combined oral contraceptives induced elevated mitochondrial reactive oxygen species (ROS) in the liver and systemic metabolic adaptations.

This suggests oxidative stress that could impact detox pathways—though human implications require further research. High-dose estrogen forms like ethinylestradiol have been associated with elevated liver enzymes and rare benign liver tumors.



While modern low-dose pills reduce these risks, some liver function changes may still occur, making liver support an important consideration.

Detoxing from the Pill: A Functional Medicine Approach

If you're transitioning off the pill or seeking to support your body's natural balance, here are functional medicine-inspired strategies to help restore optimal health.

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Replenish Key Nutrients

Based on recent evidence, consider methylated B-complex (B6, B12, folate), magnesium glycinate, zinc, selenium, and vitamins C & E. These address commonly reported depletions and support energy, mood, immune, and hormonal processes.

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Support Liver Detox Pathways

Incorporate cruciferous vegetables for estrogen metabolism support. Use gentle liver-support supplements like milk thistle and N-acetyl cysteine (NAC). Stay well-hydrated and prioritize elimination.

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Support Gut Health

Add probiotics and prebiotic fiber to support short-chain fatty acid-producing bacteria. Consume fermented foods and fiber-rich produce to nurture beneficial microbes while limiting sugar and ultra-processed foods.

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Balance Hormones Naturally

Use adaptogens like ashwagandha and maca for stress resilience. Include omega-3s for inflammation control and hormone production. Consider vitex (chasteberry) where appropriate to support progesterone and ovulation.

Natural Hormone Support Strategies



Prioritize Quality Sleep

Aim for 7-9 hours of consistent, restorative sleep to support natural hormone production and regulation. Create a calming bedtime routine and maintain consistent sleep-wake cycles.



Manage Stress Effectively

Chronic stress disrupts hormone balance. Practice stress-reduction techniques like meditation, yoga, deep breathing, or regular nature walks to support your endocrine system.



Balanced Exercise Routine

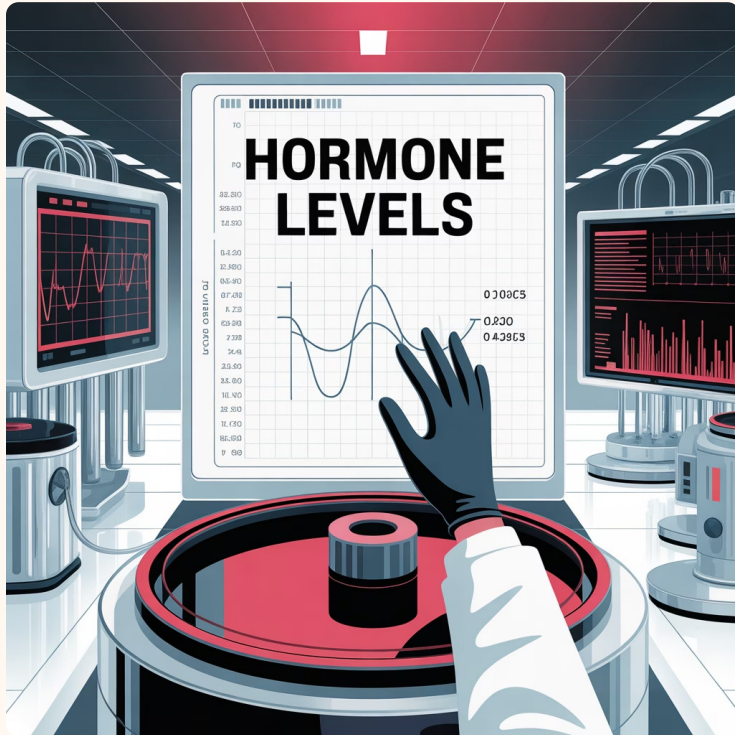
Engage in moderate, consistent exercise that includes both strength training and cardiovascular activities. Avoid excessive high-intensity training that can stress the adrenal glands.



Whole Foods Diet

Emphasize nutrient-dense whole foods, healthy fats, quality proteins, and plenty of vegetables. Minimize processed foods, excess sugar, and inflammatory ingredients.

Understanding DUTCH Testing for Hormone Transition



When you stop taking birth control pills, your body's natural hormones—like estrogen, progesterone, and testosterone—need to rebalance. For some women, this transition can cause irregular periods, mood swings, fatigue, acne, hair loss and PMS symptoms.

What DUTCH Testing Reveals

The DUTCH test (Dried Urine Test for Comprehensive Hormones) is a functional medicine lab that gives a detailed look at how your hormones are functioning.

- **Hormone Levels** – Shows the amount of key hormones like estrogen, progesterone, and testosterone
- **Hormone Metabolism** – Reveals how your liver breaks down and clears hormones
- **Cortisol & Stress Hormones** – Checks your daily cortisol rhythm
- **Organic Acids Markers** – Provides insight into B-vitamin status, energy production, and detoxification

The Power of Organic Acids Testing

Organic acids markers (OATs) are small molecules your body produces during everyday metabolism. Measuring them provides crucial insights into key areas of health, especially after coming off birth control.

B-Vitamin Status Assessment

Certain organic acids rise when vitamins like B12, B6, or folate are low. This is especially helpful since birth control pills can deplete these crucial nutrients.

Energy Production Analysis

OATs show how well your mitochondria (the cell's "powerhouses") are making energy, revealing if you need additional metabolic support.

Neurotransmitter Balance

Some markers reflect serotonin and dopamine pathways, influencing mood and focus—critical during hormone transitions.

Detoxification Support

Elevated markers may indicate your body needs more detox or antioxidant support, helping pinpoint where extra support is needed.

Think of DUTCH testing like getting a map of your hormone system. Instead of guessing why your period is irregular or why you feel off, testing gives actionable insights so you can support your body intelligently.

Your Path Forward: Functional Medicine Support

Final Thoughts

The latest research indicates that oral contraceptives contribute to nutrient insufficiencies and impacts gut and liver function. While more human studies are needed, a functional medicine approach offers a thoughtful and preventative strategy.

Restore nutrients, nurture your gut, support liver detox, and empower your natural hormonal balance with informed, science-aligned steps.

Professional Support Available

If you need a functional medicine provider who will spend time with you and help you through the birth control detox phase, check out my website and remote practice at madefunctionalhealth.com or on Facebook at Made Functional Health. I would be honored to help you heal!

Lauren Lilly MSN, RN, BC-FMP

References

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✔ Ready to take control of your hormonal health? Professional functional medicine support is just a click away.