

The Truth About Detoxification — Supporting Your Body’s Natural Processes

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Detoxification is an ongoing process performed by multiple organs, including your liver, kidneys, skin, lungs, and digestive tract, rather than a sporadic event triggered by special diets or cleanses

Extreme detox plans can be counterproductive, potentially harming liver health and slowing metabolism. Your body doesn’t need restrictive diets to detoxify; it requires sufficient energy and nutrients

Your liver, as the primary detoxification organ, requires adequate protein, energy, and nutrients to function optimally. Chronic under-eating can impair liver function and overall detoxification processes

Supporting detoxification involves holistic approaches: eating enough, regular movement, quality sleep, ensuring daily bowel movements, and managing stress, rather than relying on quick-fix solutions or detox products

Your lymphatic system plays a crucial role in detoxification by transporting waste and maintaining fluid balance. Supporting lymph flow through exercise, massage, and maintaining good gut health is important

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In recent years, the concept of “detoxing” has gained immense popularity, with countless products, diets, and programs promising to cleanse your body of harmful toxins. However, the reality of detoxification is far more complex and nuanced than many of these quick-fix solutions would have you believe.

In this comprehensive guide, let’s explore the truth about detoxification, how your body naturally performs this vital function, and the best ways to support your body’s innate detoxification processes.

Understanding Detoxification

Detoxification is a crucial bodily process that involves removing toxic substances from the body. It’s a vital function, as the accumulation of toxins from various sources such as pesticides, plastics, heavy metals, and air pollutants can lead to mitochondrial dysfunction.¹

Contrary to popular belief, detoxification is not a sporadic event that needs to be triggered by special diets or cleanses. Instead, it’s an ongoing process that your body performs

continuously to maintain health and survival. This complex system involves multiple organs working in harmony, including the liver, kidneys, lymphatic system, digestive tract, skin, and lungs.

The marketing surrounding detox fads often preys on people’s vulnerabilities, especially when they’re desperate for a health change. Many approach detoxification with a “quick-fix mindset,” hoping that a detox or cleanse will provide rapid results. Unfortunately, this approach often backfires, leading to yo-yo dieting or restriction-binge cycles. While you might lose weight rapidly during a detox, it’s common to regain it once the detox ends.²

The Pitfalls of Extreme Detox Plans

Many popular detox plans require drastic lifestyle changes that can be detrimental to your body. These plans are often highly restrictive, significantly reducing calorie intake. However, chronically under-eating can have negative consequences on liver health, including exacerbating liver fat accumulation and potentially altering liver function.

Extreme diets can also be counterproductive to the goal of improved detoxification. A lower metabolic rate, often a result of severe calorie restriction, may reduce the body’s ability to efficiently perform detoxification processes due to decreased energy availability. This could potentially slow down the rate at which toxins are processed and eliminated from the body.

It’s crucial to understand that your body doesn’t need a special restrictive diet to detoxify itself. The best way to keep detoxification functioning properly is to produce sufficient metabolic energy, meaning, give your organs enough fuel to do their jobs effectively.

The Key Players in Detoxification

Several organs play significant roles in the body’s detoxification processes:

1. The liver: the detoxification powerhouse — The liver is often considered the body’s primary detoxification organ, and for good reason. This remarkable organ performs over 500 tasks, with detoxification being just one of its many crucial functions. Here’s a closer look at some of the liver’s key roles:

Conversion of thyroid hormone T4 into active form T3	Production of cholesterol and distribution of fats throughout the body
Removal of bacteria from the bloodstream	Production of immune factors, assisting the body in resisting and fighting infection
Conversion of excess glucose into glycogen for storage (helping regulate blood sugar)	Removal of excess endotoxins and hormones such as estrogen
Production of bile, assisting in the breakdown of fat-soluble vitamins A, D, E, K, and the removal of waste	

The liver processes toxins by breaking them down into less harmful substances that can be excreted through bile or urine. This process occurs through Phase I and Phase II detoxification pathways, which require energy to convert toxins into water-soluble forms that can be eliminated from the body.

To perform all these tasks optimally, the liver requires protein, energy, and nutrients. Let's break this down further:

- Protein — The detoxification process relies on the availability of certain enzymes, which are made from amino acids. Eating high-quality animal protein is important since these are complete protein sources, providing all the essential amino acids the body (and liver) needs. Plant-based proteins often don't provide the complete amino acid profile necessary for optimal liver function.

Toxins must be conjugated with amino acids to be carried out of the body. Without adequate and complete protein sources, detoxification can be hindered, and toxins can build up. As Dr. Ray Peat noted:

“In the 1940s, Biskind's experiments showed that protein deficiency leads to the accumulation of estrogen, because the liver normally inactivates all the estrogen in the blood as it passes through the liver. This applies to phytoestrogens and industrial estrogens as well as to the natural estrogens of the body.”

- Energy and nutrients — The liver is made up of cells, and every cell requires energy and nutrients to function properly. The second phase of liver detoxification is heavily nutrient-dependent, requiring energy, amino acids, vitamins, and minerals. The liver specifically needs glucose (energy) to perform proper detoxification. Low levels of stored glucose (glycogen) will encourage a sluggish liver.

When the liver doesn't detox well, estrogen can accumulate, leading to “estrogen dominance.” The liver also requires glucose to convert inactive thyroid hormone (T4) to active thyroid hormone (T3). All cells in the body require T3 to produce energy. Without adequate T3, you will have decreased cellular function, resulting in a slower metabolism.

Eating enough food for your needs is crucial for liver health. When an individual is consistently underfed and not consuming enough energy from their diet, the liver can shrink in size and thus, not function properly. This was dramatically illustrated in the Minnesota Starvation Experiment, where subjects consuming 1500 to 1600 calories for 5 to 6 months experienced a reduction in liver size of up to 50%.

If you are chronically under-eating, you will enter a catabolic state where the body breaks down muscle tissue. This includes organs since they are built from smooth muscle fibers. A liver that has shrunk by 50% cannot detox properly.

While short periods of calorie deficits for fat loss are okay, chronically under-eating (consuming under 1800 to 1900 calories per day), which is common in many detox diets, will not help improve liver health in the long run.

2. The kidneys: filtering out waste — The kidneys play a crucial role in detoxification by

filtering blood to remove waste products and excess substances, including toxins and metabolic by-products. They produce urine to excrete these wastes from the body.

Like the liver, the kidneys also require energy to function properly. However, one dietary factor to consider for optimal kidney health is the calcium to phosphorous ratio. An imbalanced calcium to phosphorous ratio can negatively impact kidney health by increasing rates of calcification.^{3,4}

The modern food supply and packaged foods make it very easy to overconsume phosphorous. In fact, 44% of the best-selling grocery store items contain phosphorous-containing food additives.⁵ Other foods high in phosphorous include meat and grains. While this doesn't make these foods inherently bad, it's important to balance your phosphorous intake with calcium sources.

Eating a lot of processed food (combined with a lot of meat and grains) is a very easy way to overdo your phosphorous intake. The estimated daily intake of phosphate-containing food additives has more than doubled since the 1990s!⁶

To support kidney health, it's crucial to ensure adequate dietary calcium intake. Good sources include dairy products, well-cooked leafy greens like collard greens, and sparkling spring water. This helps you maintain a balanced calcium to phosphorous ratio for optimal kidney function.

3. The lungs: breathing out toxins — The lungs play a vital role in detoxification by helping eliminate volatile toxins and gases from the bloodstream through exhalation. They are particularly important in detoxifying carbon dioxide and other airborne pollutants.

To support lung health and enhance their detoxification capabilities, remaining active and ensuring we are primarily breathing through our nose (instead of mouth breathing) are excellent strategies.

4. The skin: sweating it out — The skin, often overlooked in discussions about detoxification, plays a significant role by eliminating toxins through sweat. This process is particularly effective for certain heavy metals and other fat-soluble toxins that can be difficult for the body to eliminate through other means.

To support the skin's detoxification function, performing occasional sauna sessions and spending time outside in the sun are very beneficial.

5. The digestive tract: the gateway to detoxification — Your gut plays a crucial role in detoxification by processing and eliminating waste products from food and other substances. It also acts as a barrier, preventing toxins from being absorbed into the bloodstream.

When operating properly, the liver filters toxins from the blood and, once processed, deposits these toxins into your bile. The bile then travels through your bile duct and is eliminated through bowel movements. This is one of the many reasons why being regular and having daily bowel movements is so important, especially for detoxification.

The normalization of infrequent bowel movements (every 2 or 3 days) is not ideal for optimal health. When constipation occurs, toxins and waste products may remain in the

digestive system for longer periods, increasing the risk of their reabsorption into the bloodstream. This can burden the liver, as anything reabsorbed will be sent back to the liver for processing.

For optimal detoxification, aim for at least one bowel movement daily. This ensures that waste products and toxins are being regularly eliminated from your body.

6. The lymphatic system: the unsung hero of detoxification — The lymphatic system, consisting of lymphatic vessels, lymph nodes, and lymphatic organs, plays a crucial role in detoxification by transporting and draining excess fluid and proteins, overall clearance of metabolic waste and toxins.

While the liver is primarily responsible for detoxification through metabolic processes, the lymphatic system supports detoxification indirectly by maintaining fluid balance, transporting immune cells and waste, and aiding in the absorption of fats and fat-soluble vitamins. Their integrated functions help maintain the body's internal environment and eliminate harmful substances that could otherwise accumulate and cause damage.

Lymphatic circulation involves both intrinsic and extrinsic mechanisms to ensure the movement of lymph throughout the body. "They can act primarily like pumps when actively transporting lymph against a pressure gradient. They also can act as conduit vessels when passively transporting lymph down a pressure gradient."⁷

- Intrinsic mechanisms (inside the lymphatic vessels):
 - Muscle squeezing — Lymphatic vessels have muscles in their walls that contract and relax, pushing lymph forward — similar to how our intestines move food through our system.
 - Valves — One-way valves inside lymphatic vessels ensure that once lymph moves in one direction, it can't flow back, keeping it on track.
 - Endothelial cells — These cells can shrink or expand, helping to push lymph along when tissues swell or become inflamed.

- Extrinsic mechanisms (outside the lymphatic vessels):
 - Muscle pump — When we move our muscles during exercise or even just walking, it squeezes nearby lymphatic vessels, helping to push lymph along.
 - Breathing pump — Breathing in and out affects pressure in our chest, which also helps move lymph towards the heart.
 - External pressure — Techniques like lymph massages, dry brushing, or gua sha can improve lymph flow.

To support better lymph flow, consider the following strategies:

Maintain a good metabolic rate to ensure adequate cellular structure for proper intrinsic lymph pumping.	Walk regularly, as it's one of the best circulatory stimulants.
Practice dry brushing and/or gua sha techniques.	Perform face massages for congestion and extra fluid in the head.
Engage in rebounding exercises or standing calf raises.	Maintain good gut health, as a leaky gut can lead to a higher pathogen load in the lymph system, reducing lymphatic pumping activity.

7. The brain: the surprising detox organ — While often overlooked in discussions about detoxification, the brain plays a crucial role in this process. The brain clears cellular waste and fluids through the glymphatic system, which is drastically upregulated during sleep.⁸

This underscores the critical importance of prioritizing good sleep habits, regardless of what stage of our healing journey we're in. Quality sleep is not just about rest and recuperation; it's an active time for the brain to perform essential detoxification processes.

The Holistic Approach to Detoxification

Given the complex and interconnected nature of the body's detoxification systems, it's clear that there are no shortcuts or quick fixes when it comes to detoxing. Instead, the best way to support your body's natural detoxification processes is to focus on overall health and well-being. Here are the key areas to prioritize:

1. Eat enough — As we've discussed, many organs involved in detoxification require adequate energy to function optimally. Chronic under-eating can impair liver function, slow metabolism, and hinder overall detoxification processes. Ensure you're consuming enough calories to support your body's needs, with a focus on nutrient-dense whole foods.

Include a variety of protein sources, particularly complete proteins from animal sources, to provide the necessary amino acids for detoxification enzymes. Don't shy away from carbohydrates, as glucose is essential for many detoxification processes, particularly in the liver.

2. Movement and sweat — Regular physical activity supports detoxification in multiple ways. It enhances circulation, which aids in the transport of toxins to detoxification organs. Ensuring a minimum of 8000 steps per day is a must, as general movement supports lymphatic circulation.

Exercising a few times per week with planned workouts also promotes sweating, which can help eliminate certain toxins through the skin.

3. Prioritize sleep — Given the brain's crucial role in detoxification during sleep, ensuring

adequate, quality sleep should be a top priority. Aim for 7 to 8 hours of sleep per night in a cool, dark room. Establish a consistent sleep schedule and create a relaxing bedtime routine to support good sleep hygiene.

4. Ensure regular bowel movements — As discussed earlier, daily bowel movements are crucial for eliminating toxins processed by the liver. If you're not having at least one bowel movement per day, focus on improving metabolic rate (as the digestive system requires a lot of energy), and eating fiber types and an amount that works for you to maintain regularity.

5. Support lymphatic health — Incorporate activities that support lymph flow, such as dry brushing, massage, or specific exercises like rebounding.

6. Reduce toxin exposure — While our bodies are equipped to handle a certain level of toxins, reducing unnecessary exposure can lighten the load on our detoxification systems. This might include choosing organic produce when possible, using natural cleaning products, minimizing use of personal care products that contain a lot of endocrine-disrupting compounds, and reducing the use of plastic.

7. Manage stress — Chronic stress can impair various bodily functions, including detoxification processes, since being in the fight or flight state will lower metabolic rate and energy production. Incorporate stress-management techniques and hobbies that you enjoy (such as watching the sunset, singing, grounding, drawing, or journaling).

By focusing on these fundamentals, we create an environment in which our body's natural detoxification processes can function optimally. This approach is not only more effective but also more sustainable in the long term. It allows us to support our health without the yo-yo effect often associated with extreme detox regimens.

Conclusion — The Sustainable Approach to Detoxification

In the age of quick fixes and miracle cures, it's tempting to believe that a week-long juice cleanse or a detox tea can purge our bodies of all toxins and reset our health. However, as we've explored in this article, the reality of detoxification is far more complex and ongoing than these quick-fix solutions suggest.

The truth is, our bodies are constantly engaged in detoxification processes, with multiple organs working in harmony to eliminate toxins and maintain our health. The liver, kidneys, skin, lungs, digestive tract, lymphatic system, and even our brain all play crucial roles in this intricate system.

Remember, detoxification is not a sporadic event but a continuous process. Our bodies are remarkably capable of maintaining balance and eliminating toxins when given the right support. By adopting a holistic, lifestyle-based approach to detoxification, we can enhance our overall health, boost our energy levels, and improve our resilience against environmental toxins and stressors.

Rather than relying on extreme detox diets or cleanses, which can often do more harm than good, the most effective way to support detoxification is to focus on overall health and well-being (which is optimized with a strong metabolic rate).

In the end, the best "detox" is not a product or a short-term diet, but a commitment to

consistent, health-promoting habits. By nourishing our bodies, staying active, managing stress, and getting adequate rest, we provide the foundation for optimal detoxification and overall well-being. This sustainable approach not only supports our body's natural detoxification processes but also contributes to better health outcomes in the long run.

The most powerful tools for supporting your body's detoxification processes are already within your reach. By focusing on these fundamental aspects of health, you can support your body's incredible ability to detoxify itself, promoting better health and vitality for years to come.

Transform Your Health — One Step at a Time

Ashley and her sister Sarah have put together a truly groundbreaking step-by-step course called "Rooted in Resilience." They have compiled what clearly is the best application of Dr. Ray Peat's work on Bioenergetic Medicine that I have ever seen.

It is so good that I am using the core of their program to teach the many Health Coaches that I am in the process of training for the new Mercola Health Clinics I am opening this fall. It took these women working nearly full-time on this project for a year to create it.

This has to be one of the absolute best values for health education I have ever seen. If you want to understand why you struggle with health problems and then have a clear program on how to reverse those challenges, then this is the course for you.

It is precisely the type of program I wish I would have had access to when I got out of medical school. I fumbled around for decades before I reached the conclusion they discuss in the course and share with you so you can restore your cellular energy production and recover your health.

Select and eat the right foods to heal your metabolism and improve glucose utilization

Balance your hormones to help reduce anxiety, weight gain and sleep disturbances

Use reverse dieting to increase your calories without gaining weight and tanking your metabolism, all while improving your energy levels

Heal your gut for proper immune function, mood and weight management

Tweak your diet and lifestyle habits to improve your mindset and mental health

Crush your fitness goals with ease and get your life back on track

Master the most essential habits for health with bonus guides, including over 100 meal plans to take the stress out of meal time planning and shopping, and so much more!

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Ashley Armstrong is the cofounder of Angel Acres Egg Co., which specializes in low-PUFA (polyunsaturated fat) eggs that are shipped to all 50 states ([join waitlist here](#)), and [Nourish Cooperative](#), which ships low-PUFA pork, beef, cheese, A2 dairy and traditional sourdough to all 50 states. Waitlists will reopen shortly.

Notes

¹ [Toxicology. 2017 Nov 1;391:90-99. doi: 10.1016/j.tox.2017.07.009](#)

² [Journal of Human Nutrition and Dietetics Volume 28, Issue 6, December 2015, Pages 675-686, doi: 10.1111/jhn.12286](#)

³ [Annu Rev Nutr. 2017 Aug 21; 37: 321-346](#)

⁴ [Ray Peat, Phosphate, activation, and aging](#)

⁵ [J Ren Nutr. 2013 Jul; 23\(4\): 265-270.e2](#)

⁶ [Clin J Am Soc Nephrol. 2010 Mar;5\(3\):519-30. doi: 10.2215/CJN.06080809](#)

⁷ [Am J Physiol Regul Integr Comp Physiol. 2007 Apr;292\(4\):R1510-8. doi: 10.1152/ajpregu.00258.2006](#)

⁸ [Brain Sci. 2020 Nov; 10\(11\): 868, doi: 10.3390/brainsci10110868](#)

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