

# Detoxification: The science behind social media claims of detox health benefits

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## **Jessie R. Badley and Pamela J. Lein from the University of California, Davis, explain the science behind detoxification and the claims of detox health benefits in social media and the deception associated with it**

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A variety of “detoxification” therapies, supplements, and diets are being pushed on social media platforms like TikTok and Instagram as “natural” approaches for removing toxic substances from your body to promote weight loss and/or improve health and wellness.

However, while social media can be an incredibly useful tool for public health, the information on health and wellness posted to social media is not subjected to rigorous peer review by health professionals or scientists, nor are these products evaluated by any regulatory agencies for efficacy or safety. Thus, the consumer is mainly on their own to wade through the hyperbole posted on social media. Here, we discuss what is known and what is a myth about the purported health benefits of detoxes and cleanses.

### **Do detoxes/cleanses really deliver on their claims?**

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Traditionally, the term “detoxification” referred to a medical process, such as chelation therapy, for removing excessive alcohol, drugs, or poison from a patient. In today’s social media lexicon, however, detoxes or cleanses refer to non-medically supervised procedures for removing toxins or impurities from the body. These typically involve restricted consumption of specific liquids and/or foods, fasting, dietary or herbal supplements, cleansing the colon with enemas, laxatives, or colon hydrotherapy (colonic irrigation), excessive sweating, or applying topicals (e.g., to the soles of the feet) to presumably draw out toxins through pores in the skin.

Various health benefits have been attributed to detoxes and cleanses, including weight loss, increased energy, improved focus and sense of well-being, reduced inflammation, clearer skin, improved circulation, and better bowel function. While a limited number of studies have reported positive effects on weight loss, insulin resistance, plus blood pressure, these are of low quality with poor study design, few participants, and/or lack of peer-review by scientific experts.

Several recent scientific reviews of the available scientific literature have concluded that the health benefits attributed to detoxes and cleanses are largely unsupported by scientific evidence and/or result in only transient effects that are not sustainable. The latter is particularly true of weight loss claims. Therefore, the consensus of the scientific community is that detoxes and cleanses “cannot be recommended”.

There is limited evidence of benefit associated with detox/cleansing programs, and likewise, there is limited evidence of harm. However, there are reports of side effects and complications. The most alarming of these is kidney failure linked to the use of a juice cleanse diet, including a green smoothie cleanse.

Other reported side effects include fatigue and irritability, vitamin and mineral deficiencies, dehydration, abdominal cramping, diarrhea, nausea, and electrolyte imbalances.

Recently, the U.S. Food and Drug Administration (FDA) and Federal Trade Commission (FTC) took action against several companies selling detox/cleansing products because they contained illegal, potentially harmful ingredients, falsely claimed efficacy in treating serious diseases, or were marketed for unapproved uses.

## **Does the human body need help to detox?**

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The basic premise of all detoxes/ cleanses is that we have toxic materials building up in our bodies. However, humans have highly efficient organ systems, notably the liver, kidneys, lungs, and skin, for detoxification and/or removal of toxins.

Toxic substances found in the human body include not only xenobiotics, or substances foreign to the body, such as plant materials, pesticides, drugs, cosmetics, food flavorings and additives, fragrances, industrial chemicals, and environmental pollutants, but also those produced within the body, for example, waste matter, digestive byproducts and products of metabolism.

Our body removes xenobiotics and endogenously produced toxic substances through metabolism to make them more readily excretable via the bile, urine, or exhaled breath. While the enzymes involved in detoxification are predominantly located in the liver, they are also present in many organ systems, including the gut, kidneys, lungs, and even the brain.

Many lifestyle factors, including diet, exercise, sleep, stress, and alcohol consumption, are key factors that impact the body's ability to remove toxic materials. Lifestyle choices can enhance or interfere with normal detoxification and elimination processes. In healthy individuals with healthy lifestyles, there is no need for detoxes or cleanses.

However, in individuals with dietary deficiencies, liver or kidney disease, or other metabolic or medical conditions that impede normal metabolism or elimination, dietary supplements or other medical interventions may be helpful to bolster normal detoxification processes.

## **Health and wellness myths on social media**

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There is an ongoing conversation in public health about regulating health and wellness content on social media; however, policies to control such content run up against issues of freedom of speech, and the general consumer is largely left on their own to identify reputable sources of information. With the rapidly expanding global use of dietary

supplements, a number of countries, notably Canada, China, and the European Union, are developing policies for ensuring product safety; but, this remains a largely unregulated business in many countries, including the United States.

Manufacturers of supplements are not obligated to show proof of safety or conduct toxicity testing before bringing a product to market. The biggest challenge in regulating dietary supplements is that there is no global consensus defining the categorization of these products. The definition of dietary supplements differs widely across countries, and a substance that is considered to be a supplement in one country may be regulated as a drug in another country.

## Detox diets or cleanses: The bottom line

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While there are many online testimonials from people who find intermittent detox diets or cleanses useful, there is a notable lack of scientific evidence supporting their use, and while small, there are health risks associated with their use, and they are largely unregulated, even with respect to the consistency of ingredients in the product.

Detox and cleansing products are primarily a marketing ploy, and unless you have liver disease or an extremely unhealthy lifestyle, your body is perfectly capable of detoxing itself. So, in most cases, the only thing being removed by “detoxing” or “cleansing” is money from your bank account.

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## More About Stakeholder

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### UC Davis Department of Molecular Biosciences

The Department of Molecular Biosciences serves as the academic home for all nutritional, physiological chemistry, and pharmacologic and toxicologic programs of the School of Veterinary Medicine at UC Davis. The goal of the Department of Molecular Biosciences is to study fundamental biological processes and their perturbations by mutations, nutrition, drugs and xenobiotics and the application [...]

