The two retrospective studies were followed by a small prospective study. Data were collected from students who were currently undergoing a detox in the Nature Cures class. Students were allowed to choose their own protocols. Despite the variety in detox protocols, several interesting trends were observed. Both mental clarity and energy dropped on day 4 and then improved, peaking on day 6. Further research is needed to examine what physiologically occurs during detox from day 4 to 6 leading to the increase in both energy and mental clarity. Interestingly, for all participants but one, sleep improved significantly as the detox progressed, also peaking on day 6. During REM sleep, the body facilitates cellular repair and detoxification. Thus further research may be indicated to investigate how detox affects the body's circadian rhythm.

The reported quality of sleep peaked by day 6 of detox. There was a significant decrease in headaches and joint pain by the 6th day as well, suggesting a possible decrease in inflammation. Further studies may be indicated to look at inflammatory markers, such as C-reactive protein (a protein synthesized by the liver in response to inflammation and an important marker for heart disease risk).

There are many questions that arise when considering biological outcomes for detox. For example, if someone undergoes a liver detox, is the test of liver enzymes sensitive enough to see change in an otherwise healthy individual? How long does a person need to be doing a detox before changes of liver enzymes are observed? When is the best time to measure enzymes or elimination? Also, we might speculate that during a detox, liver function would increase because the liver is processing the toxins. However, after a detox, liver function would decrease because there is less toxic burden. It may also be prudent to focus on non-liver-related outcomes such as inflammation, lipids, and glucose or insulin levels.

Other questions that arise around detoxes concern the individuals who are completing them. A certain degree of health is required, as detox puts the body under stress. There may be individuals for whom a detox is contraindicated. However, the characteristics of those people have not yet been identified. Naturopathic physicians suggest that emunctories should be functioning optimally before someone completes a detox, so that toxins are not trapped in the body.

The combination of these small studies suggest that larger prospective controlled studies are warranted. Types of detoxes could be compared with each other. It could be determined which types of detox are best for certain symptoms or patient profiles. For example, Ayurvedic medicine commonly uses detox as a form of therapy. However, different detoxes are recommended based on dosha (patient constitution). A similar recommendation may be needed for naturopathic patients. Lab markers should be collected pre, during, and post for additional studies. Finally, future studies should collect long-term effects of detox.

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Notes

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Sarah Axtell, ND
Heather Zwickey, PhD, Dean of Research
Helfgott Research Institute
National College of Natural Medicine
049 SW Porter St.
Portland, Oregon 97201
503-552-1743
Fax: 503-227-3750
hzwickey@ncnm.edu

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As a naturopathic doctor, Dr. Sarah Axtell provides holistic health care for the entire family. She works with many different chronic health conditions, such as hormonal imbalances, autoimmune diseases, gastrointestinal disorders, cancer, anxiety, and weight loss. Dr. Axtell graduated with honors from the University of Wisconsin-Madison, where she earned a bachelor of science degree in dietetics and nutrition. She then earned a doctorate in naturopathic medicine from the National College of Natural Medicine (NCNM). She received extensive training in natural therapeutics from some of the leading physicians in the field during her three-year clinical rotations there. While Dr. Axtell was in naturopathic medical school, she was involved in research at the Helfgott Research Institute. During this time, she extensively researched the area of detoxification. She graduated with honors in research from NCNM. She is mother to two daughters, Cecelia and Louisa, who have inspired her and given her a love for children. She believes that establishing a solid foundation of health in childhood will lead to a fulfilling, healthy life.

Heather Zwickey, PhD, dean of research at NCNM, director of Helfgott Research Institute, and professor of immunology, trained at the world-renowned National Jewish Medical and Research Center in Denver. She received a PhD in immunology and microbiology from the University of Colorado Health Sciences Center. Dr. Zwickey went on to complete a postdoctoral fellowship at Yale University. In 2003, Dr. Zwickey launched the Helfgott Research Institute at NCNM. At Helfgott, Dr. Zwickey applies her immunology expertise to natural medicine. She studies the immunological mechanisms involved in nutrition, herbal medicine, acupuncture, and mind-body medicine. She also actively trains students and faculty in how to conduct clinical research in natural medicine, and recently launched a Master of Science of Integrative Medicine Research program at NCNM.