

Alternative detox

E. Ernst*

Complementary Medicine, Peninsula Medical School, Veysey Building, Salmon Pool Lane, Exeter EX2 4SG, UK

Background: The concept that alternative therapies can eliminate toxins and toxicants from the body, i.e. 'alternative detox' (AD) is popular.

Sources of data: Selected textbooks and articles on the subject of AD.

Areas of agreement: The principles of AD make no sense from a scientific perspective and there is no clinical evidence to support them.

Areas of controversy: The promotion of AD treatments provides income for some entrepreneurs but has the potential to cause harm to patients and consumers.

Growing points: In alternative medicine, simplistic but incorrect concepts such as AD abound.

Areas timely for research: All therapeutic claims should be scientifically tested before being advertised—and AD cannot be an exception.

Keywords: alternative therapies/detox

Accepted: January 9, 2012

One of the characteristics of alternative treatments, i.e. 'natural' interventions not supported by sound scientific evidence, seems to be that its proponents use terms employed by conventional medicine and give them different meanings. Examples are the words subluxation, energy or integrated medicine. Another case in point would be 'detox'. This term is used in a mainstream healthcare for the process of weaning drug-dependent patients off their drugs.¹ In alternative medicine, 'detox' has acquired a dramatically different meaning; here it describes the use of alternative therapies for eliminating 'toxins' (the term usually employed by proponents of alternative medicine) from the body of a healthy individual who is allegedly being poisoned by the by-products of her own metabolism, by environmental toxins or (most importantly) by her own over-indulgence and unhealthy lifestyle (e.g. alcohol, cigarettes and food). This meaning of the word 'detox' has

*Correspondence address.
Complementary
Medicine, Peninsula
Medical School, Veysey
Building, Salmon Pool
Lane, Exeter EX2 4SG, UK.
E-mail: edzard.ernst@
pms.ac.uk

now become so popular that the general public seems to only know this version. A simple google search for 'detox', for instance, generates more than a million hits, most of which relate to the alternative version of 'detox'. This type of 'detox', i.e. 'alternative detox' (AD), will be briefly discussed in this article.

Electronic search engines such as Medline or Embase have no search terms for AD. Any attempt to identify the pertinent literature in this way is therefore futile and generates articles almost exclusively on conventional detoxification. Therefore, my original plan to review AD systematically had to be abandoned. Instead, I have selected some of those books and articles from the realm of alternative medicine which provide insights on AD. The following discussion is thus not a systematic review but a comment expressing the views of its author.

The principles of detox

The underlying notions of AD have been described in numerous books predominantly aimed at the lay readership.² The following three examples of quotes from textbooks on alternative medicine seem typical and provide useful information.

Example 1

'A consequence of modern industrial society is the exposure to a variety of toxic substances (e.g. pesticides, heavy metals and endocrine disruptors). Many of these substances can be stored in fat, tissues and bone and are associated with health problems including neurological disorders (e.g. pesticide exposure and increased risk of parkinsonism). Endogenous toxins may also present as a burden. Naturopaths will seek to reduce exposure, decrease the burden and strengthen eliminative organs. Therapies that help to decrease the burden of toxic chemicals in the body include hydrotherapy, exercise, fluids, herbs and nutritional supplements that support liver detoxification pathways and chelation'.³

There is, of course, little doubt that modern life exposes many people to a range of toxins, i.e. poisonous substances produced within living cells or organisms and toxicants and poisonous substances originating from elsewhere such as insecticides, herbicides or food conservation products. Few experts would argue against the possibility that, in high doses, such substances can make us ill. However, two important questions arise nevertheless: Is detoxification really necessary as a routine therapeutic measure for all, or is it only relatively few and extreme cases who are actually poisoned by toxins or toxicants? Do any of the approaches on offer by alternative medicine practitioners effectively lower the toxic burden?

Example 2

'Detoxification is considered to be of paramount importance in complementary medicine and is usually achieved in a liver cleansing programme or more comprehensively a combined bowel and liver detoxification programme. Many naturopaths and integrative medicine practitioners consider the gastrointestinal tract and liver to be primary defence barriers that protect the individual from reactive toxins and infection organisms. These practitioners believe that defective functioning of these organs directly increases the toxic burden, which affects immune and nervous systems, and produces inflammatory reactions and neurological dysfunction'.⁴

This paragraph seems to neglect that, besides the liver and the gut, the human body has various other organs for eliminating toxins and toxicants. Nevertheless, it is of course correct that insufficient liver or gut function can create important health problems. It would be necessary to explain, however, that, in the absence of severe disease, this is not the case and detoxification through AD is therefore superfluous. Moreover, it would be relevant to mention what types of liver and gut conditions lead to auto-intoxications.

Example 3

'There are certain signs and symptoms that should alert the practitioner to the need for further action in reducing toxic load, as follows:

- Poor complexion, skin lesions, rashes, greasiness
- Digestive dyscrasias, halitosis, taste disturbances
- Lethargy, cognitive dysfunction
- Muscular aches and pains
- Increasing sensitivity to exogenous exposures, odours, etc.
- Hyper-reactivity to medicine or supplements
- History of heavy medical or recreational drug use or exposure to environmental chemicals'.⁵

This quote guides practitioners towards diagnosing clinical states where AD is supposedly required. All of the listed signs and symptoms are non-specific and occur with most diseases. It remains unclear how many of them need to be present or which are obligatory for detoxification to become necessary. If one or two would suffice, nearly every patient who ever consulted clinician would need to be detoxified. It seems that here lies one crucial reason why proponents of AD advocate their treatments for virtually every person. Another, perhaps more important reason might be the fact that plenty of patients mean plenty of income for AD practitioners.

The treatments used for AD

The range of treatments advocated for AD is extremely wide and diverse.⁶ It includes:

- various alternative diets,
- a number of herbal, vitamins, minerals and other ‘natural’ supplements,
- various forms of chelation therapy,
- electromagnetic devices,
- colonic irrigation and enemas,
- skin bruising,
- sauna and other means of inducing extensive sweating,
- homeopathic remedies,
- ear candles.

In addition, more complex, multimodal programmes are popular where any number of single modalities are combined and administered over a period of days or weeks.^{7,8} Some of these programmes are offered at considerable costs or by organizations of debatable reputation such as the ‘Church of Scientology’.⁷

The clinical evidence

The common characteristics of all of these approaches are that they are unproved. Even experts who are sympathetic to alternative medicine and AD admit: ‘while there are hundreds of randomized controlled trials on drug and alcohol detox, there are no such trials of detox programs focusing on environmental toxins... at present, “detox” is certainly more of a sales pitch than a science’.⁹ The ‘studies’ of AD that have been published are of such poor methodological quality that no conclusions can be drawn from them.^{7,8,10–13}

While there is a total absence of sound evidence for benefit, some of these treatments have been associated with risks^{14–17} which depend on the nature of the treatment and can be particularly serious with diets (malnutrition), supplements (hepatotoxicity), chelation (electrolyte depletion) and colonic irrigation (perforation of the colon).

Why is AD so popular?

The simple answer to this question is that ‘AD is big business’.¹⁸ A recent survey suggested that 92% of US naturopaths use some form of AD.⁶ To lay people, its principles seem to make sense and, in many of

us, the desire to ‘purify’ ourselves is deep rooted. Thus AD entrepreneurs (including Prince Charles who recently launched a ‘Detox-Tincture’ via his firm Duchy Originals) are able to exploit a gullible public.

Is there a science supporting AD?

Proponents of AD are keen to point out that ‘a modern science of ‘detoxicology’ seems to be emerging’.⁹ If there is such a thing as a ‘science of AD’, it should address the following, fundamental questions:¹⁸

- What are the toxins and toxicants?
- What evidence exists that they damage our health?
- How do we quantify them?
- How do we diagnose a patient requiring AD?
- Which treatments are effective in eliminating which toxins and toxicants?

Currently, there is insufficient evidence to answer any of these questions. Until this situation changes, I do not think a ‘science of AD exists at all.

Conclusion

At present, there is only one possible conclusion from all this: AD is biologically not plausible and clinically unproved. We should warn our patients from using it.

References

- 1 McCabe S. Rapid detox: understanding new treatment approaches for the addicted patient. *Perspect Psychiatr Care* 2000;**36**:113–20.
- 2 Fitzpatrick M. The meaning of detox. *Lancet* 2003;**361**:94.
- 3 Shinto L, Calabrese C. Naturopathic medicine in neurological disorders. In: Oken BS (ed.). *Complementary Therapies in Neurology*. Roca Baton: Parthenon, 2003.
- 4 Di Vincenzo R. Nutritional therapies. In: Dunning T (ed.). *Complementary Therapies and the Management of Diabetes and Vascular Disease*. Oxford: Wiley, 2006.
- 5 Blake E, Chaitow L, Newman Turner R. Naturopathic physical medicine. In: Chaitow L (ed.). *Naturopathic Physical Medicine*. Edinburgh: Churchill Livingstone, 2008.
- 6 Allen J, Montalto MS, Lovejoy J *et al.* Detoxification in naturopathic medicine: a survey. *J Alt Comp Med* 2011;**17**:1–6.
- 7 Cecchini M, Root D, Racgunow J *et al.* Chemical exposures at the World Trade Center use of the Hubbard Sauna detoxification regimen to improve the health status of New York City rescue workers exposed to toxicants. *Townsend Lett* 2006;**263**:58–65.
- 8 Crinnion W. Components of practical clinical detox programs—sauna as a therapeutic tool. *Altern Ther Health Med* 2007;**13**:S154–6.

- 9 Cohen M. 'Detox': science or sales pitch. *Aust Fam Phys* 2007;**36**:1009–10.
- 10 Bland JS, Barrager E, Reedy RG *et al*. A medical food-supplemented detoxification program in the management of chronic health problems. *Altern Ther Health Med* 1995;**1**:62–71.
- 11 Macintosh A, Ball K. The effects of a short program of detoxification in disease-free individuals. *Altern Ther Health Med* 2000;**6**:70–76.
- 12 Kilburn KH, Warsaw RH, Shields MG. Neurobehavioural dysfunction in fireman exposed to polychlorinated biphenyls (PCBs): possible improvement after detoxification. *Arch Environ Health* 1989;**44**:345–50.
- 13 Schnare DW, Denk G, Shields MG *et al*. Evaluation of a detoxification regimen for fat stored xenobiotics. *Med Hypotheses* 1982;**9**:265–82.
- 14 Mishori R, Otubu A, Jones AA. The dangers of colon cleansing. *J Fam Pract* 2011;**60**:454–6.
- 15 Ernst E. Deaths associated with EDTA chelation therapy—a systematic review. *Perfusion* 2009;**22**:9–11.
- 16 Ernst E. Ear candles: a triumph of ignorance over science. *J Laryngol Otol* 2004;**118**:1–2.
- 17 Bryant SM, Kolodchak J. Serotonin syndrome resulting from an herbal detox cocktail. *Am J Emerg Med* 2004;**22**:625–6.
- 18 Dixon B. 'Detox', a mass delusion. *Lancet Infect Dis* 2005;**5**:261.