

Detoxifying foot bath quackery

junk science to draw dollars out of your wallet

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Have you ever heard of those foot-baths through which an electric current is passed in order to draw out the "toxins" from your body? To someone who knows no chemistry, it can



be quite impressive to see all these evil substances color the water various shades of brown, green, and blue as the current works its magic. ([See this typical example.](#)) Sometimes you see flecks of solids and bubbles of gas appear as your body is "cleansed". Well, this is an old parlor trick, a nice chemistry-classroom demonstration, and, of course, a highly profitable **scam**. It is offered by ayurvedic healers and other quackery practitioners, including some naturopathic and chiropractic physicians, and can go by such names as [Ionic Detoxification](#), [Aqua Chi](#), [Bionic Hydrotherapy](#)® , etc.

Of course, it always feels good to rest your tired feet in a container of warm water, and the slight tingling sensation caused by the low-voltage current might even be rather pleasant. But the stuff about drawing "toxins" out of your body is pure bunk. That's the job of your kidneys, which are exquisitely suited to this task. Anyone who has taken a course in physiology knows that

- there is no way an electric current passing through a part of your body can distinguish between "good" molecules and "bad" molecules ("toxins"), most of which are electrically neutral anyway;
- the skin is impermeable to all but a few chemical substances; there is no evidence that any that are found inside the body can pass through the skin to the outside, with or without the help of an electric current.
- All but a very few of the "toxins" produced as metabolic products are colorless— suggesting that what you see during these "treatments" is put there for show.

There are lots of YouTube videos about these devices. [Here's one](#) showing the dramatic changes in the water. One skeptic shows it working on a [carrot](#). And [here](#) you can see one quack-merchant dissing a competitor by showing the havoc that the latter wreaks on a tomato!

Some typical deceptive bunk

Some sites show pictures of what they purport to be blood cells before and after treatment, implying that the cells become less entangled or clumped together. Don't be fooled by this nonsense, which is usually attributed to un-named "doctors" and has never been reported in the reputable scientific literature.

Various goofy electrical instruments such as "[Electro Dermal Screening](#)" which are said to register various aspects of bodily health are used to "prove" the effectiveness of foot-bath treatments. In truth, there is no reason to believe that these devices, which are exclusive to the quackery-healing trade, measure

anything significant at all, other than perhaps the gullibility of the subjects who they are used on.

Some promotions go really far-out in their appeal to the pseudoscience-inclined:

"The ... unit can rebalance energy meridians through the bio-charge. The complex energy fields of the unit permeate the water, realigning a body's energy field. Many of the benefits of the unit can be attributed to the "re-balancing" of these energy lines allowing a body mass to function better. The action results in the initial purging of toxins and nucleic waste product generated within the cells and surrounding membrane." [\[link\]](#)

So how do these things really work?

You place your feet in a bowl of water to which a bit of salt has been added. A small electric current is passed between two electrodes immersed in the water, which soon becomes quite discolored. The color, of course, comes from electrolytic corrosion of the metal electrodes. These are usually made of iron, nickel, and copper, all of which decompose into colored ions. These colors will vary with the amount of salt present and the pH of the solution, and they can be changed and greatly intensified by the substances that either added to the bath before use, or are present in the "soaps" often used to prepare the patient's feet. By-products of the electrolysis process are bubbles of hydrogen and chlorine gases (both of which are dangerous in confined spaces) and sodium hydroxide, commonly known as "lye". The latter tends to soften skin, allowing it to flake off, pick up various colors on reacting with the metal ions, and complete the illusion that one usually pays dearly for: individual treatments can be from \$50 up, and the grossly overpriced power supply "machines" sold for home use can go for more than \$1000. (You could of course build your own power source from parts

obtainable from Radio Shack for around \$35; [see here](#) for instructions.)

And of course, all that really gets cleaned out is your wallet!



... and here's some the "science" behind this quackery:



For something closer to real science, see [The Aqua Detox Scam](#)

No-color foot bath

One now-gone outfit admits that whatever colors appear in these devices comes from the electrodes. But they more than make up for this bit of honesty by spinning a scientifically-absurd tale of how their device produces "only hydrogen and oxygen" and generates a

proprietary plasma field structure to maximize energy and produce the needed bio-charge, thus [magically] increasing the charge on the plasma membrane surrounding the cell, reducing surplus hydrogen ions - restoring proper cell function and increasing the body's ability to start to process the toxins properly again.

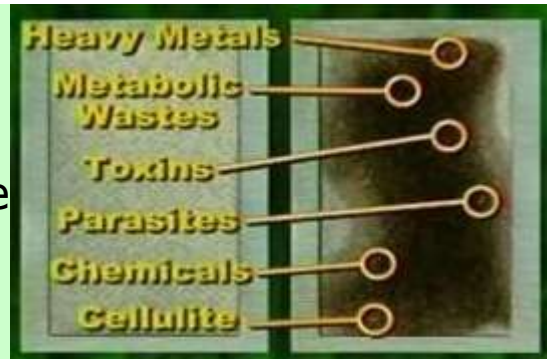
Detox foot-pads

If foot baths are too messy for you, the quackery-hucksters have come up with a more convenient product: **detox foot-pads** which you attach to the soles of your feet so they can work their magic while you sleep!

This silliness, which is apparently based on an old Japanese myth, employs a variety of "natural" substances such as vinegars, plant extracts, tourmaline, dextrin, vitamin C, and for all I know, eye-of-newt.

If you click on the "Product Info" menu item on [this page](#), you will see a detailed list of some of these wondrous ingredients, and will learn that these pads employ ["far infrared" radiation](#) (a long-time favorite claim made for all kinds of quack remedies) and that they magically draw the "toxin" molecules out through [fictional] acupuncture meridians that supposedly connect all of the important bodily organs to the soles of the feet.

Typical promotional "before" and "after" photos purport to show how the pads become discolored with use. Given the dog's breakfast of ingredients, it's hard to say how the color change arises.



My best guess is that some of the plant extracts contain flavinoid compounds, many of which are known to darken as they become air-oxidized in the presence of moisture. But you can be sure that these have nothing at all to do with "toxins"!

