WDDTY

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Dr John Kelsey

The body electric

Cable TV engineer Clinton Ober was sitting on a park bench when he had a 'eureka' moment that he now believes is "the most important health discovery ever". Certainly, his advocates believe his discovery is a vital missing link in our understanding of disease, and scores of anecdotal stories of recovery and a handful of research papers are supporting this view.

Ober's observation was a simple one. He noticed that most of the passers-by were wearing rubber-soled sports shoes or trainers—and from his days as a cable engineer, he began to wonder whether these were contributing to the epidemic of chronic disease by preventing the wearer from 'grounding' to the earth.
And because the body—which is primarily made up of water and minerals—is a natural conductor of electricity, perhaps we need to occasionally stabilize our electrical system by ground-ing ourselves to the negative electrons on the earth's surface, just as any electrical appliance must do if it is to function without interference.

Twelve years ago, when he had his eureka moment, Ober was suffering from chronic back pain, and needed drugs to fall asleep and more drugs to wake up. He knew that earthing cables prevented outside signals and fields from interfering with television transmissions—but could the same theory apply to humans? Was our plastic and rubber footwear, and our indoors lifestyle, insulating us from the earth's electrons, leaving us ungrounded and vulnerable to the static electricity and EMFs (electromagnetic fields) in our environment?

To test his theory, Ober 'grounded' his own bed by lacing it with electrical duct tape to create a rudimentary grid, and ran a wire from the tape out of the window and to a rod stuck in the ground outside. Lying on the bed, he knew that "like all the cable systems I had installed, I was grounded," he said.

The next morning he woke up after having slept soundly—and without medication—for the first time in years.

After a few more nights of undisturbed and drug-free sleep, Ober 'grounded' a friend, who reported back that his arthritis pain had almost disappeared; this was followed by six more friends who also said their health had improved significantly.

Ober tried to interest doctors and scientists in his discoveries, but none was interested—and one laughed at the unscientific 'discovery' of a cable guy—and so he began his own odyssey of discovery, eventually involving biophysicists and doctors.

Today, 'Earthing'—as he calls the process—has started to be adopted by alternative practitioners in the US, and is championed by one eminent cardiologist, Dr Stephen

Sinatra, who has described Earthing as the most significant health break-through in his 35 years of clinical practice.

Ober has also collected scores of case studies of individuals whose 'incurable' chronic conditions have been reversed by Earthing. He has had testaments from patients—and clinical evidence—to suggest that Earthing:

- reverses inflammation, the cause of more than 80 chronic conditions
- reduces chronic pain
- improves sleep
- increases energy
- lowers stress
- normalizes the body's biological rhythms
- thins the blood and improves blood pressure
- relieves muscle tension and headaches
- lessens hormonal and menstrual symptoms
- dramatically speeds healing and helps prevent bedsores, and
- reduces or eliminates jet lag.

When Ober earthed his bed with a wire and a rod in the ground, he had intuitively followed a practice that has been used since ancient times in religious communities in India.

John Gray, the best-selling author of Men Are from Mars, Women Are from Venus (HarperCollins, 1992), was introduced to an 'earthed' bed while studying meditation in the subcontinent. Instead of sleeping on a deerskin on the floor, which he found uncomfortable, Gray was offered the option of "a bed sheet made with copper material that was connected to a copper rod outside, placed in the ground."

When he returned to his Californian home, Gray set up his own bed in a similar fashion. "At the time, I had some pain from bursitis in the shoulder. I'd had it for two or three years. I would feel it particularly when I woke up. Then, after sleeping on the Indian sheets for a while, the pains were not there anymore."

The good earth

But there is a simpler Earthing method: take off your shoes and socks, and put your bare feet on the ground. Ober recommends that we try to 'earth' with our bare feet for at least 30 minutes every day in order to see a health benefit.

Even if we do not have a health problem, most of us get a natural buzz when we walk barefoot on the grass or along the beach. This is because the earth is alive with free electrons, generated by solar activity and lightning strikes, that stabilize all electrical equipment and circuitry. The earth is, quite literally, the negative ground or the reference point for all electrical power grids. As the body is a natural conductor, it too needs regular contact with the earth to stabilize and rid itself of excess electrical interference, Ober argues.

Biophysicist James Oschman has developed his 'living-matrix' model to explain how this happens, and why energy healing such as Reiki might work.

Earthing—standing barefoot on grass or earth—harnesses the earth's primordial energy and restores the body's natural electrical state, he argues. Barefoot contact with the earth, and several touch and non-touch therapies, stimulate the migration of electrical charges to areas of the body where there is acute or chronic inflammation. Earthing either prevents 'collateral damage' to healthy tissues around an injury or allows electrons to replenish the body's own charge (J Bodyw Mov Ther, 2009; 13: 215–28).

Electrons from the earth act as natural anti-inflammatory agents and neutralize positively charged free radicals, Oschman argues (J Bodyw Mov Ther, 2008; 12: 40–57).

The evidence builds

Other scientists have also started to take an interest in Earthing. Karol and Pawel Sokal of the Military Clinical Hospital in Bydgoszcz, Poland, carried out five experiments involving a total of 168 participants, half of whom were earthed for seven hours while they slept on a bed with a copper conductor. Blood and urine samples were taken from both groups before and after Earthing.

The Sokals discovered that, after a night of being earthed, serum concentrations of iron, ionized calcium and inorganic phosphorus all fell, and there was also a reduction in kidney excretion of calcium and phosphorus. In addition, Earthing reduced blood glucose in the participants who were diabetic. All the changes were statistically significant, they concluded (J Altern Complement Med, 2011; 17: 301–8).

A separate experiment achieved similarly impressive results. In a study carried out by Gaetan Chevalier at the California Institute for Human Science in Encinitas, CA, 58 healthy adults took part in a double-blind placebo-controlled trial in which some of them were earthed with a conductive adhesive patch on the sole of each foot that was earthed to a rod outside, while the others were 'dummy-earthed'.

Half of those who were truly earthed showed an instantaneous change on electroencephalography (EEG) of the left hemisphere of their brain, and an abrupt alteration in electrical signals between muscle groups. Nineteen of the 22 participants who were earthed saw a decrease in their blood volume pulse compared with eight in the placebo, or dummy-earthed, group. These changes suggest that Earthing reduces overall stress levels and tension (Eur Biol Bioelectromagnetics, 2006; 600–21).

Earthing also improves sleep patterns by normalizing levels of cortisol, the 'stress hormone', and has a positive effect on subjective reports of sleep dysfunction, pain and stress. In a study involving 12 patients suffering from sleep dysfunction, pain and stress, their cortisol levels stabilized after sleeping for eight weeks in an earthed bed (J Altern Complement Med, 2004; 10: 767–76).

People who have sore muscles after strenuous exercise also benefit from Earthing. In one small preliminary ('pilot') trial involving eight people, half were earthed and the rest were 'dummy-earthed' (a pole was not placed into the ground). After checking blood counts and chemistry, various other bio-chemical factors and pain levels immediately after exercise, then once a day for three days afterwards, researchers at the University of Oregon in Eugene, OR, discovered that Earthing improved immune-system activity and reduced pain levels (J Altern Complement Med, 2010; 16: 265–73).

Earthing and the heart

Eminent cardiologist Stephen Sinatra is starting to recommend Earthing to his patients. He regards it as a primary therapy that is as important to restoring heart health as his supplement regime of coenzyme Q10, l-carnitine, d-ribose and magnesium.

Sinatra, who is based in Connecticut, has carried out several informal trials of Earthing. In one, involving 28 healthy men and women, Earthing improved HRV (heart rate variability), a measure of the nervous-system impact on heart function. These improve-ments were achieved after just 40 minutes of Earthing.

In another informal test, Sinatra carried out blood tests in 12 volunteers—including Clinton Ober—before and after Earthing. Using a darkfield microscope, Sinatra discovered that the viscosity and quality of blood had changed dramatically after Earthing. There were considerably fewer formations of the red blood cells associated with clumping and clotting. In other words, the blood was thinner.

"To all of us," he said, "the results suggested that individ-uals with heart disease and inflammatory thick blood—typical in cardiovascular disease and diabetes—may reap huge benefits from simply Earthing themselves on a regular basis. From a cardiology standpoint, if you can thin the typical ketchup-like blood of heart patients and diabetes in the direction

of the consistency of wine, as our simple experiment showed, you remove a colossal risk factor for heart attack and stroke."

Inspired by these discoveries, Sinatra set up a more formal study with Gaetan Chevalier to measure the impact of Earthing on blood clumping and the blood's zeta potential—in other words, the level of negative charge on the surface of a red blood cell. A high zeta score means that blood flows more easily. They tested the blood of 10 participants before beginning and after two hours of Earthing with electrode pads placed on their hands and feet. The results showed a 270-per-cent improvement in the zeta score, suggesting that Earthing can improve circulation and blood viscosity.

Both studies have been submitted for publication this year (2011).

Earthing and inflammation

Inflammation is associated with a growing list of chronic conditions. Among the 80 or so diseases in which inflammation plays a key part are heart disease, diabetes, arthritis, intestinal disorders, lupus and kidney failure (Med Hypotheses, 2007; 69: 70–82).

Despite this, inflammation is a good thing—it is the body's natural healing response to harmful pathogens, damaged cells and irritants. The process involves the release of free radicals, which are positively charged molecules; the problem is, says Ober, the process doesn't know when to stop.

Earthing can provide a natural brake to free-radical activity, says Ober, because the negatively charged electrons from the earth negate the positrons, or positively charged free radicals.

To demonstrate the theory, William Amalu, president of the International Academy of Clinical Thermography, used thermographic imaging—which uses an infrared camera to display changes in skin surface temperatures—to plot the healing of 20 patients who were suffering from a range of inflam-matory conditions, including muscle strain, carpal tunnel syndrome and inflammatory joint problems.

The patients were earthed either with a conductive electrode patch, applied in Amalu's office during two to three half-hour treatments a week, or a grounded bed pad in their homes when they slept at night.

Some patients experienced improvements after just one week—and the thermographic images supported their claims. In all 12 cases followed, an 80-per-cent improvement was registered by the thermographic technology. The images have so far been published only in Ober's book Earthing: The Most Important Health Discovery Ever? *see Factfile D for more information*.

The EMF effect

In a technical paper, electrical engineer Roger Applewhite demonstrated that electrons move from the earth and into the body during Earthing, and the transfer is sufficient to maintain the body at the same negative-charge electrical potential as the ground. Earthing also reduced the impact of EMFs at 60 Hz on the body (Eur Biol Bioelectromagnetics, 2005; 1: 23–40).

An EMF load of 60 Hz from wiring and appliances, mobile phones and power lines is typical in the US and in Europe, and can cause a health problem in those who are electrically hypersensitive. However, a study by Imperial College in London discovered that EMF levels in a standard office could increase the risk of infection, stress and degenerative diseases in the people who worked there for extended periods of time (Atmospheric Environment, 2007; 41: 5224–36).

Although government agencies still regard the health hazards of mobile phones and phone masts as 'controversial', there is mounting evidence to suggest that mobile-phone

radiation can damage DNA and cause leakages in the blood–brain barrier (J Comput Assist Tomogr, 2010; 34: 799–807), while those who use a mobile phone for 20 minutes every day for 10 years are much more likely to develop brain tumours (Int J Oncol, 2008; 32: 1097–103).

Follow the money

Not surprisingly, medicine has more than its fair share of outrageous claims and 'miracle cures'. The old maxim of 'follow the money' is a useful acid test for the unwary: if the person making the claim also happens to stand to become a multi-millionaire as a result, then his or her 'cure' should be treated with a degree of scepticism.

However, in the case of Clinton Ober, his cure doesn't add a penny to his bank account—all you have to do is slip off your shoes and socks, and stand on your lawn for 30 minutes.

Although his website (www.earthinginstitute.net) sells earthed bed mats and blankets, their purchase is not essential for you to reap the benefits of Earthing. As Ober states in his Frequently Asked Questions section on his site, "barefoot is the natural way to go", and purchasing a grounding product is not necessary.

Bryan Hubbard

Factfile A: Feet first

Our feet have more nerve endings than any other part of our body, a fact that is also recognized by acupuncture.

According to traditional Chinese medicine (TCM), one of the most important acupuncture points—K1 (kidney 1)—is located on the ball of the foot. It is the major entryway for the absorption of Earth Qi (chi), TCM's equivalent of negative electrons. From K1, chi moves up the body to the urinary bladder meridian and, from there, to the body's vital organs, such as the heart, brain, lungs and liver.

If the bare foot is an important portal to health-giving electrons or chi, the shoe must be one of the most unhealthy of inventions. That was certainly the view of American chiropodist Samuel B. Shulman, who once declared: "Footgear is the greatest enemy of the human foot." He reached his conclusion after studying the health of those people in India and China who almost never wore shoes. As a result, they never suffered the usual foot problems of the West, and their gait was superior (J Nat Assoc Chiropodists, 1949; 49: 26–30).

Factfile B: Paws first

Domesticated pets that spend more time indoors with their human owners can also benefit from Earthing.

In one experiment, medical researcher Dale Teplitz designed a prototype grounded pad for dogs, and found 16 owners whose dogs had unresolved chronic health problems, ranging from pain, fatigue, hip dysplasia and old injuries. The trial, which took place in 2007, lasted from four to six weeks, during which time the animals were not allowed outdoors other than to relieve themselves.

The feedback from the owners was positive, and they reported improvements in energy, stamina, joint mobility and limping. One beneficiary was the 10-year-old greyhound Chip McGrath, who had a bad limp from joint stress after years of competitive running. Chip's owner, Roberta Mikkelsen of Pearl River, NY, said that the dog was able to jump onto the couch and into the car after resting on an Earthing pad. Even Chip's anxiety and fear diminished after Earthing, she said.

But it's not only dogs that benefit from Earthing; according to Don Scott, cockatoos and parrots can also get better with it. Don runs a rescue shelter for birds called the Chloe

Sanctuary in Escondido, CA. Chloe, a 25-year-old cockatoo, displayed all of the common psychoses of caged birds—screaming, pacing, biting and feather-destroying. However, after eEarthing the perch in the cage, Chloe's behaviour changed dramatically,

Factfile C: Living the high life

If contact with the earth helps us to be healthy, are people who live in high-rise buildings more likely to be ill? Two studies suggest that there may be a connection between our distance from the earth and our health.

In one, which assessed the heart health of people living in a high-rise building, those living on the upper floors had more marked fluctuations in their heart rate, or heart rate variability (HRV), compared with those living on the building's ground floor (Auton Neurosci, 2011; 161: 126–31).

In a separate study, Dr Fredric Wolinsky of the University of Iowa discovered that older people living in a multistorey apartment block were 40-per-cent more likely to have a stroke than those who lived in a single-storey home (BMC Geriatrics, 2009; 9: 1–11).

Factfile D: Going to ground

Earthing, or grounding, merely involves putting your bare feet on the grass, sand or earth—and, ideally, for 30 minutes every day. You can stand or sit on a chair with your feet on the ground or, indeed, make the contact with any other part of your body, such as your hands or arms. But because this is not always possible, either because of time constraints, lifestyle or weather, Clint Ober has also developed a range of earthing products—some of which are prototypes developed only for 'proof of concept'—that he sells from his website www.earthing.com.

- Earthing shoes. These are sandals, or flip-flops, that are 'grounded'. Grounded shoes are not new—they are routinely used in the electrostatic industry to prevent the build-up of static electricity.
- Universal Earthing pads. These are for daytime use and can be placed on a chair, desk or on the floor while you work. The pad has a metallic fibre mesh and conductor, and is 'earthed' via an electrical socket or to an outside ground rod.
- Earthing sheets. These are available in half- and full-sheet sizes, and can be earthed either into an electrical socket or to a rod placed in the ground. Research suggests that while we sleep is the best time to earth—and it can improve sleep patterns and insomnia, too.
- Earthing mattress. This is effectively an 'Earthing bed' and contains a grid of conductive material. It can be grounded either from a electrical socket or via a line to a rod placed in the earth outside of the bedroom.
- Earthing recovery bags. This is an earthed sleeping bag that you can carry around with you. Ober developed the product for cyclists taking part in the rigorous Tour de France, who needed quick and effective recovery for their aching joints while they slept. Again, it plugs into the wall.
- Electrode patches and body bands. These conductive patches are designed to be placed near an area of the body where there is pain or injury to accelerate healing or reduce inflammation, Ober says. However, the products are still in the developmental phase, and Ober thinks that grounded Velcro body bands, wrapped around the waist, knee or wrist, are more practical.
- Earthing pet pads. This, again, is a prototype product that was developed for the pet study (*see Factfile C*).