



Volume 1

Is our disconnection from the earth endangering our health?

One of the most important discoveries of our time may prove to be the health benefits of our connection with a layer of electrons on the earth's surface. The California Institute for Human Science has recently demonstrated that connecting to the earth restores the natural electron balance within our bodies.¹ Studies are showing a wide range of benefits from direct contact with the earth: rapid reduction of pain and inflammation; relief from sleep disorders; and calming of a variety of stress-related health problems.

The Barefoot Revolution is a recent movement to increase awareness of the critical nature of our connection with the earth; at the same time to increase awareness of a revolutionary new technology called *earthing*.

Earthing is as simple as taking your shoes and socks off and standing barefoot on the earth. Standing barefoot allows a natural flow of electrons to and from our bodies and also connects us to vital earth rhythms that set many of our biological clocks. The recently developed earthing technology provides a way to reconnect with the beneficial energies of the earth in the comfort of our own homes. Earthing is being used by a growing number of doctors and athletes to reduce swelling and inflammation, relieve pain and stiffness, reduce tension and anxiety and to improve sleep and recovery. The implications of this technology are so far-reaching that James L. Oschman, Ph.D., author of *Energy Medicine The Scientific Basis* has stated, "Earthing has to be the most profound health discovery of our time."

The importance of being "connected"

We are electrical beings. Every process in our bodies is regulated by finely-tuned electrical systems. The heart, brain, digestive tract, and the movements of nutrients and water into our cells are all regulated by electrical fields. But, when we are insulated from the earth (in our homes and work places; even outside when we are wearing synthetically-soled shoes) our bio-electrical systems can build up abnormal charges. Without a connection to the earth, these electrical imbalances elevate and extend the life of free radicals – the molecules of inflammation. Cardiovascular disease, diabetes, multiple sclerosis, asthma, arthritis, gastrointestinal disorders and hypertension are all linked to stress, inflammation and a build up of free radicals. The incidence of each of these diseases has skyrocketed during the last 50-60 years as we have become increasingly disconnected from the earth.



“ Earthing has to be the most profound health discovery of our time. ”

-- James L. Oschman, Ph.D.



Stress, cortisol and Earthing

Because elevated cortisol levels have been correlated with stress, cortisol is often referred to as "the stress hormone." The connection is so reliable that many scientists define stress as "anything that increases our level of cortisol."

One of the first studies of the effects of earthing showed that both sleep and cortisol rhythms improved in just 6 weeks – indicating a significant reduction of stress. Participants in the study also noted decreased aches and pains and a reduction in a variety of other symptoms.²

Free radicals & the Earth Connection

Free radicals are molecules with unpaired electrons that are produced by the immune system. Free radicals are vital to the body's defenses against infection. But when the body's electrical balance is disturbed, free radicals persist longer than they are needed, setting off a kind of chain reaction that leads to the destruction of healthy tissues. The result is chronic inflammation, pain, and joint stiffness.

Research shows that when the human body is directly connected to the earth (earthed), natural electrical potentials are restored. The limitless supply of electrons from the earth quickly neutralizes free radicals, resolving chronic inflammatory conditions. Free radical damage ceases and the body quickly recovers. In other words, the earth provides our primary source of antioxidant protection! Most people in America rarely make direct contact with the earth, so it is not surprising that most diseases in our modern society are linked with stress, inflammation and free radical damage.

Thermal imaging shows Earthing reduces inflammation

Earthing often provides virtually immediate relief for those who suffer from chronic pain (the result of free-radical-induced inflammation). Beneficial effects are often reported within minutes or hours as inflammation and associated pain are reduced naturally. The effects of earthing can be visually recorded using thermal imaging, which reveals the "hot spots" caused by chronic inflammation. Thermal imaging shows a reduction of inflammation after only minutes of earthing. (see page5)

The Barefoot Revolution

Just like our need for air, water and food, our connection to the earth is so vital that standing barefoot on the earth can produce rapid improvements in how you feel. The changes show up in a variety of health measures. Earthing provides the same benefits as standing barefoot on the earth. Barefoot sleep systems and other applications of the earthing technology provide an ideal environment for stress-free rest and regeneration. By placing a patented, conductive pad made with silver fiber fabrics at the foot of the bed and attaching it to a dedicated earthing system, the earth's free electrons and natural frequencies flow instantly to the body during sleep. This restores the body's natural electrical potential. Many individuals report that sleeping with their feet on the Barefoot sleep system lessens headaches, neck and shoulder pain, back aches, leg and foot cramps, TMJ, swelling, bloating, heart burn, stomach reflux, constipation, nausea, PMS, hot flashes, food cravings, allergies, anxiety, irritability and a long list of other problems that interfere with quality sleep.¹

References

1. Chevalier, G, Mori, K. and Oschman, J. The effect of earthing (grounding) on human physiology. *European Biology and Bioelectromagnetics* 31/01/2006 p 600 - 621.
2. Ghaly, M and Teplitz, D. The biologic effects of grounding the human body during sleep as measured by cortisol levels and subjective reporting of sleep, pain and stress. *Journal of Alternative and Complimentary Medicine* 2004 Vol.10, No 5: pp 767-776.

The Discovery of Earthing

Edited and updated from an article by David Minkoff, M.D., Jeff Spencer, D.C., and James Oschman, Ph.D.
— published in *Explore* Vol. 13 No. 6 2004

The remarkable story of the discovery of earthing began when a retired cable TV executive started to think about biology. Over a period of 23 years, Clint Ober watched cable TV thrive by giving customers images that were superior to broadcast television. But what does cable TV have to do with health? The answer may surprise you.

The crisp image delivered by the cable is the result of shielding that prevents signals from leaking out and prevents noise from leaking in. The cable consists of an inner copper conductor surrounded by a mesh shield. The shield is electrically connected to the earth (grounded), so that the earth can either deliver or absorb electrons and prevent the build-up of electrical charges. All of the shielding must be at the same electrical potential as the earth's surface.

Sometime after his retirement, Mr. Ober began to consider how his experience in cable TV might apply to the human body. He realized that most people wear synthetic soled shoes that insulate their bodies from the earth and he wondered if the loss of natural grounding might affect health. He began his investigation with a simple voltmeter using a procedure he had used many times to check the electrical potential on shielded cables. He found a substantial potential of 4 to 5 volts on the surface of his body when he was sitting at his computer. (Voltages are induced onto the body by electric fields radiating from household electrical wires and appliances such as lights and computers.) Then, by taking a voltmeter around his house, he observed how his body voltage varied as he moved from place to place. He determined that the area around his bed was the most "electrically active" region of his home. His bed was up against a wall with electrical wires hidden behind it.

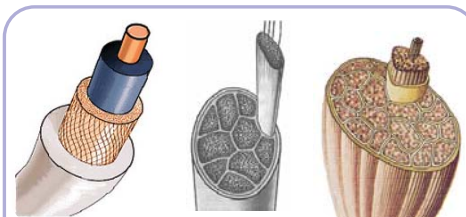
Mr. Ober wondered whether connecting to the earth during sleep might be helpful — especially since sleep is the time the body regenerates. To test his idea, he placed a crude conducting system on his mattress and connected it to a wire that went out his bedroom window to a rod pushed into the earth. When he lay down on this grounded surface, his body voltage dropped to nearly zero. It appeared that lying on the conducting system he had created was equivalent, electrically, to lying directly on the earth.

At that time, Mr. Ober did not sleep well. Several surgeries had left him with chronic back pain that kept him awake every night. His first night of sleeping on the grounded mattress was extremely revealing. He lay down with his voltmeter and confirmed that his body voltage had dropped to nearly zero. He quickly fell asleep and woke up the next morning with the voltmeter still on his chest. He had slept soundly for the first time in years and had not moved at all during the entire night.

Excited by this discovery, he decided to try the system with some of his friends. The results were equally

astonishing. Everyone reported that they slept much better on the grounded mattress. After several days, when one of his friends mentioned that he was no longer stiff and sore in the morning, Mr. Ober suddenly realized that *he* had stopped taking pain medications in the morning too. He had been waking stiff and sore for years, but that was no longer the case.

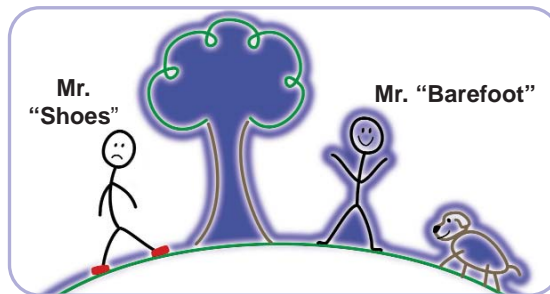
It was at this point that Mr. Ober realized he might have discovered something important. It occurred to him that there might be a similarity between the human body and a TV cable. The TV cable has hundreds of channels of information flowing through it. Similarly, the body has miles of nerves, blood vessels and other channels that conduct electrical signals. When the skin is grounded, it might prevent the entry of "noise" that can disturb physiological signaling.



The similarity between a TV cable (left), a nerve bundle (center), and muscle fibers (right)

Nerve and muscle from Gray's Anatomy, 35th British Edition, by Warwick and Williams, used by permission of Elsevier.

Within a month, Mr. Ober had moved to California to find researchers and engineers who could help test and further develop the *earthing* concept. He adopted the term "earthing" to distinguish between the grounding of TV cables and electrical equipment and connecting the human body to the earth.

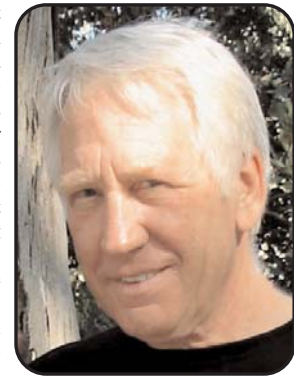


The barefoot connection is easy to understand when you can visualize it.

One of the things Mr. Ober has found as he lectures to a variety of different groups is that when he draws simple stick figures, his audience suddenly "gets the picture."

The above illustration shows "Mr. Barefoot" and "Mr. Shoes." It illustrates how Mr. Shoes (left), even when he is outside in the fresh air, is insulated from the earth and unable to receive the free electrons and balancing frequencies our bodies have become accustomed to. On the other hand, Mr. Barefoot, in direct contact with the earth (either with his bare feet or via the *Barefoot Connections* systems), connects with a steady flow of free electrons and other balancing energies that only the earth can provide.

The first question that needed to be answered was whether there was any possibility that sleeping "earthed" could be harmful. Medical and electronics experts both de-



Clint Ober

clared earthing "perfectly safe." In fact, being connected to the earth has been the natural state of living systems throughout evolutionary history. It is the *separation* from earth that is *unnatural*. A medical electronics expert suggested that a protective fuse be placed in the earthing wire so that in the unlikely event the grounding wire came in contact with electricity, the fuse would protect an individual.

The next thing to do was to set up a blind study. Sixty people with sleep problems, pain, and stiffness were selected for the research. Half of them slept on an improved version of the mattress pad in their homes for 30 days. The results showed that people went to sleep more quickly, slept throughout the night, woke feeling more rested, had reduced muscle stiffness, reduced chronic back and joint pain, and improved general health. During the study, subjects also reported relief from asthmatic and respiratory conditions, rheumatoid arthritis, PMS, sleep apnea, and hypertension.

One woman in the study had crippling arthritis in the joints of her hands and arms and had difficulty walking. Rather than asking her to move to a mattress pad to demonstrate the technology, an EEG-type electrode patch was substituted for the mattress pad. After chatting for 5-10 minutes, the woman said the pain in her arm was much better, and she asked that the patch be moved to her other arm. After some more conversation, she reported a reduction in the pain in that arm as well.

This added a new dimension to the discovery. Mr. Ober gathered some of his friends who suffered from arthritis and other painful conditions. He gave them electrode patches and earthing wires. Remarkably, everyone reported a reduction in pain. The earthing patch seemed to produce rapid reduction in inflammation.

Anesthesiologist, Maurice Ghaly M.D., who was skeptical of the results of the first study, agreed to conduct his own clinical trial and monitor cortisol levels. Since cortisol is a reliable indicator of both stress and inflamma-

Discovery cont.

tion, he reasoned that shifts in cortisol levels would indicate whether or not inflammation was really being reduced.

In collaboration with Dale Teplitz, Dr. Ghaly studied a group of 12 people who reported pain and poor sleep. The subjects were earthed during sleep in their own beds. Saliva was tested to determine daily cortisol levels before and after six weeks of sleeping earthed. Each day during the study the subjects were also asked to assess symptoms of sleep dysfunction, pain, and stress.

Although Dr. Ghaly set out to prove that the earthing concept was flawed, what he found was just the opposite. To his surprise, he discovered that earthing reduced nighttime levels of cortisol and shifted the 24-hour circadian cortisol rhythms toward normal. He also found that nearly all participants reported reduced or eliminated symptoms of a variety of pains and sleep disorders. (see page 4)

In 2003, news of the earthing discovery reached Jeffrey Spencer, D.C., a specialist in athletic performance and recovery. As the chiro-

practor for Lance Armstrong and the United States cycling team participating in the *Tour de France*, Jeff was prompted to investigate earthing because of Dr. Ghaly's cortisol study. Cyclists and other high performance athletes often show abnormalities in cortisol rhythms; most cyclists begin to have trouble sleeping after several days of cycling in the demanding *Tour*.

Dr. Spencer recognized the potential of earthing for treating a variety of problems related to athletic performance and chronic injury. He realized that sleeping earthed on a regular basis could provide athletes with a tremendous competitive advantage. That year during the *Tour de France* the following outcomes were observed:

- Sleep was universally improved.
- Tendonitis was virtually eliminated.
- Wound healing and recovery from injury were vastly accelerated.
- Consistency of performance was significantly improved.

- Team morale remained high throughout the entire *Tour*.

Dr. Spencer now uses the earthing technology in his practice which includes a number of high-profile athletes.

The story of the discovery of earthing is far from complete. During the last two years, several studies have shown that earthing has nearly instantaneous effects on the brain, muscles, blood pressure, and respiratory rhythms. Clinical sleep studies are also demonstrating improvements in a wide variety of parameters that influence quality of sleep.

The more we learn, the more we are coming to understand that one of the most important things we can do is maintain a connection with the earth. Fortunately, the Barefoot technology makes it possible for anyone to have the benefits of being in contact with the earth, even in climates where standing outside barefoot is impractical. [\[1\]](#)

On Jan. 27, 2004 United States patent 6,683,779, was granted for personal body grounding devices.

The Inflammation Theory of Disease and the "Barefoot Connection"

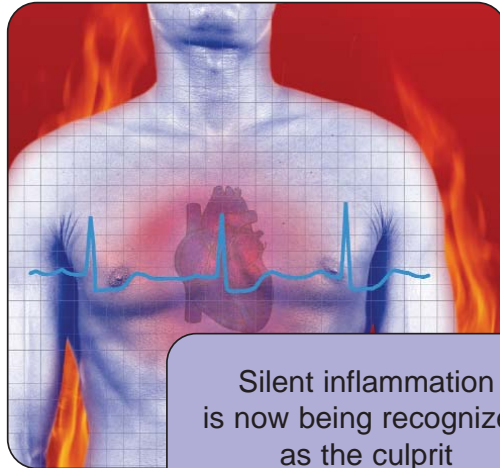
According to a new theory that has been steadily gaining ground within the medical community, the immune reaction known as inflammation may be the underlying cause of a wide range of chronic diseases. The familiar manifestations of inflammation are short lived: swelling, redness, heat, pain and decreased range of motion. However, when the inflammatory response does not shut down properly it can get carried away, causing unnecessary damage to tissues and a long list of other problems. Those *other problems*, known by a variety of disease names, are finally being recognized for what they really are - chronic inflammation.

Inflammation is an immune response brought about by injury or invasion. White blood cells are constantly on patrol, searching for viruses, bacteria and injured cells. When a problem is spotted, white blood cells rush in while chemical signals bring in other, more specialized cells. Inflammation increases blood flow to the area, producing redness and warmth. Inflammation also produces an abundance of free radicals.

Free radicals are highly reactive molecules. Because they are missing an electron, they are capable of rapidly destroying invading organisms by tearing electrons from their structures. While free radicals are vital to the immune response, problems arise when they cannot be brought into check after the threat of infection or injury is passed.

Chronic inflammation results when free radicals begin to attack healthy tissues. The immune system responds by delivering more free radicals which continue the attack. Some scientists refer to this destructive cycle as "silent inflammation."

Silent inflammation is now being recog-



Silent inflammation is now being recognized as the culprit behind a whole list of degenerative diseases.

nized as the culprit behind a whole list of degenerative diseases:

arthritis, chronic fatigue, osteoporosis, multiple sclerosis, fibromyalgia, thyroid dysfunction, Alzheimer's, Crohn's and many other inflammatory diseases. Each of these diseases is associated with a gradual deterioration of the body caused by immune dysfunction and chronic inflammation.

Scientists have known for a long time that the inflammatory response can backfire, causing autoimmune disease. But the idea that inflammation could be involved in other diseases began to gain credence when doctors realized that stomach ulcers were not caused by stress or spicy food, but by inflammation triggered during bacterial infection. Soon, evidence began to accumulate that inflammation was

important in far more than just ulcers. Today, nearly every branch of medicine and surgery includes the study of inflammation.

The medical community is becoming increasingly convinced that inflammation plays a crucial role in some of the most devastating afflictions of our time: heart disease, cancer, diabetes, and others. The evidence is so strong that in 2003 the American Heart Association and the Centers for Disease Control and Prevention recommended that doctors include a test for free radicals in their medical check-ups, to determine a patient's risk for heart disease.

The inflammation theory has led to an explosion of research directed towards the development of new anti-inflammatory compounds. But the answer may have always been just beneath our feet.

In the 1960s, with the introduction of plastics, we were disconnected from the single most important anti-inflammatory agent ever known - the earth. Synthetic soled shoes, carpets and modern building materials now insulate our bodies from direct contact with the earth. They keep us from receiving the free electrons, which can naturally neutralize excess free radicals and support the winding down of the inflammatory response. No wonder thousands of people are choosing to re-connect with the earth using the Barefoot technology. There are no pills to take, no contraptions to wear, nothing to remember to do, and no refills to buy. Once you have purchased a Barefoot system you may be surprised how good it feels to be connected. [\[1\]](#)

Earthing Reduces Stress

The Stress/Cortisol Connection

Stress has many causes: injury, lack of sleep, environmental pollution, worry, ill health, etc. But no matter what the cause, when stress is prolonged it can trigger a sequence of events that lead to fatigue, disease and premature aging.

The stress response is the biological equivalent of a turbo charger. When we perceive a real or imagined threat, the brain initiates a series of reactions that prepare the body for fight or flight. The adrenal glands produce a hormone known as *cortisol* which has been dubbed the “stress hormone.” The relationship between stress and cortisol is so reliable and so easily measured that cortisol has become a standard biomarker for stress.

The Cortisol Cycle

Normal cortisol levels are high during the day and lower during the evening hours as we rest. (see graph) However, individuals under stress (most of the population today) have elevated and irregular cortisol rhythms. Research has correlated elevated cortisol with a wide variety of disorders: heart disease, diabetes, cancer, autoimmune disease, etc.

When cortisol levels remain high into the evening they can cause insomnia and other sleep disorders. Elevated cortisol levels also cause inflammation, digestive disorders, decreased immune function, hormonal changes, anxiety, depression, fatigue – even aging.

Cortisol and Heart Disease

Stress leads to chronic muscle tension which can, in turn, lead to muscle spasms and pain. Spasms in the back, legs and shoulders are common indicators of stress. The heart is the most important muscle affected by stress. High cortisol levels have been associated with arrhythmias, high blood pressure, increased blood clotting and high cholesterol. Each of these conditions raises the risk of heart disease (the nation’s number one killer), and stroke.

Digestion is Effected by Cortisol

High cortisol has been linked with a number of digestive disorders (particularly irritable bowel syndrome). Elevated cortisol levels appear to reduce the elasticity of the intestinal wall, leading to increased transit time of foods through the bowels. The result is constipation and reduced nutrient absorption. Cortisol also influences the balance of intestinal flora, decreasing beneficial bacteria while encouraging the growth of harmful intestinal invaders.

the brain, affecting moods. In some cases stress and cortisol are at the root of anxiety and depression. Excess cortisol in the blood interferes with mood-enhancing neurotransmitters like serotonin. Disturbances in serotonin levels are a known factor in clinical depression and anxiety disorders; they are linked to insomnia, obesity and increased sensitivity to pain.

Cortisol and Aging


Those who study aging refer to cortisol as “the death hormone.” When a young person experiences stress, the cortisol level goes up rapidly but returns to normal quickly. In older people, it may take days for cortisol levels to return to normal following stress. Sustained high levels of cortisol are extremely harmful to the body, producing premature symptoms of aging. At high levels, cortisol causes death to brain cells.

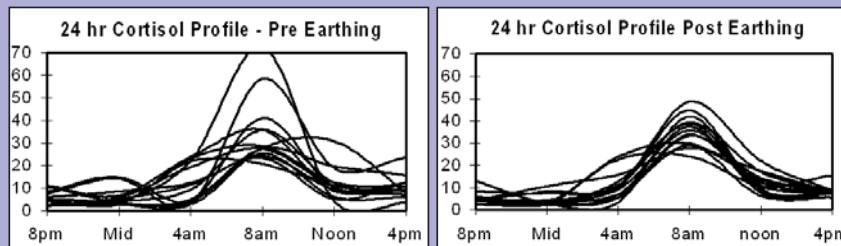
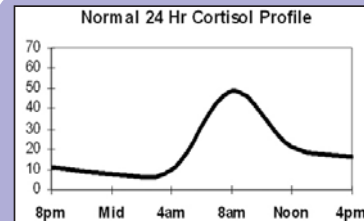
It causes a decrease in muscle mass, shrinkage of vital organs, and thinning of the skin – all associated with age.

Earthing Normalizes the Cortisol Cycle

While cortisol is a significant part of the body’s response to stress, it is important that cortisol levels follow a natural cycle. One of the early studies to determine

the effects of earthing (published in the *The Journal of Alternative and Complementary Medicine*), showed that by sleeping earthed cortisol rhythms began to normalize in weeks (see graphs), resulting in a reduction of pain and other symptoms. During the study, participants noted improved sleep, a reduction in stress and irritability, greater daytime energy, reduced aches and pains as well as a reduction in numbness, headaches, menstrual cramps, TMJ (temporomandibular joint syndrome) and digestive distress. Most noticed these improvements within the first few nights of the study.

Considering that 75-90% of modern illnesses are attributed to stress and correspondingly high levels of cortisol, the advent of the Barefoot technology is clearly one of the most profound innovations of our time. 



Diagrams show the cortisol cycles of participants in the Ghaly/Teplitz study before earthing (left), and after 30 days of sleeping earthed (right).

Cortisol and Immune Function

Cortisol weakens the immune system. The intestinal tract is the first line of defense for the immune system. Cortisol suppresses the production of special antibodies residing in the lining of the intestines and other organs. Elevated cortisol also influences the balance of immune cells. It reduces Natural Killer (NK) cells - up to 50%. NK activity is the body’s surveillance system, detecting abnormal and malignant cells throughout the body. Reduced immune function leaves the body vulnerable to illness, chronic inflammation, and the development of autoimmune diseases.

Depression – linked with cortisol

Cortisol influences neurotransmitters in

Earthing Improves Levels of the Sleep Hormone – Melatonin


During the study on cortisol, another important hormone known as melatonin was monitored. Three fourths of the participants in the study showed increased levels of morning melatonin after six weeks of sleeping earthed.

This finding may have important ramifications. The nighttime peak for melatonin becomes lower and lower as we age. Declining melatonin levels are also associated with many degenerative illnesses including Parkinson’s and Alzheimer’s disease. Additionally, melatonin is

a powerful antioxidant, helping to keep oxidative (free radical) damage in check as we age.

Melatonin is a modulator of circadian biorhythms – a part of the system that regulates the sleep-wake cycle. It is released into the bloodstream at night and follows a 24-hour cycle similar to the cortisol cycle. Known as the *sleep hormone*, melatonin stabilizes and promotes normal sleep. Melatonin levels are often lower in those who experience insomnia and other sleep problems. For this reason it has

become a popular therapy for sleep disturbances, jet lag, and seasonal affective disorder. It is also a factor in most autonomic, hormonal and behavioral functions.

The fact that earthing supports normalization of both the cortisol and melatonin cycles is reinforcement for the significance of our connection with the earth – especially since changes in the earth’s frequencies also follow a regular, cyclic pattern. 

Thermography Shows Dramatic Reduction of Inflammation and improvements in circulation

Medical Thermography is a non-invasive, diagnostic tool used for more than 20 years to evaluate inflammation and other medical conditions. Using thermal imaging cameras with an accuracy of .1 degree C, tiny changes in the temperature of the skin are recorded and used to create a color-coded image map. Because tissue damage causes increased heat, abnormally hot areas indicate inflammation; cold areas often indicate poor circulation.

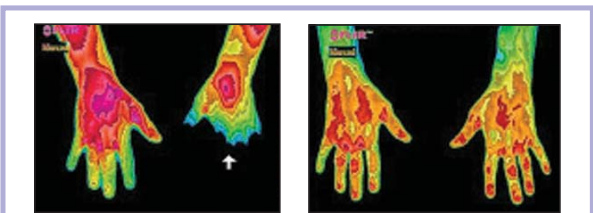
During 2004-05, Dr. William Amalu, President of the International Academy of Clinical Thermography con-

“ [Earthing] is showing incredible promise as one of the most significant advances in the treatment of both acute and chronic inflammatory conditions. ”
 - William Amalu, DC, DABCT, FIACT

ducted extensive research with the Barefoot technology. Shown below are a sampling of over 30 case studies he conducted during his initial investigation. They demonstrate the dramatic and rapid improvement of inflammation, pain reduction, increased range of motion, restoration of function, and improved sleep.

Following his investigation, Dr. Amalu stated: "As of this time, [earthing] is showing incredible promise as one of the most significant advances in the treatment of both acute and chronic inflammatory conditions."

Pain leaves – Circulation returns



The images on the left were taken prior to earthing. Note the temperature of the left hand is so low that the fingers are at the same temperature as the room. Images on the right were taken after 4 nights of sleeping on the Barefoot sleep system. Note the significant improvement in circulation with a return of normal thermal symmetry.

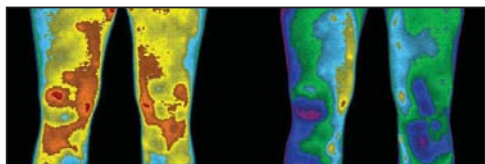
The patient in this study (a 49-year-old female) had the following complaints: chronic neck and upper back pain, restless legs during sleep, and waking stiff and sore. She had tried medical and alternative treatments with poor results.

After 4 nights of sleeping on the Barefoot sleep system, the patient reported a 65% reduction in pain, a 75% reduction in restless legs during sleep, and an 80% reduction in waking stiff and sore. Steady continued improvement was reported by the patient during the following 6 weeks.

Dancing again after 6 years

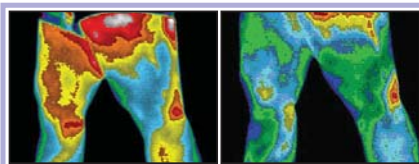
The patient in this study (a 48-year-old female) had been totally disabled for 6 years with chronic bilateral knee pain, swollen knees, and fatigue. She had received three knee surgeries, prolonged medical treatment, and physical therapy with poor results. She came in with knee wraps, a pronounced limp, and the need for a walker.

After 30 minutes of exposure to clinical earthing, the patient reported a 20% reduction in pain that lasted for 24 hours. After 5 days of clinical earthing, the patient reported a 30% reduction in pain with an increase in energy that she described as "almost back to normal." After 2 weeks of treatment the patient felt good enough to try dancing and reported no increase in symptoms afterward. By the 3rd week the patient no longer needed her walker. After 6 weeks of treatment the patient's limp resolved. At week 12 the subject reported an overall 90% reduction in pain and swelling and noted, "I can't believe I have my life back."



Thermal images (left) show inflammation in both knees. Note the considerable reduction in inflammation (right) after just 30 minutes of clinical earthing.

Eighteen years of pain – resolved



Thermal images reveal significant inflammation (left) and a return to near normal (right) after only 6 days of earthing

The patient in this study (a 33-year-old female) had experienced chronic right knee pain with swelling and instability for over 18 years. She was unable to stand for long periods of time and needed to sleep with a pillow between her knees to decrease the pain. The patient had undergone medical treatment and physical therapy on and off for many years with minimal results.

After 6 days of clinical earthing, the patient noted a 50% reduction in pain; she could also stand for longer periods of time and she no longer needed a pillow between her legs to sleep. After 4 weeks of treatment, the patient felt little pain -- good enough to play soccer. After 12 weeks (for the first time in 15 years), she went waterskiing. Six months from the time she began the earthing treatment, she reported that she had finished a half-marathon.



After 8 months, wound heals in 2 weeks

The patient in this study (an 84-year-old female) had an 8 month old open wound on her left ankle. She had been undergoing various types of treatment at a specialized wound center with no results.

After 30 minutes of exposure to clinical earthing, the patient reported a noticeable decrease in pain. After 1 week of daily earthing treatment, the patient noted an 80% reduction in pain. The patient also showed no evidence of a limp. The patient reported that she was completely pain free by the end of week 2.



Before After 1 week After 2 weeks

Photographs show a significant amount of healing after one week. By the end of the second week, the wound was healed over and the color of the leg showed improved circulation.

An Interview with James L. Oschman, Ph.D.

Jim Oschman, Ph.D., has written two medical texts on energy therapies. He is considered a leading authority on how the various complementary and alternative therapies work from the scientific perspective. This interview about the Barefoot technologies was conducted in October of 2006.

Q: In an age when there are so many discoveries and health-related technologies emerging every day, why do you think the simple concept of earthing has to be the most profound?

A: I do see new technologies emerging every day and I am often asked to examine them and explain how they work. What is most profound about earthing, and the Barefoot technologies, is their very simplicity. I attended a meeting on the east coast, and one of my colleagues came in from the west coast. She had a bad case of jet lag. I told her to take her shoes and socks off and step outside on the grass for 15 minutes. When she came back in, she was completely transformed. Her jet lag was gone. That is how fast earthing works. Anyone can try this. If you don't feel well, for whatever reason, just make barefoot contact with the earth for a few minutes and see what happens. Of course, if you have a medical problem, you should see a doctor. But for ordinary aches and pains, digestive or respiratory problems or sore muscles, there is nothing that comes close to earthing for quick relief. You can literally feel the pain drain from your body the instant you touch the earth.

Q: What exactly is meant by the term "Barefoot" technologies?

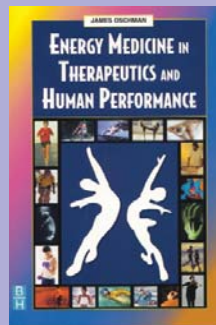
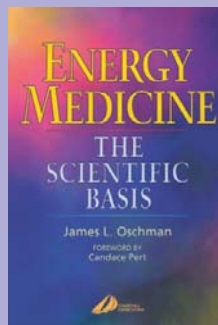
A: It is not always possible to be in barefoot contact with the earth. For example, while it would be a good idea to sleep directly on the earth, this is not very safe or comfortable, especially in the winter. The Barefoot sleep system enables us to have the benefits of contact with the earth during the third of our lives we spend sleeping, and you can use your own bed. Sleep is the time when we need to rest and recover from the stresses of our daily activities. If we do not sleep well (and many people suffer from insomnia) we never get a chance to recover, and this makes us susceptible to a wide variety of stress-related problems. As these problems worsen, they can interfere with our sleep even more, and the situation gets even worse. This cycle of discomfort, stress and insomnia can be quickly reversed, simply by installing a Barefoot sleep system on your bed. It may well be the simplest, least expensive and most important change you can make to improve your over-all health and enjoyment of life.

Q: Are there other Barefoot technologies besides the sleep system?

A: Once you feel the benefits of the Barefoot sleep system, you will wonder how you can maintain contact with the earth throughout the day. The other Barefoot technologies enable you to do this while you are at home or at work. They consist of Barefoot foot pads, carpets, shoes and other accessories that continue to bring you the benefits of being in contact with the earth.

Q: You've had the opportunity to be involved with many athletes. How does earthing effect human performance?

A: I have a friend who ran in a marathon. Part way through the race, he developed a very painful blister on his foot. Recalling the great barefoot runners from Africa who have won many marathons, he decided to finish the race without shoes. Not only was he able to finish the race without pain, he was very surprised at the end to find that his blister was completely gone. The most thorough documentation of the effects of earthing for athletes was from the use of Barefoot systems by the US cycling team in the *Tour de France*. Dr. Jeff Spencer was involved in taking care of the cyclists in all seven victories. During the last 3 tours, Lance Armstrong and his team used Barefoot sleep systems every night. Dr. Spencer documented the resulting enhanced performance, speeded injury repair and facilitation of recovery.



Jim Oschman, Ph.D. is a leading authority on the scientific basis of alternative therapies.

Q: How does earthing affect the body's ability to heal?

A: The simplest explanation is that aches and pains and other disturbances in our bodies are often caused by inflammation. And electrons from the earth have natural anti-inflammatory effects, reducing inflammation anywhere in the body. One of the most profound discoveries in modern biomedicine is that many of the chronic and debilitating diseases of our time have the same cause: chronic inflammation. Scientists now realize that many of our aches and pains arise from small regions in the body where an inflammatory response has taken place, but the

inflammation has not completely stopped after the healing process. A low level of chronic inflammation can continue for years, damaging normal tissues and wasting energy. Many people take anti-inflammatory drugs or nutritional supplements, but these substances must pass through the digestive tract and circulatory system to reach sites of inflammation. This takes time, and all chemicals can have side effects. In contrast, electrons from the earth are rapidly conducted throughout the body, which is a good conductor. Many scientists now believe that the human immune system evolved over millions of years when we were in barefoot contact with the earth, and that the immune system stopped functioning properly when we started wearing shoes with insulating soles. This happened only about 50 years ago, and chronic disease and insomnia have skyrocketed ever since.

Q: In the clinical studies, the physiological effects of earthing have been almost immediate. Can you explain this?

A: It is a repeated observation that earthing produces beneficial effects very rapidly. As mentioned, the body is a good conductor of free electrons, and they probably travel virtually instantaneously from the earth to sites of inflammation. Electrons may even be attracted to those sites because electrons have a negative charge and free radicals have a positive charge. Once these free radicals are neutralized, they stop their destructive actions on healthy tissues, and pain goes away immediately.

Q: Certainly earthing can improve quality of life, but what about aging? If stress causes pre-mature aging, do you think we can add years to our lives by re-connecting with the earth?

A: Unquestionably! Many researchers have documented the deterioration of the immune system as we age. There is even a name for the phenomenon, immunosenescence. A prominent medical theory, repeatedly confirmed, states that the general deterioration during aging is caused by free radical damage. This is technically known as oxidative stress, and results in the injury of cells. Earthing greatly reduces oxidative stress and is expected to increase life expectancy and improve health. There is no question that maintaining a functionally "young" immune system is an excellent strategy for preserving the quality of life and slowing senescence.

Q: Do you have any other comments on the value of the Barefoot systems?

A: Beyond the things we've already covered, it is important to remember that as a human race, we evolved in connection with the earth; it has always been with us. It's almost as though our bodies "count on" the grounding influence of the earth. The Barefoot systems allow us to maintain that important connection even though our lives have taken us out of direct contact. 🌍

Restful Sleep – the link to health and youth

There is nothing like a good night's sleep. It affects how we feel. It also affects performance, safety, and overall health. In fact, the need for sleep overpowers all other physical needs. Deep, restful sleep strengthens the immune system and supports regeneration and healing. Rest enhances memory, problem-solving, creativity, analytical skills and reaction time. Yet, for one reason or another, the vast majority of Americans do not sleep well. A recent survey conducted by the National Sleep Foundation revealed that nearly 70% of adults have *frequent* sleep problems. Almost 30% of those surveyed said they had trouble *every* night. Not surprisingly, the survey also found a direct correlation between the number of medical conditions reported and the lack of quality sleep.

Sleep deprivation

Remember when your mother told you to get eight hours of sleep? She was right. Most experts say that *at least* eight hours of sleep are necessary to completely regenerate after a full day's activity. However, in the industrialized nations the trend is toward less and less sleep. In 1910, the average person slept 9.0 hours a night. By 1975, the total had fallen to 7.5 hours, and in 2002 the *Sleep in America* poll indicated that the average American adult only slept an average of 6.9 hours a night. Less sleep and an increasing number of sleep disturbances lead to sleep deprivation and a multitude of secondary problems.

A research team at the University of Chicago recently found that insufficient sleep actually *canceled out* the positive effects of regular exercise and good nutrition. A sleep deficit of just a few hours a week significantly compromised the immune system. Other studies reveal that sleep deprivation results in hormonal and metabolic changes similar to those associated with *aging*. According to Dr Eve Van Cauter, professor of medicine at the University of Chicago, "...chronic sleep loss may not only hasten the onset but could also increase the severity of age-related ailments such as diabetes, hypertension, obesity, and memory loss." In other words, lack of restful sleep accelerates the aging process. It compromises the immune system, decreases brain function and increases the severity of many diseases. This information joins a growing body of evidence suggesting that without sufficient, restful sleep even the best nutrition and exercise programs cannot provide health and vitality.

Relaxation and recovery

We spend about a third of our lives sleeping. During sleep, our bodies repair and regenerate, and our minds process the mental and emotional events of the day. But when the body cannot fully relax, rest and recovery are compromised.

One of the early benefits recognized from earthing was an almost instantaneous relaxation. This was accompanied by deeper

breathing and a reduction in muscle tension – the perfect recipe for restful sleep and recovery. These findings have been confirmed by researchers at the California Institute for Human Science.

REM sleep

REM (rapid eye movement) sleep is when most healing and regeneration occur. During REM sleep, the brain also organizes the neural networks essential for remembering, learning, performance and problem solving. REM sleep occurs about every 90 minutes and the periods of REM sleep get longer as the night progresses. The time between the seventh and eighth hours of sleep is nearly all REM sleep – unless you're not getting eight hours. If you're a six-hour sleeper, you're missing the longest period of REM sleep and the most significant opportunity to repair and to prepare for the next day.



By placing the Barefoot sleep system at the foot of the bed, and connecting it to the earth, electrons and earth energies are transferred to the human body for restful, restorative sleep.



Significant improvement in REM sleep occurs for those who sleep earthed – especially for those who have trouble sleeping. One study compared a night without earthing to a night using the Barefoot sleep system. Not only did REM sleep improve by 35%, but total sleep time increased by over two hours. Overall sleep efficiency also improved by 20%.

When earthed:

**85% fall asleep faster
93% report better quality sleep
100% feel more rested.**

Insomnia

One of the most often-reported sleep disturbances is a difficulty falling asleep. Millions of Americans toss and turn – sometimes for hours, before they finally go to sleep. Another common problem is waking and not being able

to return to sleep. Both types of insomnia are thought to result from hyperarousal of the body's stress response system. Research shows that those with the highest degree of insomnia also have the highest levels of cortisol at night.

During one study designed to evaluate the benefits of earthing during sleep, 60 participants were monitored for 30 nights while sleeping earthed. Eighty-five percent of the participants fell asleep faster, 93% reported better quality of sleep and 100% said they felt more rested. Besides noticing that sleep was improved, 82% reported relief from a variety of symptoms while *none* of the participants in the control group reported these benefits.

Circadian rhythms

Besides being electrical beings, we are also circadian beings. Our body functions follow a 24-hour, day/night (circadian) cycle which is disrupted when we disconnect from the earth.


Many hormones and organs in the body are governed by an internal clock which is synchronized with environmental cues. Although the most obvious cue is the sun, direct physical contact with the earth is an important cue in keeping our biological clock synchronized.

Two significant hormones follow circadian rhythms: melatonin and cortisol. Both follow 24-hour cycles which normalize when sleeping earthed. (see pg.4) Melatonin, known as the *sleep hormone*, normally increases during sleep; it governs the sleep cycle. As we age we tend to produce less melatonin – one reason the elderly have trouble sleeping. Those who do not sleep well typically have lower melatonin levels.

The cortisol cycle is an indicator of stress. (see page 4) Normalization of this cycle indicates an enhanced ability to relax and cope with stress. The fact that this cycle normalizes during consistent earthing represents a huge breakthrough in stress management – especially since stress is a major factor in virtually every disease. Normalization of circadian rhythms has far-reaching implications where sleep and overall health are concerned.

Sleeping earthed

If we all slept in direct contact with the earth, there is a good chance that most of the sleep disturbances which plague our modern society would disappear. These problems simply do not exist in societies where people traditionally sleep on or near the earth. Moreover, inflammatory diseases are virtually unheard of in these societies.

Unfortunately it is impractical for most of us to spend even a few hours outside each day – let alone sleep directly on the earth. With a Barefoot sleep system, anyone can enjoy the benefits of being connected to the earth during sleep – the time when our bodies benefit the most. Now *that's* restful sleep! 

Frequently Asked Questions about Earthing and the Barefoot Technology



What should I expect from using the Barefoot technology?

When you first use the Barefoot technology, you may literally feel the pain drain from your body. With longer use, you are likely to experience a continuing reduction in chronic pain, aches and stiffness and increased energy as well as quicker recovery from physical activity. For those who sleep earthed, most notice a deeper, more relaxed sleep and a reduction or elimination of headaches, neck and shoulder pain, back aches, leg and foot cramps, swelling, bloating, heart burn, stomach reflux, constipation, PMS, hot flashes, allergies, anxiety, irritability and numerous problems that interfere with quality sleep.

How long does it take to notice the effects of earthing?

Some people experience the effects virtually immediately. In cases of chronic pain, the effects are often observed in minutes. For some, the benefits are so subtle they go unnoticed until they have to be without the technology. As with anything, individual experiences vary.

Are there any risks to earthing?

Absolutely none. Earthing is the most natural thing a person can do. It is equivalent to standing barefoot on the grass.

What is the earth's electrical field?

Geophysicists have known for a long time that the surface of the earth has a steady supply of electrons. This unlimited supply is continually replenished by thousands of lightning strikes per minute somewhere on the planet. Electrons are immediately dispersed across the surface of the planet – many are eventually lost into the atmosphere. The whole system is known as the “global electron circuit.”

Why does the earth's electric field transfer so easily to the body?

The body is mostly water and minerals; it is an excellent conductor of electricity (electrons). The free electrons on the surface of the earth are easily transferred to the human body as long as there is direct contact. Unfortunately, synthetically-soled shoes act as insulators so that even when we are outside we do not get the benefits of the earth's electric field. When we are in homes and office buildings, we are also insulated and unable to receive the earth's balancing energies. Barefoot technology remedies this situation allowing an individual to be in contact with the earth in the comfort of his/her home and work place.

Why are the earth's electrons so vital to our health?

Electrons from the earth have several important roles in maintaining health. First, free electrons are the ultimate anti-oxidants; they spread rapidly throughout the body, neutralizing excess free radicals. This is the most likely explanation for the fact that earthing reduces pain and inflammation. A second important role involves the daily and seasonal rhythms in the earth's electrical field. Recent research from Germany has shown that direct contact with the earth connects us with natural rhythms that set biological clocks and help maintain many metabolic functions.

What is the difference between the earth's electric field and the electric field used to conduct electricity in our homes?

The earth's electric field is a continuous direct current (DC). Thousands of years of life on the planet have attuned our biology to this subtle field. On the other hand, home wiring systems in the U.S. use 60-cycle alternating current (AC). Alternating current turns on and off sixty times a second, creating an oscillation of the electrons in our bodies when we are near electrical wiring. Alternating current is foreign to our biology and causes a variety of stress-related responses which are alleviated when the body is earthed.

Can a person feel the earth's field?

While you cannot directly feel the earth's field, many people sense a wave of relaxation the moment they are earthed. Research is explaining why this happens. Earthing normalizes muscle tension and the autonomic nervous system within a split second. Two separate clinical studies show that

inflammation begins to decrease within minutes. Longer term effects include an increased ability to cope with stress due to the normalization of biological rhythms, including the cortisol rhythm.

Can I “earth” myself to a home electrical outlet ground?

No! Barefoot systems contain a 1 Meg Ohm resistor and meet UL ESD standards for personal grounding. The Barefoot Connections Terminal is also specifically designed to check the circuitry of your outlet and to confirm that a dedicated earth wire system is connected to the earth. The green “grounded” light on the Barefoot Connections Terminal will light up only when earth ground wire is properly connected to the outlet. Homes built before 1970 do not have earth ground systems, and even though many of these older homes have new outlets, there is no earth ground wire connected to the new outlets. If the “grounded” light does not come on when you plug in the system, an electrician will need to install a dedicated earth ground or you may use the grounding rod (provided with some systems) to connect directly to the earth.



Is it okay to use a Barefoot sleep system along with an electric blanket or on an electrically heated mattress pad or waterbed?

There is nothing wrong with using a Barefoot sleep system in conjunction with any other electrical device – as long as they are functioning properly. However, given what we are learning about induced electric current, the use of electric blankets or other electrical devices in close proximity to the body is not recommended.

What is the difference between earthing and the use of magnets?

Although the use of magnets can produce some therapeutic effects when properly applied, magnets cannot provide free electrons, nor can they connect the body with the naturally balancing frequencies of the earth. The patented Barefoot technology is the only way, without standing directly on the earth, to connect with the earth's restorative electron field.

Why is earthing so important now?

People everywhere are looking for solutions to a variety of inflammatory conditions and sleep disturbances. Time Magazine's recent cover story, “The Secret Killer” summarized research linking inflammation to heart attacks, strokes, cancer, arthritis, osteoporosis, Alzheimer's and other common health disorders. Despite many claims, Barefoot technology is the only scientifically documented way to produce measurable improvements in both inflammation and quality of sleep – naturally. Its simplicity and ease of use are making it the obvious choice for millions who want to live longer, more productive lives.



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