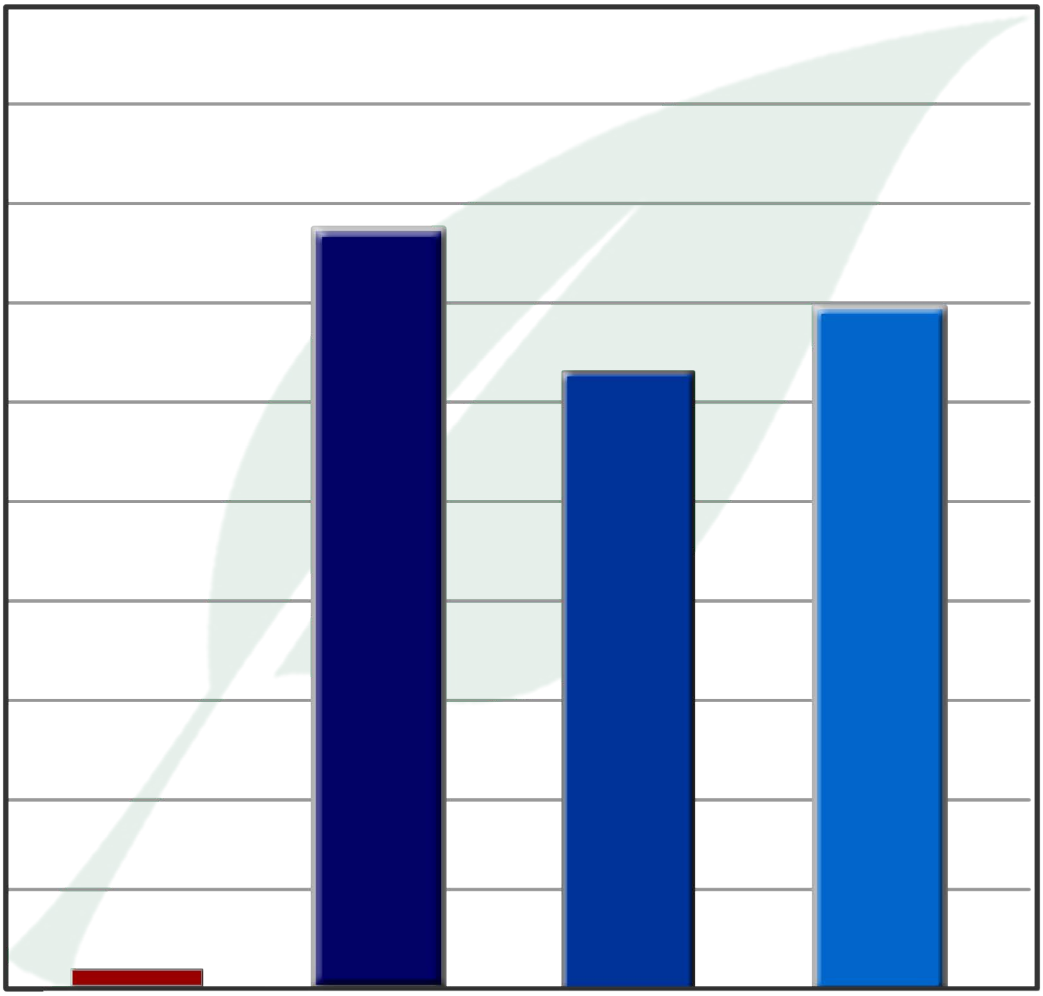
LECTRO·LIFE
TECHNOLOGY FOR HEALTHY LIVING

Heavy Metal and Mineral Analysis Performed on the Lectro Chi Ionic Foot Spa



Research and Data Compiled on
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Aluminum (Al)

Purpose

The purpose of the “Heavy Metal and Mineral Analysis” performed on the Lectro Chi Ionic Foot Spa was to validate or refute claims that heavy metals and minerals were being removed from human subjects during a Lectro Chi ionic foot bath session.

Water Analysis for Aluminum (Al)

Description	*Before mg/L	**After mg/L	Change mg/L	Change %
Study 1	< 0.0500 (<50 ppb)	< 0.0500 (<50 ppb)	0.0000 (0 ppb)	0.00%
Study 2	< 0.0500 (<50 ppb)	0.0870 (87 ppb)	0.0370 (37 ppb)	74.00%
Study 3	< 0.0500 (<50 ppb)	< 0.0500 (<50 ppb)	0.0000 (0 ppb)	0.00%

*Before = “No Feet” which represents the concentration of the specific metal/mineral tested from a water sample that included a 30 minute “Cleansing” and 10 minute “Energy” session with no human contact. Feet and hands were not present in the water during the 40 minute session.

**After – represents the concentration of the specific metal/mineral tested from a water sample (Study 1, Study 2, and Study 3) that included a 30 minute “Cleansing” and 10 minute “Energy” session with human contact.

“*Study 1*” represents an individual in their mid 50’s and in good health.

“*Study2*” represents an individual in their mid 40’s and in good health.

“*Study 3*” represents an individual in their early 30’s and in excellent health.

Control Factors

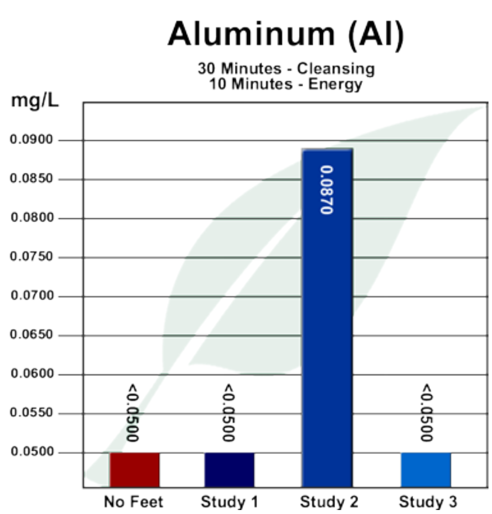
- The same Lectro Chi Pro Energy foot spa was used for all treatments.
- Each session utilized 1 gallon of distilled water purchased from the same water distillery.
- 1 oz. of Dead Sea salt was used during each session.
- Each session was performed at 2.5 amps.
- A new water module was used for each session.
- Each session utilized 30 minutes on the “Cleansing” setting and 10 minutes on the “Energy” setting.
- TraceAnalysis, Inc. - 6701 Aberdeen Avenue, Suite 9, Lubbock, TX 79424 performed all sample testing.

ppb – Parts per Billion
mg/L – Parts per Million (mg/L is equitable to ppm)

“Study 1” and “Study 3” had no measurable change compared to “No Feet”.

“Study 2” returned 0.0870 mg/L (87 ppb) of aluminum (Al) and had an increased aluminum (Al) concentration of 0.0370 mg/L (37 ppb).

The ending result for “Study 2” is a 74.00% increase of aluminum (Al) concentration found in the session water.



Drinking Water - Health Based Limits

*National Secondary Drinking Water Regulations

Aluminum (Al) - 0.2000 mg/L (200 ppb)

*A National Secondary Drinking Water Regulation is a non-enforceable guideline regarding contaminants that may cause cosmetic effects (such as taste, odor, or color). Some states choose to adopt them as enforceable standards.

Sources: U.S. Environmental Protection Agency.
Environmental Working Group, A National Assessment of Tap Water Quality, www.ewg.org, December 20th, 2005

Chemical and Physical Information

- Aluminum is a silvery-white metal. In nature it is particularly found in igneous rocks as aluminosilicate minerals.
- Because of its high reactivity, aluminum does not exist as the metal in the environment: it exists in a combined state with other elements.
- Aluminum metal is used to make beverage cans, pots, and pans, automotive components, siding and roofing, and foil.
- Aluminum compounds are used in water treatment, abrasives, and furnace linings.
- Aluminum compounds are found in consumer products such as foil and antiperspirants, over the counter and prescription drugs such as antacids, buffered aspirin, and antiulceratives, and in food additives

Source: U.S. Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry, ToxGuide™ for Aluminum Al CAS# 7429-90-5, September 2006.

Route of Exposure

- Inhalation – generally limited to occupational exposure.
- Oral – primary route of exposure for the general population. Aluminum is found in food, drinking water, and medicinal products such as antacids and buffered aspirin.
- Dermal (skin) contact – minor route of exposure; aluminum is found in some topically applied consumer products such as antiperspirants, first aid antibiotics, and sunscreen and suntan products.

Source: U.S. Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry, ToxGuide™ for Aluminum Al CAS# 7429-90-5, September 2006.

Health Effects

- Potential health impacts associated with Aluminum include cardiovascular or blood toxicity, neurotoxicity, reproductive toxicity, and respiratory toxicity.
- The most sensitive target of aluminum toxicity is the nervous system. Impaired performance on neurobehavioral tests of motor function, sensory function and cognitive function have been observed in animals.
- Respiratory effects, such as impaired lung function and fibrosis have been observed in aluminum workers.

Source: U.S. Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry, ToxGuide™ for Aluminum Al CAS# 7429-90-5, September 2006.

Normal Human Levels

- The total body burden of aluminum in healthy individuals is 30 to 50 mg.
- Approximately 50% of the body burden is in the skeleton and 25% is in the lungs.
- Aluminum levels in lungs increase with age.
- Aluminum levels in bone tissue of health individuals range from 5 to 10 mg/kg.

Source: U.S. Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry, ToxGuide™ for Aluminum Al CAS# 7429-90-5, September 2006.

Arsenic (As)

Purpose

The purpose of the "Heavy Metal and Mineral Analysis" performed on the Lectro Chi Ionic Foot Spa was to validate or refute claims that heavy metals and minerals were being removed from human subjects during a Lectro Chi ionic foot bath session.

Water Analysis for Arsenic (As)

Description	*Before mg/L	**After mg/L	Change mg/L	Change %
Study 1	0.2840 (284 ppb)	0.3540 (354 ppb)	0.0700 (70 ppb)	24.65%
Study 2	0.2840 (284 ppb)	0.3100 (310 ppb)	0.0260 (26 ppb)	9.15%
Study 3	0.2840 (284 ppb)	0.3460 (346 ppb)	0.0620 (62 ppb)	21.83%

*Before = "No Feet" which represents the concentration of the specific metal/mineral tested from a water sample that included a 30 minute "Cleansing" and 10 minute "Energy" session with no human contact. Feet and hands were not present in the water during the 40 minute session.

**After – represents the concentration of the specific metal/mineral tested from a water sample (Study 1, Study 2, and Study 3) that included a 30 minute "Cleansing" and 10 minute "Energy" session with human contact.

"*Study 1*" represents an individual in their mid 50's and in good health.

"*Study2*" represents an individual in their mid 40's and in good health.

"*Study 3*" represents an individual in their early 30's and in excellent health.

Control Factors

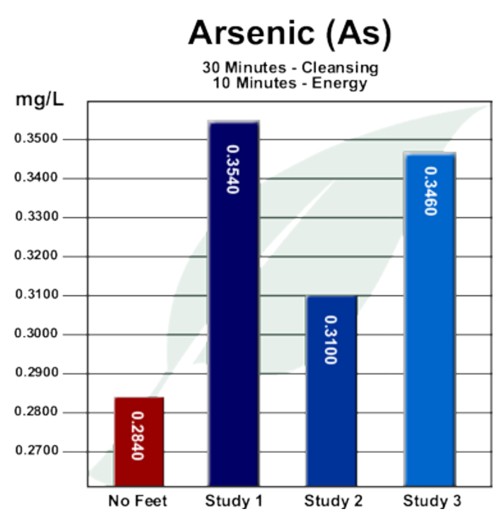
- The same Lectro Chi Pro Energy foot spa was used for all treatments.
- Each session utilized 1 gallon of distilled water purchased from the same water distillery.
- 1 oz. of Dead Sea salt was used during each session.
- Each session was performed at 2.5 amps.
- A new water module was used for each session.
- Each session utilized 30 minutes on the "Cleansing" setting and 10 minutes on the "Energy" setting.
- TraceAnalysis, Inc. - 6701 Aberdeen Avenue, Suite 9, Lubbock, TX 79424 performed all sample testing.

ppb – Parts per Billion
mg/L – Parts per Million (mg/L is equitable to ppm)

"Study 1" returned 0.3540 mg/L (354 ppb) of arsenic (As) and had increased arsenic (As) concentration of 0.0700 mg/L (70 ppb). The ending result for "Study 1" is a 24.65% increase of arsenic (As) concentration found in the session water.

"Study 2" returned 0.3100 mg/L (310 ppb) of arsenic (As) and had increased arsenic (As) concentration of 0.0260 mg/L (26 ppb). The ending result for "Study 2" is a 9.15% increase of arsenic (As) concentration found in the session water.

"Study 3" returned 0.3460 mg/L (346 ppb) of arsenic (As) and had increased arsenic (As) concentration of 0.0620 mg/L (62 ppb). The ending result for "Study 3" is a 21.83% increase of arsenic (As) concentration found in the session water.



Drinking Water - Health Based Limits

Heavy Metal	*Maximum Contaminant Limit (MCL)	**California Public Health Goals	***EPA Human Health Water Quality Criteria	****Drinking Water Equivalent Level
Arsenic (As)	0.0100 mg/L (10 ppb)	0.00001 mg/L (0.01 ppb)	0.00002 mg/L (0.02 ppb)	0.0100 mg/L (10 ppb)

*The enforceable standard which defines the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to health-based limits (Maximum Contaminant Level Goals, or MCLGs) as feasible using the best available analytical and treatment technologies and taking cost into consideration.

**Defined by the State of California Office of Environmental Health Hazard Assessment (OEHHA) as the level of contaminant that is allowed in drinking water. For acutely toxic substances, levels are set at which scientific evidence indicates that no known or anticipated adverse effects on health will occur, plus an adequate margin-of safety. PHGs for carcinogens or other substances which can cause chronic disease shall be based solely on health effects without regard to cost impacts and shall be set at levels which OEHHA has determined do not pose any significant risk to health.

***Water quality criteria set by the US EPA provide guidance for states and tribes authorized to establish water quality standards under the Clean Water Act (CWA) to protect human health. These are non-enforceable standards based upon exposure by both drinking water and the contribution of water contamination to other consumed foods. Source: U.S. Environmental Protection Agency.

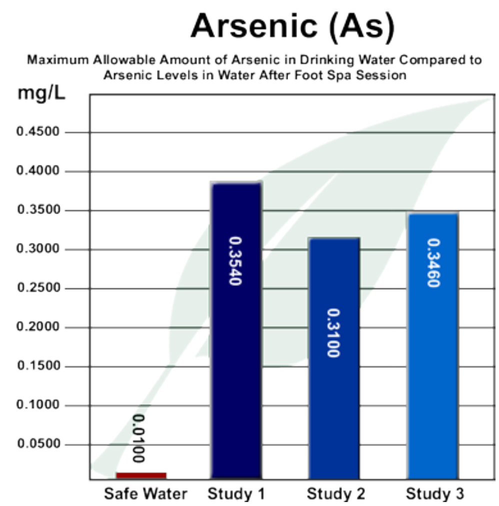
****A lifetime exposure concentration protective of adverse, noncarcinogenic health effects that assumes all of the exposure to a contaminant is from drinking water. Source: U.S. Environmental Protection Agency.

Sources: U.S. Environmental Protection Agency.
Environmental Working Group, A National Assessment of Tap Water Quality, www.ewg.org, December 20th, 2005

"Study 1" returned 0.3540 mg/L (354 ppb) of arsenic (As) and had increased Arsenic (As) concentration of 0.3440 mg/L (344 ppb). The ending result for "Study 1" is a 344.00% increase of arsenic (As) concentration found in the session water compared to the maximum allowable amount of arsenic (As) in drinking water.

"Study 2" returned 0.3100 mg/L (310 ppb) of arsenic (As) and had increased arsenic (As) concentration of 0.3000 mg/L (300 ppb). The ending result for "Study 2" is a 300.00% increase of arsenic (As) concentration found in the session water compared to the maximum allowable amount of arsenic (As) in drinking water.

"Study 3" returned 0.3460 mg/L (346 ppb) of arsenic (As) and had increased arsenic (As) concentration of 03360 mg/L (336 ppb). The ending result for "Study 3" is a 336% increase of arsenic (As) concentration found in the session water compared to the maximum allowable amount of arsenic (As) in drinking water.



Chemical and Physical Information

- Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds.
- Inorganic arsenic compounds are mainly used to preserve wood. Organic arsenic compounds are used as pesticides, primarily on cotton fields and orchards.
- Arsenic occurs naturally in soil and minerals and may enter the air, water, and land from wind-blown dust and may get into water from runoff and leaching.
- Arsenic cannot be destroyed in the environment. It can only change its form.
- Rain and snow remove arsenic dust particles from the air.
- Many common arsenic compounds can dissolve in water.
- Fish and shellfish can accumulate arsenic; most of this arsenic is in an organic form called arsenobetaine that is much less harmful.

Source: Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine ToxFAQs™, Arsenic CAS# 7440-38-2, August 2007.

Route of Exposure

- Ingesting small amounts present in your food and water or breathing air containing arsenic.
- Breathing sawdust or burning smoke from wood treated with arsenic.
- Living in areas with unusually high natural levels of arsenic in rock.
- Working in a job that involves arsenic production or use, such as copper or lead smelting, wood treating, or pesticide application.

Source: Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine ToxFAQs™, Arsenic CAS# 7440-38-2, August 2007.

Health Effects

Gastrointestinal, Hepatic, and Renal Effects

Gastrointestinal effects are seen primarily after arsenic ingestion, and less often after inhalation or dermal absorption.

The gastrointestinal (GI) effects of arsenic generally result from exposure via ingestion; however, GI effects may also occur after heavy exposure by other routes. The fundamental GI lesion appears to be increased permeability of the small blood vessels, leading to fluid loss and hypotension. Extensive inflammation and necrosis of the mucosa and submucosa of the stomach and intestine may occur and progress to perforation of the gut wall. A hemorrhagic gastroenteritis may develop, with bloody diarrhea as a presenting symptom.

Acute arsenic toxicity may be associated with hepatic necrosis and elevated levels of liver enzymes.

Arsenic intoxication may also result in hepatic toxicity, including toxic hepatitis and elevated liver enzyme levels. Autopsies of Japanese children poisoned with arsenic-contaminated milk revealed hepatic hemorrhagic necrosis and fatty degeneration of the liver. Chronic arsenic ingestion may lead to cirrhotic portal hypertension. Case reports have also linked chronic high-level arsenic exposure with hepatic angiosarcoma, a rare form of cancer.

Arsenic is capable of causing acute renal failure, as well as chronic renal insufficiency.

The systemic toxicity occurring in severe acute arsenic poisoning may be accompanied by acute tubular necrosis, and acute renal failure; chronic renal insufficiency from cortical necrosis has also been reported. The actual cause of injury may be hypotensive shock, hemoglobinuric or myoglobinuric tubular injury, or direct effects of arsenic on tubule cells. Glomerular damage can result in proteinuria. The kidney is not a major target organ for chronic toxicity.

Cardiovascular Effects

Acute arsenic poisoning may cause both diffuse capillary leak and cardiomyopathy, resulting in shock.

The extent of cardiovascular injury may vary with age, arsenic dose, and individual susceptibility. In acute arsenic poisoning-usually suicide attempts-the fundamental lesion, diffuse capillary leak, leads to generalized vasodilation, transudation of plasma, hypotension, and shock. Delayed cardiomyopathy may also develop. Myocardial damage can result in a variety of electrocardiographic findings, including broadening of the QRS complex, prolongation of the QT interval, ST depression, flattening of T waves, and atypical, multifocal ventricular tachycardia.

Long-term ingestion of arsenic in drinking water has resulted in pronounced peripheral vascular changes.

Epidemiological evidence indicates that chronic arsenic exposure is associated with vasospasm and peripheral vascular insufficiency. Gangrene of the extremities, known as Blackfoot disease, has been associated with drinking arsenic-contaminated well water in Taiwan, where the prevalence of the disease increased with increasing age and well-water arsenic concentration (10 to 1,820 ppb). Persons with Blackfoot disease also had a higher incidence of arsenic-induced skin cancers. However, investigators believe other vasoactive substances found in the water may have been contributory.

Raynaud's phenomenon and acrocyanosis resulted from contamination of the city's drinking water supply in Antofagasta, Chile, at arsenic concentrations ranging from 20 to 400 ppb. Autopsies of Antofagasta children who died of arsenic toxicity revealed fibrous thickening of small and medium arteries and myocardial hypertrophy. Similar vascular disorders, as well as abnormal electrocardiographs (ECGs), have been noted in vineyard workers exposed to arsenical pesticides.

Neurologic Effects

Arsenic-exposed patients develop destruction of axonal cylinders, leading to peripheral neuropathy.

Peripheral neuropathy is a common complication of arsenic poisoning. The classic finding is a peripheral neuropathy involving sensory and motor nerves in a symmetrical, stocking-glove distribution. Sensory effects, particularly painful dysesthesia, occur earlier and may predominate in moderate poisoning, whereas ascending weakness and paralysis may predominate in more severe poisoning. Those cases may at first seem indistinguishable from Guillain-Barré syndrome (*i.e.*, acute inflammatory demyelinating polyneuropathy). Cranial nerves are rarely affected, even in severe poisoning. Encephalopathy has been reported after both acute and chronic exposures.

Onset may begin within 24 to 72 hours following acute poisoning, but it more often develops slowly as a result of chronic exposure. The neuropathy is primarily due to destruction of axonal cylinders (axonopathy). Nerve conduction and electromyography studies can document severity and progression. Subclinical neuropathy, defined by the presence of abnormal nerve conduction with no clinical complaints or symptoms, has been described in chronically exposed individuals.

Recovery from neuropathy induced by chronic exposure to arsenic compounds is generally slow, sometimes taking years, and complete recovery may not occur. Follow-up studies of Japanese children who chronically consumed arsenic-contaminated milk revealed an increased incidence of severe hearing loss, mental retardation, epilepsy, and other brain damage. Hearing loss as a sequela of acute or chronic arsenic intoxication has not been confirmed by other case reports or epidemiologic studies.

Dermal Effects

Pigment changes and palmoplantar hyperkeratosis are characteristic of chronic arsenic exposure.

Benign arsenical keratoses may progress to malignancy.

The types of skin lesions occurring most frequently in arsenic-exposed humans are hyperpigmentation, hyperkeratosis, and skin cancer. Patchy hyperpigmentation, a pathologic hallmark of chronic exposure, may be found anywhere on the body, but occurs particularly on the eyelids, temples, axillae, neck, nipples, and groin. The classic appearance of the dark brown patches with scattered pale spots is sometimes described as "raindrops on a dusty road." In severe cases, the pigmentation extends broadly over the chest, back, and abdomen. Pigment changes have been observed in populations chronically consuming drinking water containing 400 ppb or more arsenic.

Arsenical hyperkeratosis occurs most frequently on the palms and soles. Keratoses usually appear as small corn-like elevations, 0.4 to 1 cm in diameter. In most cases, arsenical keratoses show little cellular atypia and may remain morphologically benign for decades. In other cases, cells develop marked atypia (precancerous) and appear indistinguishable from Bowen disease, which is an *in situ* squamous cell carcinoma discussed in Carcinogenic Effects.

Respiratory Effects

Inhalation of high concentrations of arsenic compounds produces irritation of the respiratory mucosa.

Smelter workers experiencing prolonged exposures to high concentrations of airborne arsenic at levels rarely found today had inflammatory and erosive lesions of the respiratory mucosa, including nasal septum perforation. Lung cancer has been associated with chronic arsenic exposure in smelter workers and pesticide workers.

Hematopoietic Effects

Bone marrow depression may result from acute or chronic arsenic intoxication and may initially manifest as pancytopenia.

Both acute and chronic arsenic poisoning may affect the hematopoietic system. A reversible bone marrow depression with pancytopenia may occur. Anemia and leukopenia are common in chronic arsenic toxicity, and are often accompanied by thrombocytopenia and mild eosinophilia. The anemia may be normocytic or macrocytic, and basophilic stippling may be noted on peripheral blood smears.

Reproductive Effects

Increased frequency of spontaneous abortions and congenital malformations has been linked to arsenic exposure.

Arsenic is a reproductive toxicant and a teratogen. It is readily transferred across the placenta, and concentrations in human cord blood are similar to those in maternal blood. A published case report described acute arsenic ingestion during the third trimester of pregnancy leading to delivery of a live infant that died within 12 hours. Autopsy revealed intra-alveolar hemorrhage and high levels of arsenic in the brain, liver, and kidneys.

A study of women working at or living near a copper smelter where ambient arsenic levels were elevated reported increased frequencies of spontaneous abortions and congenital malformations. The frequency of all malformations was twice the expected rate and the frequency of multiple malformations was increased fivefold. However, a number of other chemicals, including lead, cadmium, and sulfur dioxide were also present, and thus it is difficult to assess the role of arsenic in the etiology of these effects.

Carcinogenic Effects

The carcinogenicity of arsenic in humans has been established, but no animal model has been developed.

In humans, chronic arsenic ingestion is strongly associated with an increased risk of skin cancer, and may cause cancers of the lung, liver, bladder, kidney, and colon; chronic inhalation of arsenicals has been closely linked with lung cancer. The precise mechanism of arsenic-related carcinogenicity is unknown. Arsenic does not induce genetic mutations in most test systems, but chromosomal damage has been reported in cultured mammalian cells, possibly as a result of arsenic's effects on the enzymes involved in DNA replication and repair. Paradoxically, cancer associated with arsenic exposure has not been produced in experimental animals.

Skin Cancer

Latency for skin cancer associated with ingestion of arsenic may be 3 to 4 decades, whereas the noncarcinogenic skin effects typically develop several years after exposure.

An increased risk of skin cancer in humans is associated with chronic exposure to inorganic arsenic in medication, contaminated water, and the workplace. Arsenic-induced skin cancer is frequently characterized by lesions over the entire body, mostly in unexposed areas such as the trunk, palms, and soles. More than one type of skin cancer may occur in a patient. Most of the Taiwanese who developed skin cancer in association with ingestion of arsenic-contaminated drinking water had multiple cancer types. The most commonly reported types, in order of decreasing frequency, were intraepidermal carcinomas (Bowen disease), squamous cell carcinomas, basal cell carcinomas, and "combined forms." Seventy-two percent of the Taiwanese with skin cancer also had hyperkeratosis, and 90% had hyperpigmentation.

Some hyperkeratinized lesions can develop into intraepidermal carcinoma, which may ultimately become invasive. The lesions are sharply demarcated round or irregular plaques that tend to enlarge; they may vary in size from 1 millimeter to >10 centimeters. Arsenical basal cell carcinomas most often arise from normal tissue, are almost always multiple, and frequently occur on the trunk. The superficial spreading lesions are red, scaly, atrophic, and are often indistinguishable from Bowen disease by clinical examination. Arsenic-associated squamous cell carcinomas are distinguished from UV-induced squamous cell carcinomas by their tendency to occur on the extremities (especially palms and soles) and trunk rather than on sun-exposed areas such as the head and neck. However, it may be difficult to distinguish other arsenic-induced skin lesions from those induced by other causes.

Epidemiological studies indicate that a dose-response relationship exists between the level of arsenic in drinking water and the prevalence of skin cancers in the exposed population. Excessive mortality rates due to arsenic-induced skin cancer have also been observed in vineyard workers with dermal and inhalation exposure.

Lung Cancer

In arsenic-exposed workers, there is a systematic gradient in lung cancer mortality rates, depending on duration and intensity of exposure.

An association between lung cancer and occupational exposure to inorganic arsenic has been confirmed in several epidemiologic studies. A higher risk of lung cancer was found among workers exposed predominantly to arsenic trioxide in smelters and to pentavalent arsenical pesticides in other settings. Neither concomitant exposure to sulfur dioxide nor cigarette smoke were determined to be essential co-factors in these studies.

Source: Agency for Toxic Substances and Disease Registry, Case Studies in Environmental Medicine (CSEM), Arsenic Toxicity, ATSDR Publication No.: ATSDR-HE-CS-2002-0003, Revised 10/30/2000

Normal Human Levels

Levels of arsenic in unexposed individuals:

- Blood : < 1 µg/L (<0.0010 ppm)
- Urine: < 100 µg/L (<0.0100 ppm)
- Nails: ≤ 1 ppm
- Hair: ≤ 1 ppm

Source: U.S. Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry, ToxGuide™ for Arsenic As CAS# 7440-38-2, October 2007.

Purpose

The purpose of the “Heavy Metal and Mineral Analysis” performed on the Lectro Chi Ionic Foot Spa was to validate or refute claims that heavy metals and minerals were being removed from human subjects during a Lectro Chi ionic foot bath session.

Water Analysis for Cadmium (Cd)

Description	*Before mg/L	**After mg/L	Change mg/L	Change %
Study 1	<0.0040 (<4 ppb)	0.0050 (5 ppb)	0.0010 (1 ppb)	25.00%
Study 2	<0.0040 (<4 ppb)	<0.0040 (<4 ppb)	0.0000 (0 ppb)	0.00%
Study 3	<0.0040 (<4 ppb)	0.0050 (5 ppb)	0.0010 (1 ppb)	25.00%

*Before = “No Feet” which represents the concentration of the specific metal/mineral tested from a water sample that included a 30 minute “Cleansing” and 10 minute “Energy” session with no human contact. Feet and hands were not present in the water during the 40 minute session.

**After – represents the concentration of the specific metal/mineral tested from a water sample (Study 1, Study 2, and Study 3) that included a 30 minute “Cleansing” and 10 minute “Energy” session with human contact.

“*Study 1*” represents an individual in their mid 50’s and in good health.

“*Study2*” represents an individual in their mid 40’s and in good health.

“*Study 3*” represents an individual in their early 30’s and in excellent health.

Control Factors

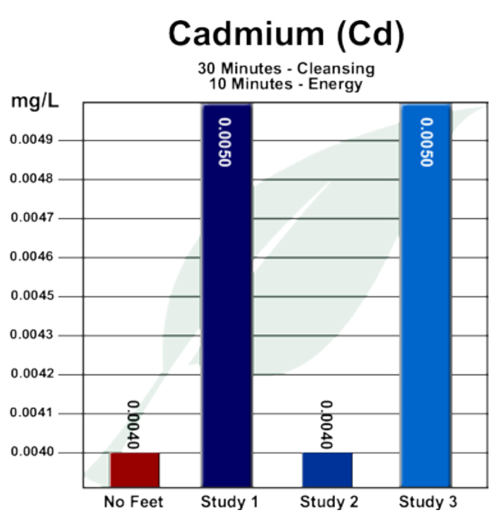
- The same Lectro Chi Pro Energy foot spa was used for all treatments.
- Each session utilized 1 gallon of distilled water purchased from the same water distillery.
- 1 oz. of Dead Sea salt was used during each session.
- Each session was performed at 2.5 amps.
- A new water module was used for each session.
- Each session utilized 30 minutes on the “Cleansing” setting and 10 minutes on the “Energy” setting.
- TraceAnalysis, Inc. - 6701 Aberdeen Avenue, Suite 9, Lubbock, TX 79424 performed all sample testing.

ppb – Parts per Billion
mg/L – Parts per Million (mg/L is equitable to ppm)

“Study 1” returned 0.0050 mg/L (5 ppb of cadmium (Cd) and had increased cadmium (Cd) concentration of 0.0010 mg/L (1 ppb). The ending result for “Study 1” is a 25.00% increase of cadmium (Cd) concentration found in the session water.

“Study 2” had no measurable change compared to “No Feet”.

“Study 3” returned 0.0050 mg/L (5 ppb of cadmium (Cd) and had increased cadmium (Cd) concentration of 0.0010 mg/L (1 ppb). The ending result for “Study 3” is a 25.00% increase of cadmium (Cd) concentration found in the session water.



Drinking Water - Health Based Limits

Heavy Metal	*Maximum Contaminant Limit (MCL)	**California Public Health Goals	*** Lifetime Health-Based Limit, Non-Cancer Risk	****Drinking Water Equivalent Level
Cadmium (Cd)	0.0050 mg/L (5 ppb)	0.00007 mg/L (< 0.07 ppb)	0.0050 mg/L (5 ppb)	0.0200 mg/L (20 ppb)

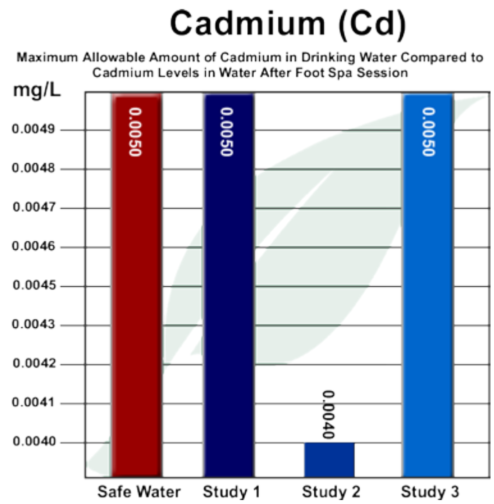
*The enforceable standard which defines the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to health-based limits (Maximum Contaminant Level Goals, or MCLGs) as feasible using the best available analytical and treatment technologies and taking cost into consideration.

**Defined by the State of California Office of Environmental Health Hazard Assessment (OEHHA) as the level of contaminant that is allowed in drinking water. For acutely toxic substances, levels are set at which scientific evidence indicates that no known or anticipated adverse effects on health will occur, plus an adequate margin-of safety. PHGs for carcinogens or other substances which can cause chronic disease shall be based solely on health effects without regard to cost impacts and shall be set at levels which OEHHA has determined do not pose any significant risk to health.

***Water Concentration of a chemical in drinking water that is not expected to cause any adverse, noncarcinogenic health effects for a lifetime of exposure. The Lifetime health-based limit (or Health Advisory, HA) is based on exposure for a a 70-kg adult consuming 2 liters of water per day. Source: U.S. Environmental Protection Agency.

****A lifetime exposure concentration protective of adverse, noncarcinogenic health effects that assumes all of the exposure to a contaminant is from drinking water. Source: U.S. Environmental Protection Agency.

Sources: U.S. Environmental Protection Agency.
Environmental Working Group, A National Assessment of Tap Water Quality, www.ewg.org, December 20th, 2005



“Study 1” returned 0.0050 mg/L (5 ppb) cadmium (Cd) and had increased cadmium (Cd) concentration of 0.0000 mg/L (0 ppb). The ending result for “Study 1” is a 0.00% increase of cadmium (Cd) concentration found in the session water compared to the maximum allowable amount of cadmium (Cd) in drinking water.

“Study 2” returned 0.0040 mg/L (4 ppb) cadmium (Cd) and had increased cadmium (Cd) concentration of - 0.0010 mg/L (-1 ppb). The ending result for “Study 2” is 20.00% less cadmium (Cd) concentration found in the session water compared to the maximum allowable amount of cadmium (Cd) in drinking water.

“Study 3” returned 0.0050 mg/L (5 ppb) cadmium (Cd) and had increased cadmium (Cd) concentration of 0.0000 mg/L (0 ppb). The ending result for “Study 3” is a 0.00% increase of cadmium (Cd) concentration found in the session water compared to the maximum allowable amount of cadmium (Cd) in drinking water.

Chemical and Physical Information

- Cadmium is a natural element in the earth’s crust. It is usually found as a mineral combined with other elements such as oxygen (cadmium oxide), chlorine (cadmium chloride), or sulfur (cadmium sulfate, cadmium sulfide).
- All soils and rocks, including coal and mineral fertilizers, contain some cadmium. Most cadmium used in the United States is extracted during the production of other metals like zinc, lead, and copper. Cadmium does not corrode easily and has many uses, including batteries, pigments, metal coatings, and plastics.

Source: Agency for Toxic Substances and Disease Registry, ToxFAQs™ for Cadmium CAS# 7440-43-9, September 2008.

Route of Exposure

- Eating foods containing cadmium; low levels are found in all foods (highest levels are found in shellfish, liver, and kidney meats).
- Smoking cigarettes or breathing cigarette smoke.
- Breathing contaminated workplace air.
- Drinking contaminated water.
- Living near industrial facilities which release cadmium into the air.

Source: Agency for Toxic Substances and Disease Registry, ToxFAQs™ for Cadmium CAS# 7440-43-9, September 2008.

Health Effects

- Breathing high levels of cadmium can severely damage the lungs. Eating food or drinking water with very high levels severely irritates the stomach, leading to vomiting and diarrhea.
- Long-term exposure to lower levels of cadmium in air, food, or water leads to a buildup of cadmium in the kidneys and possible kidney disease. Other long-term effects are lung damage and fragile bones.
- The Department of Health and Human Services (DHHS) has determined that cadmium and cadmium compounds are known human carcinogens.
- The health effects in children are expected to be similar to the effects seen in adults (kidney, lung, and bone damage depending on the route of exposure).
- A few studies in animals indicate that younger animals absorb more cadmium than adults. Animal studies also indicate that the young are more susceptible than adults to a loss of bone and decreased bone strength from exposure to cadmium.
- We don't know if cadmium causes birth defects in people. The babies of animals exposed to high levels of cadmium during pregnancy had changes in behavior and learning ability. There is also some information from animal studies that high enough exposures to cadmium before birth can reduce body weights and affect the skeleton in the developing young.

Source: Agency for Toxic Substances and Disease Registry, ToxFAQs™ for Cadmium CAS# 7440-43-9, September 2008.

Government Recommendations to Protect Human Health

- The EPA has determined that exposure to cadmium in drinking water at concentrations of 0.04 ppm for up to 10 days is not expected to cause any adverse effects in a child.
- The EPA has determined that lifetime exposure to 0.005 ppm cadmium is not expected to cause any adverse effects.
- The FDA has determined that the cadmium concentration in bottled drinking water should not exceed 0.005 ppm.
- The Occupational Health and Safety Administration (OSHA) has limited workers' exposure to an average of 5 $\mu g/m^3$ for an 8-hour workday, 40-hour workweek.

Source: Agency for Toxic Substances and Disease Registry, ToxFAQs™ for Cadmium CAS# 7440-43-9, September 2008.

Calcium (Ca)

Purpose

The purpose of the "Heavy Metal and Mineral Analysis" performed on the Lectro Chi Ionic Foot Spa was to validate or refute claims that heavy metals and minerals were being removed from human subjects during a Lectro Chi ionic foot bath session.

Water Analysis for Calcium (Ca)

Description	*Before mg/L	**After mg/L	Change mg/L	Change %
Study 1	1.8000 (1,800 ppb)	Not Tested	NA	NA
Study 2	1.8000 (1,800 ppb)	3.2200 (3,220 ppb)	1.4200 (1,420 ppb)	78.89%
Study 3	1.8000 (1,800 ppb)	Not Tested	NA	NA

*Before = "No Feet" which represents the concentration of the specific metal/mineral tested from a water sample that included a 30 minute "Cleansing" and 10 minute "Energy" session with no human contact. Feet and hands were not present in the water during the 40 minute session.

**After – represents the concentration of the specific metal/mineral tested from a water sample (Study 1, Study 2, and Study 3) that included a 30 minute "Cleansing" and 10 minute "Energy" session with human contact.

"*Study 1*" represents an individual in their mid 50's and in good health.

"*Study2*" represents an individual in their mid 40's and in good health.

"*Study 3*" represents an individual in their early 30's and in excellent health.

Control Factors

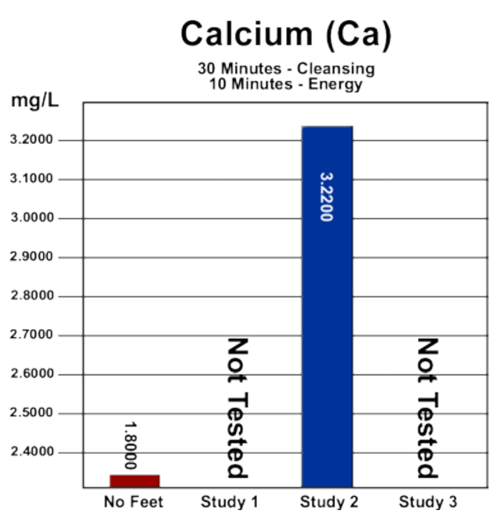
- The same Lectro Chi Pro Energy foot spa was used for all treatments.
- Each session utilized 1 gallon of distilled water purchased from the same water distillery.
- 1 oz. of Dead Sea salt was used during each session.
- Each session was performed at 2.5 amps.
- A new water module was used for each session.
- Each session utilized 30 minutes on the "Cleansing" setting and 10 minutes on the "Energy" setting.
- TraceAnalysis, Inc. - 6701 Aberdeen Avenue, Suite 9, Lubbock, TX 79424 performed all sample testing.

ppb – Parts per Billion
mg/L – Parts per Million (mg/L is equitable to ppm)

"Study 1" was not tested.

"Study 2" returned 3.220 mg/L (3,220 ppb of calcium (Ca) and had increased calcium (Ca) concentration of 1.4200 mg/L (1,420 ppb). The ending result for "Study 2" is a 78.89% increase of calcium (Ca) concentration found in the session water.

"Study 3" was not tested.



Purpose

The purpose of the "Heavy Metal and Mineral Analysis" performed on the Lectro Chi Ionic Foot Spa was to validate or refute claims that heavy metals and minerals were being removed from human subjects during a Lectro Chi ionic foot bath session.

Water Analysis for Copper (Cu)

Description	*Before mg/L	**After mg/L	Change mg/L	Change %
Study 1	1.4400 (1,440 ppb)	1.7900 (1,790 ppb)	0.3500 (350 ppb)	24.31%
Study 2	1.4400 (1,440 ppb)	1.5400 (1,540 ppb)	0.1000 (100 ppb)	6.94%
Study 3	1.4400 (1,440 ppb)	1.7700 (1,770 ppb)	0.3300 (330 ppb)	22.92%

*Before = "No Feet" which represents the concentration of the specific metal/mineral tested from a water sample that included a 30 minute "Cleansing" and 10 minute "Energy" session with no human contact. Feet and hands were not present in the water during the 40 minute session.

**After – represents the concentration of the specific metal/mineral tested from a water sample (Study 1, Study 2, and Study 3) that included a 30 minute "Cleansing" and 10 minute "Energy" session with human contact.

"*Study 1*" represents an individual in their mid 50's and in good health.

"*Study2*" represents an individual in their mid 40's and in good health.

"*Study 3*" represents an individual in their early 30's and in excellent health.

Control Factors

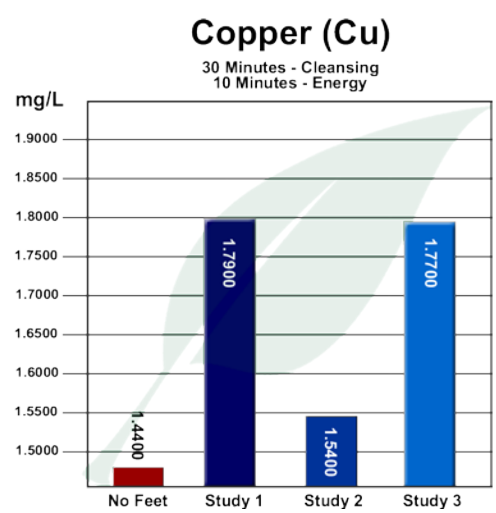
- The same Lectro Chi Pro Energy foot spa was used for all treatments.
- Each session utilized 1 gallon of distilled water purchased from the same water distillery.
- 1 oz. of Dead Sea salt was used during each session.
- Each session was performed at 2.5 amps.
- A new water module was used for each session.
- Each session utilized 30 minutes on the "Cleansing" setting and 10 minutes on the "Energy" setting.
- TraceAnalysis, Inc. - 6701 Aberdeen Avenue, Suite 9, Lubbock, TX 79424 performed all sample testing.

ppb – Parts per Billion
mg/L – Parts per Million (mg/L is equitable to ppm)

"Study 1" returned 1.7900 mg/L (1,790 ppb) of copper (Cu) and had increased copper (Cu) concentration of 0.3500 mg/L (350 ppb). The ending result for "Study 1" is a 24.31% increase of copper (Cu) concentration found in the session water.

"Study 2" returned 1.5400 mg/L (1,540 ppb) of copper (Cu) and had increased copper (Cu) concentration of 0.1000 mg/L (100 ppb). The ending result for "Study 2" is a 6.94% increase of copper (Cu) concentration found in the session water.

"Study 3" returned 1.7700 mg/L (1,770 ppb) of copper (Cu) and had increased copper (Cu) concentration of 0.3300 mg/L (330 ppb). The ending result for "Study 3" is a 22.92% increase of copper (Cu) concentration found in the session water.



Drinking Water - Health Based Limits

Heavy Metal	*Maximum Contaminant Limit Goal (MCLG)	**California Public Health Goals	***EPA Human Health Water Quality Criteria	****National Secondary Drinking Water Regs.
Copper (Cu)	1.3000 mg/L (1,300 ppb)	0.1700 mg/L (170 ppb)	1.300 mg/L (1.3000 ppb)	1.0000 mg/L (1,000 ppb)

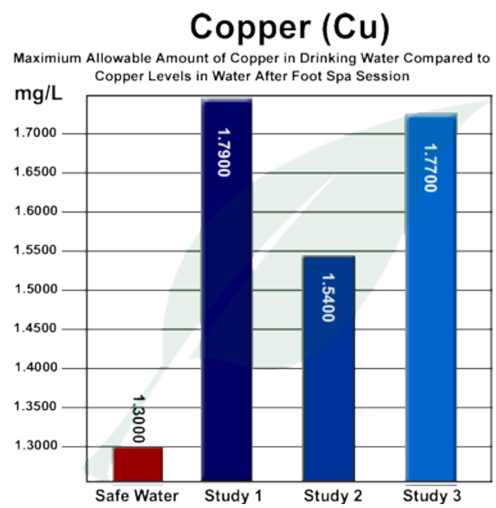
*A non-enforceable health goal that is set at a level at which no known or anticipated adverse effect on the health of persons occurs and which allows an adequate margin of safety. Source: U.S. Environmental Protection Agency.

**Defined by the State of California Office of Environmental Health Hazard Assessment (OEHHA) as the level of contaminant that is allowed in drinking water. For acutely toxic substances, levels are set at which scientific evidence indicates that no known or anticipated adverse effects on health will occur, plus an adequate margin-of safety. PHGs for carcinogens or other substances which can cause chronic disease shall be based solely on health effects without regard to cost impacts and shall be set at levels which OEHHA has determined do not pose any significant risk to health.

***Water quality criteria set by the US EPA provide guidance for states and tribes authorized to establish water quality standards under the Clean Water Act (CWA) to protect human health. These are non-enforceable standards based upon exposure by both drinking water and the contribution of water contamination to other consumed foods. Source: U.S. Environmental Protection Agency.

****A National Secondary Drinking Water Regulation is a non-enforceable guideline regarding contaminants that may cause cosmetic effects (such as taste, odor, or color). Some states choose to adopt them as enforceable standards. Source: U.S. Environmental Protection Agency.

Sources: U.S. Environmental Protection Agency.
Environmental Working Group, A National Assessment of Tap Water Quality, www.ewg.org, December 20th, 2005



"Study 1" returned 0.3540 mg/L (354 ppb) of arsenic (As) and had increased Arsenic (As) concentration of 0.3440 mg/L (344 ppb). The ending result for "Study 1" is a 344.00% increase of arsenic (As) concentration found in the session water compared to the maximum allowable amount of arsenic (As) in drinking water.

"Study 2" returned 0.3100 mg/L (310 ppb) of arsenic (As) and had increased arsenic (As) concentration of 0.3000 mg/L (300 ppb). The ending result for "Study 2" is a 300.00% increase of arsenic (As) concentration found in the session water compared to the maximum allowable amount of arsenic (As) in drinking water.

"Study 3" returned 0.3460 mg/L (346 ppb) of arsenic (As) and had increased arsenic (As) concentration of 03360 mg/L (336 ppb). The ending result for "Study 3" is a 336% increase of arsenic (As) concentration found in the session water compared to the maximum allowable amount of arsenic (As) in drinking water.

Chemical and Physical Information

- Copper is a metal that occurs naturally throughout the environment, in rocks, soil, water, and air. Copper is an essential element in plants and animals (including humans), which means it is necessary for us to live. Therefore, plants and animals must absorb some copper from eating, drinking, and breathing.
- Copper is used to make many different kinds of products like wire, plumbing pipes, and sheet metal. U.S. pennies made before 1982 are made of copper, while those made after 1982 are only coated with copper. Copper is also combined with other metals to make brass and bronze pipes and faucets.
- Copper compounds are commonly used in agriculture to treat plant diseases like mildew, for water treatment and, as preservatives for wood, leather, and fabrics.
- Copper is released into the environment by mining, farming, and manufacturing operations and through waste water releases into rivers and lakes. Copper is also released from natural sources, like volcanoes, windblown dusts, decaying vegetation, and forest fires.
- Copper released into the environment usually attaches to particles made of organic matter, clay, soil, or sand.
- Copper does not break down in the environment. Copper compounds can break down and release free copper into the air, water, and foods.

Source: Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine ToxFAQs™, Copper CAS# 7440-50-8, September 2004.

Route of Exposure

- You may be exposed to copper from breathing air, drinking water, eating foods, or having skin contact with copper, particulates attached to copper, or copper-containing compounds.
- Drinking water may have high levels of copper if your house has copper pipes and acidic water.
- Lakes and rivers that have been treated with copper compounds to control algae, or that receive cooling water from power plants, can have high levels of copper. Soils can also contain high levels of copper, especially if they are near copper smelting plants.
- You may be exposed to copper by ingesting copper-containing fungicides, or if you live near a copper mine or where copper is processed into bronze or brass.
- You may be exposed to copper if you work in copper mines or if you grind metals containing copper.

Source: Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine ToxFAQs™, Copper CAS# 7440-50-8, September 2004.

Health Effects

Systemic Effects

- No studies were located regarding cardiovascular, musculoskeletal, renal, dermal, or body weight effects in humans or animals following inhalation exposure to copper. Respiratory, gastrointestinal, hematological, hepatic, endocrine, and ocular effects were observed in humans. Respiratory effects have also been observed in animals exposed to copper sulfate aerosols. Respiratory Effects. In humans, copper is a respiratory irritant. Workers exposed to copper dust report a number of symptoms that are suggestive of respiratory irritation, including coughing, sneezing, thoracic pain, and runny nose (Askergren and Mellgren 1975; Suciu et al. 1981). In the Suciu et al. (1981) study of 75–100 workers involved in sieving copper, lung radiographs revealed linear pulmonary fibrosis, and in some cases, nodulation. During the first year of operation, the workers were exposed to 434 mg Cu/m3; the exposure levels declined each year, and by year 3, the levels were 111 mg Cu/m3. Insheet metal workers exposed to patina dust (copper-hydroxide-nitrate, copper-hydroxide-sulfate, copper silicate, copper oxide), 6 of the 11 examined workers had increased vascularity and superficial epistatic vessels in the nasal mucosa (Askergren and Mellgren 1975); no exposure levels were reported.

- Copper is considered the etiologic agent in the occupational disease referred to as “vineyard sprayer’s lung”. This disease, which is observed in vineyard workers spraying an antimildew agent containing 1–2.5% copper sulfate neutralized with hydrated lime, was first described in humans by Cortez Pimentel and Marques (1969). In most cases, published information on this disease comes from case reports (Cortez Pimentel and Marques 1969; Cortez Pimentel and Menezes 1975; Stark 1981; Villar 1974; Villar and Nogueira 1980) with no concentration-response information. Common findings (obtained by alveolar lavage and biopsy) include intraalveolar desquamation of macrophages, formation of histiocytic and noncaseating granulomas containing inclusions of copper, and healing of lesions in the form of fibrohyaline nodules, very similar to those found in silicosis (Cortez Pimentel and Marques 1969; Plamenac et al. 1985). Higher incidences of abnormal columnar cells, squamous metaplasia without atypia, copper containing macrophages, eosinophilia, and respiratory spirals were found in the sputa of smoking and nonsmoking vineyard sprayers, as compared to rural workers from the same geographic region who did not work in the vineyards (Plamenac et al. 1985).

- The potential of copper to induce respiratory effects has been tested in mice, hamsters, and rabbits. Decreased cilia beating was observed in Syrian-Golden hamsters exposed to 3.3 mg Cu/m3 as copper sulfate for 3 hours (Drummond et al. 1986); this effect was not observed in similarly exposed CD-1 mice. Repeated exposure resulted in alveolar thickening in CD-1 mice exposed to 0.12 mg Cu/m3 as copper sulfate for 3 hours/day, 5 days/week for 1–2 weeks (Drummond et al. 1986); the severity of the effect increased with the duration of exposure. In rabbits (strain not reported) exposed to 0.6 mg Cu/m3 as copper chloride for 6 hours/day, 5 days/week for 4–6 weeks, the only histological alteration in the lungs was a slight increase in alveolar type II cell volume density (Johansson et al. 1984); this effect was not considered adverse. No functional or morphological alterations were observed in the alveolar macrophages of similarly exposed rabbits (Johansson et al. 1983).

Gastrointestinal Effects

- In workers involved in grinding and sieving copper dust, anorexia, nausea, and occasional diarrhea were reported (Suciu et al. 1981); exposure levels ranged from 111 to 434 mg Cu/m3 over a 3-year period. It is likely that the observed gastrointestinal effects were due to oral exposure to copper. Ingestion probably resulted from mucocilliary clearance of copper particles deposited in the nasopharyngeal and tracheobronchial regions of the respiratory tract.

No studies were located regarding gastrointestinal effects in animals following inhalation exposure to copper.

Hematological Effects

- Decreased hemoglobin and erythrocyte levels have been observed in workers exposed to airborne copper levels of 0.64–1.05 mg/m3. Results of hair analysis reveal that the workers were also exposed to iron, lead, and cadmium (Finelli et al. 1981).

No studies were located regarding hematological effects in animals following inhalation exposure to copper.

Hepatic Effects

- Hepatomegaly was observed in workers involved in grinding and sieving copper dust (Suciu et al. 1981); the exposure levels ranged from 111 to 434 mg Cu/m3.

No studies were located regarding hepatic effects in animals following inhalation exposure to copper.

Endocrine Effects

- Seven cases of enlargement of the sella turcica, nonsecretive hypophyseal adenoma, accompanied by obesity, arterial hypertension, and "red facies" were observed in a group of 100 workers exposed to 111–434 mg Cu/m3 as copper dust (Suciu et al. 1981). The study authors noted that there was a possibility that the clinical manifestations of hypophyseal adenoma or of Cushing's syndrome may have been the result of a disturbance of copper metabolism. The significance of this effect and its relationship to copper exposure cannot be determined.

Ocular Effects

- Eye irritation has been reported by workers exposed to copper dust (Askergren and Mellgren 1975). The irritation is likely due to direct contact with the copper rather than a systemic effect resulting from inhalation exposure.

Other Systemic Effects

- A few studies have reported metal fume fever, a 24–48-hour illness characterized by chills, fever, aching muscles, dryness in the mouth and throat, and headache, in workers exposed to copper dust or fumes (Armstrong et al. 1983; Gleason 1968). Gleason (1968) reported airborne copper dust concentrations of 0.075–0.12 mg/m3. It has been suggested that other metals present in the workplace may have been the causative agent for the metal fume fever, rather than copper. This is supported by the small number of reports of metal fume fever despite the extensive use of copper in many industries (Borak et al. 2000).

Immunological and Lymphoreticular Effects

- No studies were located regarding immunological effects in humans following inhalation exposure to copper.
- An acute exposure study in mice reported an impaired immune response following exposure to copper sulfate and a bacterial challenge (Drummond et al. 1986). Increased mortality and decreased survival time were observed in CD-1 mice challenged by an aerosol of Streptococcus zooepidemicus following 0.56 mg Cu/m3 for 3 hours or 0.13 mg Cu/m3 for 3 hours/day, 5 days/week for 2 weeks. Decreased bactericidal activity of alveolar macrophages was also observed in mice exposed to 3.3 mg Cu/m3 for 3 hours or 0.12 mg Cu/m3 for 3 hours/day, 5 days/week for 2 weeks following exposure to an aerosol of Klebsiella pneumonia.

Neurological Effects

- Only one study examining neurological effects was located. Headache, vertigo, and drowsiness were reported in factory workers exposed to 111–434 mg/m3 copper dust (Suciu et al. 1981).

Reproductive Effects

- Sexual impotence was reported in 16% of workers (75–100 workers examined) exposed to 111–434 mg/m3 copper dust during grinding and sieving operations (Suciu et al. 1981). The significance of this finding is difficult to assess because a control group was not used.

No studies were located regarding reproductive effects in animals following inhalation exposure to copper.

Source: Agency for Toxic Substances and Disease Registry, Toxicological Profile for Copper, CAS# 7440-50-8, September 2004.

Government Recommendations to Protect Human Health

- The EPA requires that levels of copper in drinking water be less than 1.3 mg of copper per one liter of drinking water (1.3 mg/L).
- The U.S. Department of Agriculture has set the recommended daily allowance for copper at 900 micrograms of copper per day (µg/day) for people older than eight years old.
- The Occupational Safety and Health Administration (OSHA) requires that levels of copper in the air in workplaces not exceed 0.1 mg of copper fumes per cubic meter of air (0.1 mg/m3) and 1.0 mg/m^3 for copper dusts.

Source: Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine ToxFAQs™, Copper CAS# 7440-50-8, September 2004.

Purpose

The purpose of the “Heavy Metal and Mineral Analysis” performed on the Lectro Chi Ionic Foot Spa was to validate or refute claims that heavy metals and minerals were being removed from human subjects during a Lectro Chi ionic foot bath session.

Water Analysis for Lead (Pb)

Description	*Before mg/L	**After mg/L	Change mg/L	Change %
Study 1	0.0320 (32 ppb)	0.0390 (39 ppb)	0.0070 (7 ppb)	21.88%
Study 2	0.0320 (32 ppb)	0.0350 (35 ppb)	0.0030 (3 ppb)	9.38%
Study 3	0.0320 (32 ppb)	0.0380 (38 ppb)	0.0060 (6 ppb)	18.75%

*Before = “No Feet” which represents the concentration of the specific metal/mineral tested from a water sample that included a 30 minute “Cleansing” and 10 minute “Energy” session with no human contact. Feet and hands were not present in the water during the 40 minute session.

**After – represents the concentration of the specific metal/mineral tested from a water sample (Study 1, Study 2, and Study 3) that included a 30 minute “Cleansing” and 10 minute “Energy” session with human contact.

“*Study 1*” represents an individual in their mid 50’s and in good health.

“*Study2*” represents an individual in their mid 40’s and in good health.

“*Study 3*” represents an individual in their early 30’s and in excellent health.

Control Factors

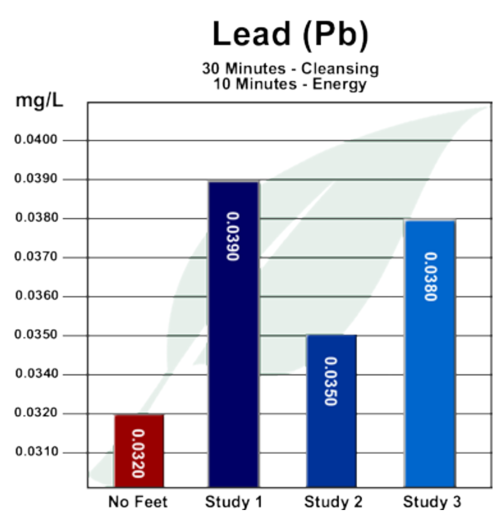
- The same Lectro Chi Pro Energy foot spa was used for all treatments.
- Each session utilized 1 gallon of distilled water purchased from the same water distillery.
- 1 oz. of Dead Sea salt was used during each session.
- Each session was performed at 2.5 amps.
- A new water module was used for each session.
- Each session utilized 30 minutes on the “Cleansing” setting and 10 minutes on the “Energy” setting.
- TraceAnalysis, Inc. - 6701 Aberdeen Avenue, Suite 9, Lubbock, TX 79424 performed all sample testing.

ppb – Parts per Billion
mg/L – Parts per Million (mg/L is equitable to ppm)

“Study 1” returned 0.0390 mg/L (39 ppb) of lead (Pb) and had increased lead (Pb) concentration of 0.0070 mg/L (7 ppb). The ending result for “Study 1” is a 21.88% increase of lead (Pb) concentration found in the session water.

“Study 2” returned 0.0350 mg/L (35 ppb) of lead (Pb) and had increased lead (Pb) concentration of 0.0030 mg/L (3 ppb). The ending result for “Study 2” is a 9.38% increase of lead (Pb) concentration found in the session water.

“Study 3” returned 0.0380 mg/L (38 ppb) of lead (Pb) and had increased lead (Pb) concentration of 0.0060 mg/L (6 ppb). The ending result for “Study 3” is a 18.75% increase of lead (Pb) concentration found in the session water.



Drinking Water - Health Based Limits

Heavy Metal	*Maximum Contaminant Limit (MCL)	**California Public Health Goals	*** Maximum Contaminant Limit Goal (MCLG)
Lead (Pb)	0.0150 mg/L (15 ppb)	0.0020 mg/L (2 ppb)	0.0000 mg/L (0.00 ppb)

*The enforceable standard which defines the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to health-based limits (Maximum Contaminant Level Goals, or MCLGs) as feasible using the best available analytical and treatment technologies and taking cost into consideration.

**Defined by the State of California Office of Environmental Health Hazard Assessment (OEHHA) as the level of contaminant that is allowed in drinking water. For acutely toxic substances, levels are set at which scientific evidence indicates that no known or anticipated adverse effects on health will occur, plus an adequate margin-of safety. PHGs for carcinogens or other substances which can cause chronic disease shall be based solely on health effects without regard to cost impacts and shall be set at levels which OEHHA has determined do not pose any significant risk to health.

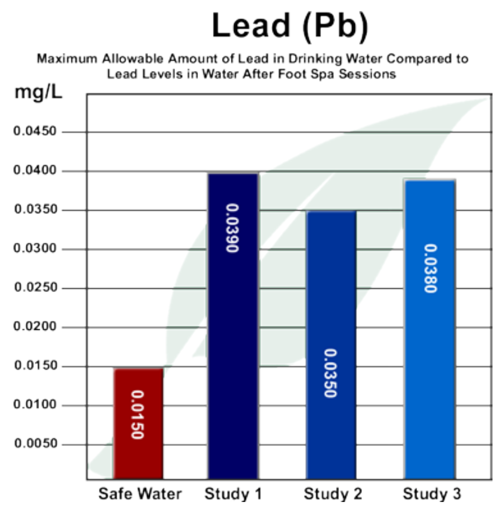
***A non-enforceable health goal that is set at a level at which no known or anticipated adverse effect on the health of persons occurs and which allows an adequate margin of safety. Source: U.S. Environmental Protection Agency.

Sources: U.S. Environmental Protection Agency.
Environmental Working Group, A National Assessment of Tap Water Quality, www.ewg.org, December 20th, 2005

"Study 1" returned 0.0390 mg/L (39 ppb) of lead (Pb) and had increased lead (Pb) concentration of 0.0240 mg/L (24 ppb). The ending result for "Study 1" is a 160.00% increase of lead (Pb) concentration found in the session water compared to the maximum allowable amount of lead (Pb) in drinking water.

"Study 2" returned 0.0350 mg/L (35 ppb) of lead (Pb)and had increased lead (Pb) concentration of 0.0200 mg/L (20 ppb). The ending result for "Study 2" is a 133.33% increase of lead (Pb) concentration found in the session water compared to the maximum allowable amount of lead (Pb) in drinking water.

"Study 3" returned 0.0380 mg/L (346 ppb) of lead (Pb) and had increased lead (Pb) concentration of 0.0230 mg/L (23 ppb). The ending result for "Study 3" is a 153.33% increase of lead (Pb) concentration found in the session water compared to the maximum allowable amount of lead (Pb) in drinking water.



Chemical and Physical Information

- Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. Lead can be found in all parts of our environment. Much of it comes from human activities including burning fossil fuels, mining, and manufacturing.
- Lead has many different uses. It is used in the production of batteries, ammunition, metal products (solder and pipes), and devices to shield X-rays. Because of health concerns, lead from paints and ceramic products, caulking, and pipe solder has been dramatically reduced in recent years. The use of lead as an additive to gasoline was banned in 1996 in the United States.
- Lead itself does not break down, but lead compounds are changed by sunlight, air, and water.
- When lead is released to the air, it may travel long distances before settling to the ground.
- Once lead falls onto soil, it usually sticks to soil particles.
- Movement of lead from soil into groundwater will depend on the type of lead compound and the characteristics of the soil.

Source: U.S. Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry, ToxFAQs™ for Lead Pb CAS# 7439-92-1, August 2007.

Route of Exposure

- Eating food or drinking water that contains lead. Water pipes in some older homes may contain lead solder. Lead can leach out into the water.
- Spending time in areas where lead-based paints have been used and are deteriorating. Deteriorating lead paint can contribute to lead dust.
- Working in a job where lead is used or engaging in certain hobbies in which lead is used, such as making stained glass.
- Using health-care products or folk remedies that contain lead.

Source: U.S. Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry, ToxFAQs™ for Lead Pb CAS# 7439-92-1, August 2007.

Health Effects

Hematological

- Decreased activity of several heme biosynthesis enzymes at PbB <10 µg/dL

Gastrointestinal

- Colic in children – PbB 60–100 µg/dL.

Cardiovascular

- Elevated blood pressure – PbB<10 µg/dL.

Renal

- Decreased glomerular filtration rate at mean PbB <20 µg/dL.

Neurological

- Encephalopathy – PbB 100–120 µg/dL (adults) 70–100 µg/dL (children).
- Peripheral neuropathy – PbB 4 0 µg/dL.
- Neurobehavioral and neuropsychological effects in adults – PbB 40–80 µg/dL.
- Cognitive and neurobehavioral effects in children at PbB <10 µg/dL.

Reproductive

- Reduced fertility – PbB>40 µg/dL.

Source: U.S. Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry, ToxGuide™ for Lead Pb CAS# 7439-92-1, October 2007.

Toxicokinetics

- Approximately 95% of deposited inorganic lead that is inhaled is absorbed.

- The extent and rate of gastrointestinal absorption of inorganic lead are influenced by the physiological state of the exposed individual and the species of the lead compound.

- Gastrointestinal absorption of lead is higher in children (40–50%) than in adults (3–10%). The presence of food in the gastrointestinal tract decreases absorption.

- Absorption of lead from soil is less than that of dissolved lead, but is similarly depressed by meals (26% fasted; 2.5% when ingested with a meal).

- In adults, about 94% of the total amount of lead in the body is contained in the bones and teeth versus about 73% in children.

- The elimination half-lives for inorganic lead in blood and bone are approximately 30 days and 27 years, respectively.

- Independent of the route of exposure, absorbed lead is excreted primarily in urine and feces.

Source: U.S. Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry, ToxGuide™ for Lead Pb CAS# 7439-92-1, October 2007.

Normal Human Levels

Lead Levels in Blood (geometric mean, 1999-2002)

- 1.9 µg/dL for children 1-5 years
- 1.5 µg/dL for adults 20–59 years

Lead Levels in Urine (geometric mean, 2001-2002)

- 0.677 µg/L for ≥6 years of age

Source: U.S. Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry, ToxGuide™ for Lead Pb CAS# 7439-92-1, October 2007.

Government Recommendations to Protect Human Health

- The Centers for Disease Control and Prevention (CDC) recommends that states test children at ages 1 and 2 years. Children should be tested at ages 3–6 years if they have never been tested for lead, if they receive services from public assistance programs for the poor such as Medicaid or the Supplemental Food Program for Women, Infants, and Children, if they live in a building or frequently visit a house built before 1950; if they visit a home (house or apartment) built before 1978 that has been recently remodeled; and/or if they have a brother, sister, or playmate who has had lead poisoning. CDC considers a blood lead level of 10 µg/dL to be a level of concern for children.
- EPA limits lead in drinking water to 15 µg per liter.

Source: U.S. Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry, ToxFAQs™ for Lead Pb CAS# 7439-92-1, August 2007.

Phosphorus (P)

Purpose

The purpose of the "Heavy Metal and Mineral Analysis" performed on the Lectro Chi Ionic Foot Spa was to validate or refute claims that heavy metals and minerals were being removed from human subjects during a Lectro Chi ionic foot bath session.

Water Analysis for Phosphorus (P)

Description	*Before mg/L	**After mg/L	Change mg/L	Change %
Study 1	0.1560 (156 ppb)	0.1970 (197 ppb)	0.0410 (41 ppb)	26.28%
Study 2	0.1560 (156 ppb)	0.2280 (228 ppb)	0.0720 (72 ppb)	46.15%
Study 3	0.1560 (156 ppb)	0.2020 (202 ppb)	0.0460 (46 ppb)	29.49%

*Before = "No Feet" which represents the concentration of the specific metal/mineral tested from a water sample that included a 30 minute "Cleansing" and 10 minute "Energy" session with no human contact. Feet and hands were not present in the water during the 40 minute session.

**After – represents the concentration of the specific metal/mineral tested from a water sample (Study 1, Study 2, and Study 3) that included a 30 minute "Cleansing" and 10 minute "Energy" session with human contact.

"*Study 1*" represents an individual in their mid 50's and in good health.

"*Study2*" represents an individual in their mid 40's and in good health.

"*Study 3*" represents an individual in their early 30's and in excellent health.

Control Factors

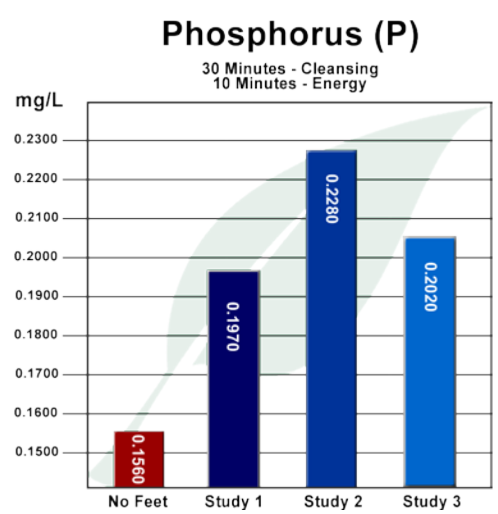
- The same Lectro Chi Pro Energy foot spa was used for all treatments.
- Each session utilized 1 gallon of distilled water purchased from the same water distillery.
- 1 oz. of Dead Sea salt was used during each session.
- Each session was performed at 2.5 amps.
- A new water module was used for each session.
- Each session utilized 30 minutes on the "Cleansing" setting and 10 minutes on the "Energy" setting.
- TraceAnalysis, Inc. - 6701 Aberdeen Avenue, Suite 9, Lubbock, TX 79424 performed all sample testing.

ppb – Parts per Billion
mg/L – Parts per Million (mg/L is equitable to ppm)

"Study 1" returned 0.1970 mg/L (197 ppb) of phosphorus (P) and had increased phosphorus (P) concentration of 0.0410 mg/L (41 ppb). The ending result for "Study 1" is a 26.28% increase of phosphorus (P) concentration found in the session water.

"Study 2" returned 0.2280 mg/L (228 ppb) of phosphorus (P) and had increased phosphorus (P) concentration of 0.0720 mg/L (72 ppb). The ending result for "Study 2" is a 46.15% increase phosphorus (P) concentration found in the session water.

"Study 3" returned 0.2020 mg/L (202 ppb) of phosphorus (P) and had increased phosphorus (P) concentration of 0.0460 mg/L (46 ppb). The ending result for "Study 3" is a 29.49% increase of phosphorus (P) concentration found in the session water.



Drinking Water - Health Based Limits

Heavy Metal	* Lifetime Health-Based Limit, Non-Cancer Risk	** Drinking Water Equivalent Level
Phosphorus (P)	0.0001 mg/L (0.1 ppb)	0.0005 mg/L (0.5 ppb)

* Concentration of a chemical in drinking water that is not expected to cause any adverse, noncarcinogenic health effects for a lifetime of exposure. The Lifetime health-based limit (or Health Advisory, HA) is based on exposure for a 70-kg adult consuming 2 liters of water per day. Source: U.S. Environmental Protection Agency.

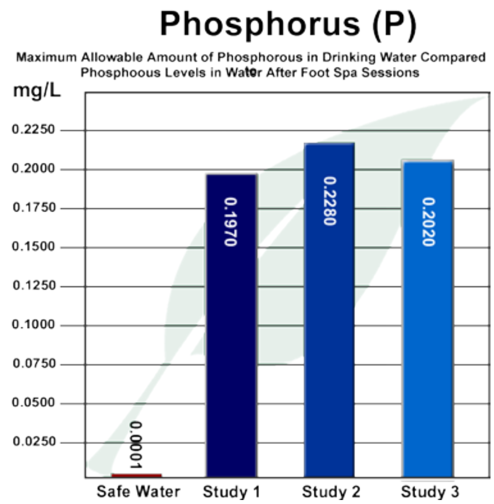
** A lifetime exposure concentration protective of adverse, noncarcinogenic health effects that assumes all of the exposure to a contaminant is from drinking water. Source: U.S. Environmental Protection Agency.

Sources: U.S. Environmental Protection Agency.
Environmental Working Group, A National Assessment of Tap Water Quality, www.ewg.org, December 20th, 2005

"Study 1" returned 0.1970 mg/L (197 ppb) of phosphorus (P) and had increased phosphorus (P) concentration of 0.1969 mg/L (196.9 ppb). The ending result for "Study 1" is a 1,969.00% increase of phosphorus (P) concentration found in the session water compared to the maximum safe amount of phosphorus (P) in drinking water.

"Study 2" returned 0.2280 mg/L (228 ppb) of phosphorus (P) and had increased phosphorus (P) concentration of 0.2279 mg/L (227.9 ppb). The ending result for "Study 2" is a 2,279.00% increase of phosphorus (P)) concentration found in the session water compared to the maximum safe amount of phosphorus (P) in drinking water.

"Study 3" returned 0.2020 mg/L (202 ppb) of phosphorus (P) and had increased phosphorus (P) concentration of 0.2019 mg/L (201.9 ppb). The ending result for "Study 3" is a 2,019.00% increase of phosphorus (P) concentration found in the session water compared to the maximum safe amount of phosphorus (P) in drinking water.



Chemical and Physical Information

- Phosphorus is one of the 20 most abundant elements in the solar system, and the 11th most abundant element in the earth's crust. However, it forms only about 0.1% of the rocks that make up the bulk of the crust and is thus classed as a trace element.
- Phosphorus is a component of DNA, RNA, and ATP.
- Phosphorus is an essential element for all living cells.
- The most common commercial use of phosphorus-based chemicals is the production of fertilizers.
- Phosphorus compounds are also widely used in explosives, nerve agents, friction matches, fireworks, pesticides, toothpaste and detergents.

Route of Exposure

- Agriculture (pesticides, fertilizer, factory farms)
- Sprawl and Urban Areas (road runoff, lawn pesticides, human waste)
- Naturally Occurring (naturally present but increased for lands denuded by sprawl, agriculture, or industrial development)

Environmental Working Group, A National Assessment of Tap Water Quality, www.ewg.org, December 20th, 2005

Health Effects

Phosphorus is a component (phosphates) of fertilizer and manure, and a pollutant in municipal wastewater discharges. Potential health impacts associated with phosphorus include cardiovascular or blood toxicity, gastrointestinal or liver toxicity, kidney toxicity, musculoskeletal toxicity, neurotoxicity, reproductive toxicity, respiratory toxicity, and skin sensitivity.

Environmental Working Group, A National Assessment of Tap Water Quality, www.ewg.org, December 20th, 2005

Zinc (Zn)

Purpose

The purpose of the “Heavy Metal and Mineral Analysis” performed on the Lectro Chi Ionic Foot Spa was to validate or refute claims that heavy metals and minerals were being removed from human subjects during a Lectro Chi ionic foot bath session.

Water Analysis for Zinc (Zn)

Description	*Before mg/L	**After mg/L	Change mg/L	Change %
Study 1	0.1830 (183 ppb)	0.2170 (217 ppb)	0.0340 (34 ppb)	18.58%
Study 2	0.1830 (183 ppb)	0.2300 (230 ppb)	0.0470 (47 ppb)	25.68%
Study 3	0.1830 (183 ppb)	0.2130 (213 ppb)	0.0300 (30 ppb)	16.39%

*Before = “No Feet” which represents the concentration of the specific metal/mineral tested from a water sample that included a 30 minute “Cleansing” and 10 minute “Energy” session with no human contact. Feet and hands were not present in the water during the 40 minute session.

**After – represents the concentration of the specific metal/mineral tested from a water sample (Study 1, Study 2, and Study 3) that included a 30 minute “Cleansing” and 10 minute “Energy” session with human contact.

“*Study 1*” represents an individual in their mid 50’s and in good health.

“*Study2*” represents an individual in their mid 40’s and in good health.

“*Study 3*” represents an individual in their early 30’s and in excellent health.

Control Factors

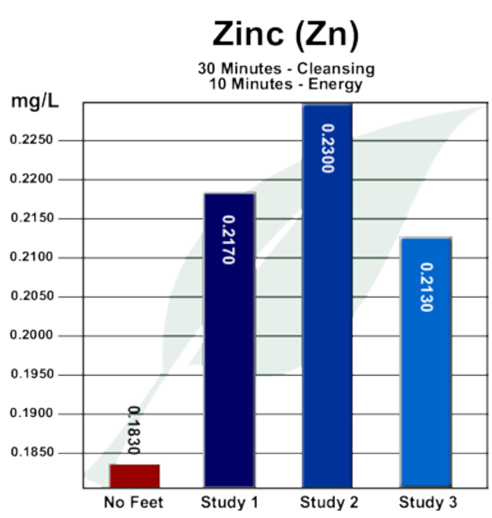
- The same Lectro Chi Pro Energy foot spa was used for all treatments.
- Each session utilized 1 gallon of distilled water purchased from the same water distillery.
- 1 oz. of Dead Sea salt was used during each session.
- Each session was performed at 2.5 amps.
- A new water module was used for each session.
- Each session utilized 30 minutes on the “Cleansing” setting and 10 minutes on the “Energy” setting.
- TraceAnalysis, Inc. - 6701 Aberdeen Avenue, Suite 9, Lubbock, TX 79424 performed all sample testing.

ppb – Parts per Billion
mg/L – Parts per Million (mg/L is equitable to ppm)

“Study 1” returned 0.2170 mg/L (217 ppb) of zinc (Zn) and had increased zinc (Zn) concentration of 0.0340 mg/L (34 ppb). The ending result for “Study 1” is a18.58% increase of zinc (Zn) concentration found in the session water.

“Study 2” returned 0.2300 mg/L (230 ppb) of zinc (Zn) and had increased zinc (Zn) concentration of 0.0470 mg/L (47 ppb). The ending result for “Study 2” is 25.68% increase zinc (Zn) concentration found in the session water.

“Study 3” returned 0.2130 mg/L (213 ppb) of zinc (Zn) and had increased zinc (Zn) concentration of 0.0300 mg/L (30 ppb). The ending result for “Study 3” is a 16.39% increase of zinc (Zn) concentration found in the session water.



Zinc (Zn)

Chemical and Physical Information

- Zinc is the 24th most abundant element in the Earth's crust and has five stable isotopes.
- Zinc is hard and brittle at most temperatures but becomes malleable between 100 and 150 °C.
- Zinc is most commonly used as an anti-corrosion agent.
- Zinc is an essential trace element, necessary for plants, animals,a nd microorganisms.
- Zinc is found in nearly 100 specific enzymes, serves as structural ions in transcription factors and is stored and transferred in metallothioneins. It is "typically the second most abundant transition metal in organisms and is the only metal which appears in all enzyme classes.

Health Effects

In the U.S., the Recommended Dietary Allowance (RDA) is 8 mg/day for women and 11 mg/day for men.

Mild zinc deficiency include depressed growth, depressed immunity, diarrhea, impotence and delayed sexual maturation, alopecia, eye and skin lesions, impaired appetite, altered cognition, host defense properties, defects in carbohydrate utilization, and reproductive teratogenesis.