



SALT•Ed

salt therapy education

What All Type of Spas, Wellness Facilities, and Salt Therapy Providers Need to Know About Misconceptions Regarding Himalayan Salt

The Scientific Research

The **Salt Therapy Association** was formed to provide Education, Research, and Innovation for the salt therapy/halotherapy industry and, as such, we are providing continuing information that is relevant and important for our Facility Members and for those in the industry. We have started a new educational series entitled "SALT-Ed" (salt therapy education) that we will be disseminated through white papers, documents, videos, and webinars.

This first SALT-Ed paper is a reference to the research about Himalayan salt and the 'myth information' regarding health and wellness benefits from claims such as emanating negative ions, purifying the air, and providing any respiratory relief, made about heating (or not heating) Himalayan salt in general, which applies to salt lamps, walls, saunas, spa equipment, and décor.

Not only is there no evidence that heated Himalayan salt produces its advertised health benefits, the notion that it could emit ions in sufficient quantities to have any impact on the surrounding environment or aid in the treatment of respiratory conditions runs against established science and basic chemistry.

Salt Lamps Can't Get Hot Enough to Emit Negative Ions

Science Journalist Signe Dean:

"The usual narrative about these lamps seems to be that heating up a chunk of salt releases ions. However, that simply isn't possible. To break apart the ionic bond between the two chemicals comprising salt, you'd need a far greater energy input than a tiny light bulb can provide. Besides, if that did happen, the salt would emit chlorine gas, and you'd definitely notice that."¹

John Malin, retired chemist formerly with the American Chemical Society

"Unless Himalayan sea salt contains high concentrations of other trace minerals compared with ordinary table salt, the predominant ions that could form from a salt lamp are sodium and chloride ions. But salt is really stable, so you heat it up a little bit and nothing really happens."²



Jack Beauchamp, Professor of Chemistry at the California Institute of Technology:

“We have a lot of experience with observing ions. What we did with the lamp, since it’s supposed to make negative ions, was to place it adjacent to the inlet and, just by itself, we observed no ions at all. We turned it on and looked for negative ions. We looked for positive ions. We waited for the lamp to heat up. The bulb inside eventually does heat the rock salt, but we didn’t see anything.

I can’t think of any physical process that would result in the formation of ions from heating rock salt, with and without the presence of water vapor in any amount. Rock salt has a face-centered cubic structure which would not be expected to give rise to electric fields that would generate ions around individual crystals.”³

Dr. May Nyman, Ph.D., of the American Chemical Society and Professor of Chemistry at Oregon State:

“The only way to get those ions or salts into the atmosphere is using very high energy radiation like using something like x-ray and focused x-rays and we don’t have them in our house or do we want it. The same x-ray you want to examine a broken bone or radiate a tumor. That is the kind of energy it would take to get those salts into the air. We do not want to be exposed to these amounts of x-ray without those amounts of health benefits. And those types of radiation do not exist in our house.”⁴

Dr. John Newsam, Ph.D., of the American Chemical Society and CEO of Tioga Research in San Diego, California:

“That is not happening in a Himalayan salt lamp where you have a flame, incandescent bulb or led bulb. You are not heating up the salt high enough to liberate any of the ions from it. The strength of [sic] between positive and negative ions of salt is very strong and therefore, they want to stay together – they don’t want to scoot off into the atmosphere. A block of salt is not going to liberate any sodium or chloride ions.”⁵

Columbia University Medical Center:

“It would take a Himalayan salt lamp a hundred years to even come close to what an ion machine could generate in an hour.”⁶



Salt Lamps Aren't Capable of Producing Enough Negative Ions to Affect the Surrounding Environment

Negative Ions Information Center:

"Having personally tested a popular brand of rock salt crystal lamp in our lab, we can attest that it was all but worthless as a generator of high-density negative ions.

After measuring the negative ion output level from the salt lamp, we took our sensitive negative ion detector outdoors and measured a far higher level of naturally occurring negative ions than the salt lamp emitted.

If the salt lamp's negative ion output would have been any lower, we could not have measured it. The salt lamp put out such a small level of negative ions that just taking a reading depleted the few negative ions that it did put out, and then the ion detector stopped indicating. We then had to remove the ion detector from near the salt lamp for a few minutes before we could again measure negative ions near the lamp. We couldn't tell the exact level of ions."⁷

A Breath of Reason website:

"It is possible to separate sodium from chloride with high amounts of energy, but we're talking much more than what is put out from a mere 15-watt lamp. But let's just say that somehow this glowing chunk of halite on your nightstand actually does release negative ions to combat the pollutants in the air. What would happen is your salt lamp would basically slowly shrink down to nothing but a pile of pure sodium (not good), and at the same time be emitting chlorine gas (really not good). And then there's the logical paradox that if these negative ions are floating away, leaving the positively charged ions in the lamp, the strong attraction between positive and negative would pull these negative ions right back onto the lamp, negating entirely the purpose of your salt lamp.

[I]f the negative ions did bind to dust particles and allergens, and other pollutants that could trigger asthma symptoms, there's no chance of them being heavy enough to weigh the dust down, trap it against a grounded surface, and make it easy to just wipe away. In a brilliant post on the effectiveness of salt lamps, author D.B. Thomas asserts the weight of the chlorine molecule to be very small. "Chlorine has a relative atomic mass of 35.5. Basically, a 'mole' of chlorine atoms 6.022×10^{23} atoms[sic] would weigh 35.5 grams. Let's break that down to numbers that most people can really understand. $35.5\text{g}/6.022 \times 10^{23} = 5.887 \times 10^{-23}$ grams. Or, 0.00000000000000000000005887 grams." As if that would be enough to bring down a comparatively enormous dust particle."⁸



Salt Lamps Do Not Neutralize Electromagnetic Radiation

Wavelength and frequency determine another important characteristic of electromagnetic fields. Electromagnetic waves are carried by particles called quanta. Quanta of higher frequency (short wavelength) waves carry more energy than lower frequency (longer wavelength) fields. Some electromagnetic waves carry so much energy per quantum that they have the ability to break bonds between molecules. In the electromagnetic spectrum, gamma rays given off by radioactive materials, cosmic rays and X-rays carry this property and are called 'ionizing radiation'. Fields whose quanta are insufficient to break molecular bonds are called 'non-ionizing radiation'. Man-made sources of electromagnetic fields that form a major part of industrialized life – electricity, microwaves, and radiofrequency fields - are found at the relatively long wavelength and low frequency end of the electromagnetic spectrum and their quanta are unable to break chemical bonds.”⁹

Salt Lamps Do Not Benefit Respiratory Health

“Despite numerous experimental and analytical differences across studies, the literature does not clearly support a beneficial role in exposure to negative air ions and respiratory function or asthmatic symptom alleviation. Further, collectively, the human experimental studies do not indicate a significant detrimental effect of exposure to positive air ions on respiratory measures. Exposure to negative or positive air ions does not appear to play an appreciable role in respiratory function.”¹⁰

Heated Salt Lamps Do Not Trap Positive Ions and Release Negative Ions Cleaning and Deodorizing the Ambient Through Hygroscopy

“Some small amount of water vapor in the air might adhere to the salt’s surface, and some of the water vapor might dissociate salt into sodium and chloride ions. But as soon as the water vapor dried, the two ion types would immediately recombine to form salt, so that process is unlikely to produce negative ions either...

As for the idea that water vapor in the room attracts pollutants, then sticks to the surface of the lamp, that, too, makes little sense, he said. Some pollutants in the air might, by chance, stick to water vapor on the surface of the lukewarm piece of rock salt, but there’s no evidence that the meager heat produced by a light bulb could produce significant amounts of pollutant filtering...

In terms of mass removal of pollutants from the air, I just don’t think it can happen, Malin said. Instead, a chunk of charcoal with a fan blowing over it would likely have much better filtering properties...”¹¹



Summation

The research has been conducted and the Salt Therapy Association agrees with the science. The reports that Himalayan salt has magical properties, how it provides wellness, and can aid in the treatment of respiratory issues is a myth. Himalayan salt is for décor. The truth is that wellness and respiratory health comes from halotherapy, where pure grade sodium chloride is crushed, ground, and dispersed by a halogenerator.

While there is some evidence that large amounts of a natural compound concentration in an enclosed space (such as quartz, amethyst, jade or Himalayan salt) can alter the vibrational frequency of the physical environment, since all elements resonate at different frequencies, and, thus, alter the feeling in the room, Himalayan salt décor can create a nice, ambient environment to sit and relax.

There is some scientific evidence about chromotherapy, also known as color therapy, where the warm orange and pink hues of the lighted Himalayan salt bricks or panels create a soothing environment to aid emotional and mental health. The placebo effect is also strong, and Himalayan salt is also very popular as an ingredient in food and skin products.



Citations

- ¹ <http://nevertocurious.com/2015/06/11/salt-lamps-are-pseudoscience/>
- ² John Malin, retired chemist formerly with the American Chemical Society
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- ⁴ <http://www.krem.com/news/salt-lamps-dont-actually-make-you-healthy-but-they-do-look-nice/501577955>
- ⁵ <http://www.krem.com/news/salt-lamps-dont-actually-make-you-healthy-but-they-do-look-nice/501577955>
- ⁶ Columbia University Medical Center
- ⁷ <http://www.negativeionsinformation.org/saltcrystallamps.html>
- ⁸ <https://abreathetheofreason.com/2014/06/18/salt-lamps>
- ⁹ <http://www.who.int/peh-emf/about/WhatisEMF/en/>
- ¹⁰ Dominik D. Alexander, William H. Bailey, Vanessa Perez, Meghan E. Mitchell, and Steave Su, *Air ions and respiratory function outcomes: a comprehensive review*, J Negat Results Biomed. 2013; 12:14 (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3848581/>)
- ¹¹ John Malin, retired chemist with the American Chemical Society
<http://www.livescience.com/59328-himalayan-salt-lamp-faq.html>