



Mechanisms of Halotherapy, Speleotherapy and Salt Therapy Explained: A Better Breathing Guide

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The ancient traditional Hindu science of health and medicine, Ayurveda, recommends washing nasal cavities with saline water daily. This practice, called 'Neti', has been utilized by Yogis for preparation of extended meditations and Yoga practices to ensure clean and open airways, resulting in easy breathing.

It is easy to dismiss Grandma's advice to gargle with saline water as an old time cure left behind by science. As Dr. Philip T. Hagen said, gargling with lukewarm saline water eases sore throats and speeds up recovery from flues and colds, and can draw excess fluid from inflamed tissue in the throat, also relieving the pain. Dr. Philip Hagen has also stressed that gargling with saline water loosens thick mucus, which can remove irritants like allergens, bacteria and fungi from the throat.

Salt concentration in human blood is 0.9% by volume. Human tears and sweat are saline as well. This presence of saline inhibits many potentially dangerous infections. For many centuries, salt has been used in food preservation. According to scientific literature, the amount of salt inhaled during a 45 minute Halotherapy / Salt Therapy session is 100 times less than the recommended daily intake of salt. Moreover, most of the salt inhaled is removed from the lungs by breathing and excreting mucus.

Salt therapy and food preservation mechanism of action are based on the phenomenon of osmosis. Osmosis is the tendency of a solvent, usually water, to pass through a semi-permeable membrane into a solution where the solute concentration is higher, thus equalizing the concentration of materials on either side of the membrane. Essentially, this means that if a cell is put into a solution in which the solute concentration of minerals is higher than its own, the cell will shrivel up. In the context of Halotherapy / Salt Therapy, viruses and bacteria are being dried up in the lungs after the inhalation of sodium and chloride (salt) minerals.

Bronchial cilia constantly wave upward in the lining of the lungs and trachea to remove mucous and foreign materials. Their removal protects the lungs from infections and allows easier breathing.

Experiments performed by Dr. Albert P. Krueger and Dr. Richard F. Smith at the University of California have shown how negative ionization affects those sensitive to airborne allergens. The bronchial tubes and trachea, or windpipe, are lined with tiny filaments called cilia. The cilia normally maintain a whip like motion of about 900 beats a minute. Together with mucus, they keep human air passages free of dust and pollen. Krueger and Smith exposed tracheal tissue to negative ions. This resulted in the ciliary motion being speeded up to 1,200 beats a minute and increased flow of mucus.

Mucus secreted into the lungs protects the lungs by trapping allergens, bacteria and viruses. However, if the mucus is not removed from the lungs it becomes toxic, decreasing lung volume and obstructing airways. As a result, physical action (Halotherapy / Salt Therapy) is sometimes required in order to improve the lung function. "Amazingly, scientists have found that bacteria have enough collective or chemical consciousness to come together and form smart colonies. These smart colonies of bacteria are called 'biofilms'." (McCabe, 2004)

In the lungs, bacteria biofilms act as a multi-cellular microorganism, and are anaerobic, which means they cannot live in Oxygen rich environment. "A prolific variety of environmental niches are formed, and the biofilm affords protection from antibiotics and toxins (poisonous substances; in this case negatively charged ions)." (Netting, 2001)

Dry salt aerosol is negatively charged (like Oxygen), and it can oxidize the biofilm structure, which can lead to biofilm disintegration. One may compare the oxidation of biofilm to the rusting of metal. Thus, disintegrated biofilm structure may be removed from lungs. Additional amounts of water drawn to the lungs through osmosis (caused by salt minerals) dilute the biofilm, further speeding up biofilm and mucus removal.

"The art of medicine consists in amusing the patient while nature cures the disease."

- Voltaire

McCabe, E. (2004). Flood your body with oxygen. Miami Shores, Florida: Energy Publications.

Netting, J. (2001, July 14). *Science News*, 160, No. 2, [17-32].

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