

New Report on the Adverse Health Effects of Disinfection Byproducts in Swimming Pools and Spas

By: Vance Fiegel, Co-Founder and Chief Scientific Officer.

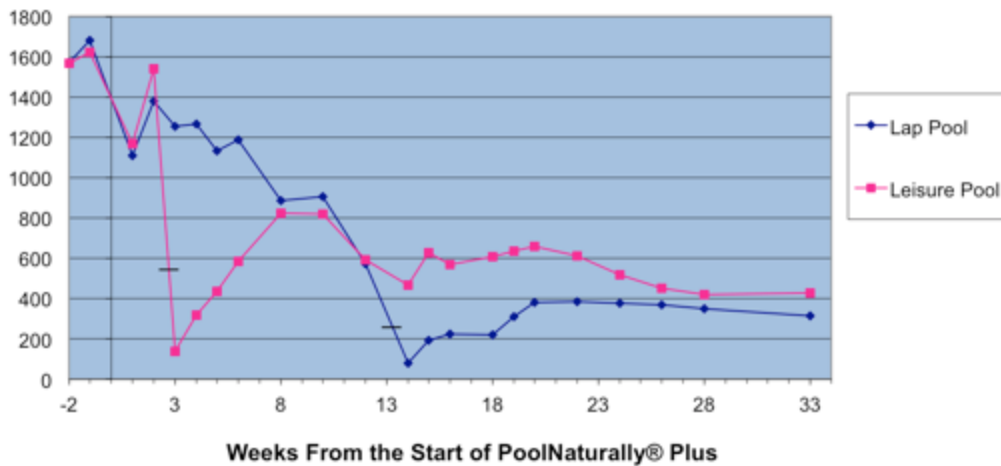
A recently published study is renewing concerns about toxic disinfection byproducts (DBP) in swimming pools and spas. The study, published in *Environmental Science & Technology* (2016, Vol. 50, 6652-6662), included researchers from the University of South Carolina, Purdue University, and the U.S. Environmental Protection Agency. Though previous studies have shown a link between exposure to DBP and the occurrence of asthma and bladder cancer, this study documents the effects of DBP on mutagenicity (changes in DNA).

The researchers determined that increases in natural organic matter increased both DBP levels and mutagenic potency in most of the pools and spas they examined. They also identified over 100 DBP as well as a new class of DBP called bromoimidazoles. In addition to these new findings, this research confirms that increased levels of organic contamination lead to increased DBP concentrations, which can ultimately result in adverse health effects for those exposed to these toxic DBP.

One of the main benefits of using The Moss™ is its ability to reduce the organic contamination in swimming pools, spas, and other water systems. The reduction of organic matter in the water directly leads to a reduction in chemical needs as well as reducing DBP in the water and in the air. This results in reduced costs for the facility and healthier water and air for patrons and employees.

For more information on this study, see the link to the article. For more information on The Moss, see the Resources page at <https://cwsnaturally.com/partner-resources/commercial/>

Effect of PoolNaturally® Plus on DBP Levels in Pool Water



Pool was drained/refilled

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Founders history of invention: three disruptive technologies since 1985

By: Gina Chavez, Chief Operating Officer.

The discovery of life changing products from nature has been the mainstay of advances in medicine and other industries. In today's era of custom pharmaceuticals, gene manipulation, and large scale engineering solutions to common problems, the opportunity to make a significant discovery directly from nature is truly unique. Creative Water Solutions LLC (CWS) is a modern day example of how nature's creation can still provide solutions to complex and pressing human needs.

Product and Method to Treat Chronic Non-healing Wounds

Dr. David Knighton had just started Curative Technologies, Inc. in 1984 based on research into platelet growth factors and their role in wound healing and angiogenesis. Vance Fiegel and his team in the laboratory headed the early research and development. Their partnership produced research that resulted in the first patented growth factor product to treat chronic non-healing wounds. When combined with the clinical treatment algorithm developed by Dr. Knighton in the wound-healing clinic at the University, Curative Technologies became the premier wound healing company in the country. Curative Technologies went public and resulted in annual revenues of \$100 + million per year.

Medical Device for Less Invasive Surgery

Their second innovation, which made a significant change in clinical medicine, was the saphenous vein harvest system. Dr. Knighton, working in his wound-healing clinic, recognized that the incision made to harvest the saphenous vein from the inner leg for cardiac bypass surgery was a significant problem for many patients. Advances were being made in laparoscopic operative techniques that prompted Dr. Knighton to develop a system to harvest the saphenous vein through a small leg incision. The resulting patents were sold to Cardiothoracic Systems, which was subsequently purchased by Guidant Corporation and then Boston Scientific. Today, this product is used by over 90% of the cardiac bypass procedures in United States, resulting in over \$150 million per year of sales.

Unlocking the marvels of Sphagnum moss and water

Why Sphagnum moss? In 1999, Knighton was returning from Germany to Minneapolis. Over Nova Scotia, he finished his work and asked for a magazine. The flight attendant brought three – People, Atlantic Monthly, and Golf Digest. Since he wasn't a golfer and was usually bored by People, he chose the Atlantic Monthly and read a one page article about the use of Sphagnum moss in WWI by the English, Germans, and Americans to treat war wounds. They reported that soldiers with wounds packed in Sphagnum moss survived in higher numbers than soldiers with wounds packed in cotton. His experience as a surgeon and expert in wound healing led to a hypothesis that the Sphagnum moss had to be antimicrobial to have the effect reported in WWI. After reviewing the surgical literature, he discovered that some of the Sphagnum moss was harvested in northern Minnesota. Fiegel obtained various species of Sphagnum moss and began years of studies to understand the various properties of The Moss™. Laboratory testing, product testing, and patent applications led to our first product sales in 2004.

Where will we be next?

- Vance Fiegel, Co-Founder and Chief Scientific Officer will be speaking at the 2017 Southwest Pool and Spa Show on 1/18 at 10:15AM in room 303 C about the Recreational Aquatic Ecosystem and Sphagnum Moss
- Vance Fiegel, Co-Founder & Chief Scientific Officer and Charity Whitman, Commercial Salesperson will attend the United Aqua Group conference and tradeshow in San Antonio, TX, starting the week of February 12th with the tradeshow on Tuesday.

Both of these innovations changed the standard of care in their respective fields. Acceptance of these new ideas took a significant amount of time, energy and perseverance due to the disruption they caused in the long standing standard of care.



For more detailed information on the installation and use of the Moss™, please see our website at www.cwsnaturally.com under Commercial Resources under the Commercial tab on our homepage.