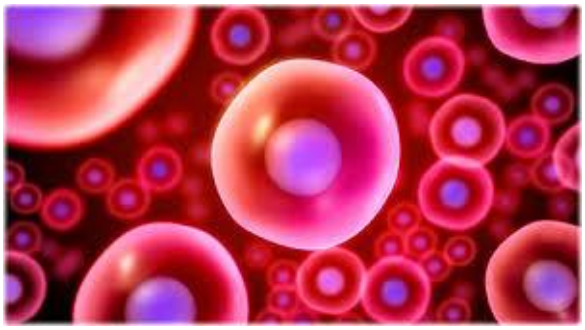
Glorious and Remarkable Adult Stem Cells!

By Elayne Lieberman, CNC, CHT

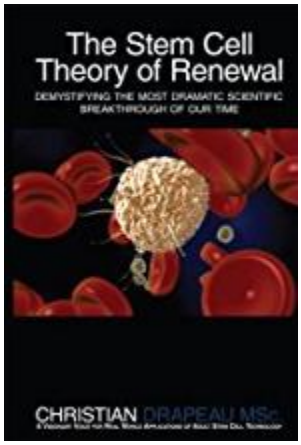


A few short years ago, the intriguing world of stem cells was revealed. Glorious and remarkable, stem cells are considered Master Cells because they have a very unique ability to differentiate and become cells of an organ, gland or tissue in need of repair. All the cells in our bodies are specialized and play a very specific role in the function of our bodies – all except stem cells. For example, brain cells uniquely respond to electrical signals from other brain cells and release neurotransmitters but cannot ever become pancreatic cells. Cells of the retina in the eye are activated by light and cannot ever become kidney cells. Pancreatic beta cells produce insulin and can never become skin cells. These cells will never differentiate -that is become other kinds of cells – nor will they proliferate.

Stem cells, in contrast, produced in large part in the bone marrow, are primitive cells that remain undifferentiated until they receive a signal prompting them to become something specific, thus helping the damaged target organ, gland or tissue to heal and regenerate. Stem cells contribute to and stimulate healthy growth and regeneration throughout the body. It's a natural function in our bodies.

When a tissue in the body is injured or stressed, stem cells from the bone marrow are signaled to migrate to the target tissue, proliferate and differentiate into cells of that tissue.[1] This natural repair process takes place in our bodies each and every day, from the day we are born!

When stem cells arrive in the target tissue they proliferate and differential into cells of that tissue, supporting the healing process. [2] In fact, studies show that stem cells participate in the repair of virtually every organ, gland and tissue of the body! [3]



It is the number of circulating stem cells in the blood at any one time that is the most important factor in this repair process. "When the level of circulating stem cells was measured in the bloodstream of individuals who suffered an injury," writes Christian Drapeau in his book, The Stem Cell Theory of Renewal, "the individuals who had the largest number of stem cells on the day of their injury showed the fastest and greatest recovery." [4]

The health condition of nearly 500 individuals was monitored for over a year and the individuals with the largest number of circulating stem cells showed a greater level of health.[5]

There are several stages involved in the healthy function of stem cells. The first is the release of stem cells from the bone marrow. Next, the circulation of the stem cells through the bloodstream and then into the capillaries and to the damaged target tissue.

We know that the number of stem cells circulating in our bodies is really important for optimal health. But there are conditions within the body that may impeded this process.

As we age, the number of stem cells being released into the blood stream is likely compromised. This starts to occur starting around 25 years old. This will result, over time, in a reduction of stem cells circulating in our bloodstream.

The next obstacle is the condition of our blood. Again, with age and as a result of poor diet, lack of exercise, stress and environmental toxins, our blood becomes filled with debris, like fibrin mesh and plaque. This prevents not just stem cells, but all nutrients from circulating effectively throughout the body and thus we lose our ability to keep our tissues nourished and in good repair.

And finally, systemic inflammation is a huge problem for everyone and most of the time you do not even realize it is a problem because you cannot see the inflammation. Inflammation results from unhealthy lifestyle and habits, free radical formation, oxidative stress, fibrin mesh and cholesterol plaque in the blood vessels.

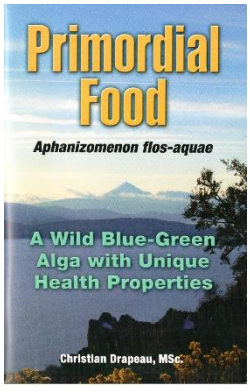
Inflammation is the cause and the effect of illness, dis-ease and the health issues of aging. Health challenges like atherosclerosis, osteoporosis, sexual dysfunction, depression, Alzheimer's and dementia, diabetes, wrinkles, cancer and fibromyalgia, to name a few.

Inflammation also effects and impacts the blood vessels, arteries and capillaries, causing swelling and the constriction of the vessels. This also prevents not just the blood, but the nutrients and stem cells from reaching the tissues that are starving for nourishment and repair.

The Remarkable Plants that our Earth Has to Offer

Since the mid-1990's, many studies have been done, in collaboration with various universities and research centers, that have provided a remarkable amount of data that significantly supports and explains the benefits experienced by millions of individuals consuming *Aphanizomenon flos aquae* (AFA).

Christian Drapeau, one of the research scientists involved in these studies, and who is also a neurophysiologist, has lead the charge to better understand how these plant-based whole foods, like AFA, effects our bodies.



In his book, Primordial Food: Aphanizomenon flos-aquae – A Wild Blue-Green Alga With Unique Health Properties,[6] Christian Drapeau describes a thorough review of AFA's empirically reported benefits that was done by a team of scientists affiliated with the University of Illinios.[7] The study, involving over 200 cases, concluded that AFA "seems effective in the treatment of various vital infections, chronic fatigue, Attention Deficit Disorder, depression, inflammatory diseases and fibromyalgia. The study strongly suggests that AFA acts on the immune and nervous systems and prevents the process of inflammation."

Christian Drapeau continues by discussing this ground-breaking review, explaining that it was the launching point for a series of studies that focused on the effects of AFA on human health. Today, many studies have shown that "AFA stimulates the mobilization and migration of immune cells, stimulates the activity of macrophages, prevents inflammation and pain by inhibiting cyclooxygenase (COX-2) activity, stimulates brain function and elevates mood, enhances the body's own mechanism of regeneration and is an exceptional source of Omega-3 fatty acids."

Since we are discussing the healthy function of stem cells, we will focus next on the anti-inflammatory properties of phycocyanin, which is the blue pigment in all cyanophyte (blue green algae). According to Christian Drapeau, studies have shown that phycocyanin has strong antioxidant and anti-inflammatory properties.[8 and 9] "Phycocyanin has also been shown to be one of the strongest natural COX-2 (cycolo-oxigenase) inhibitors."[10]

An additional benefit of taking AFA is the positive effect it has on our brain function, our moods and our mental processes. PEA (phenyl-ethylamine) is a "stimulatory neurotransmitter that increases mental activity and alertness."[11] It is well known for alleviating depression and elevating mood and it plays a role in reducing the symptoms of Attention Deficit Disorder and helps improve many challenges with learning disabilities. PEA is naturally produced by the brain, but, along with age and stress, this compound may not be produced in large enough quantities over time. Studies revealed the presence of PEA, otherwise known as "the molecule of joy", in AFA and this explains why individuals taking AFA showed elevated mood, alleviation of depression and feeling happier and more positive.

AFA is an organic algae that grows wild in Klamath Lake in Klamath Falls, Oregon. This photo above is what the wild algae looks like in the lake.

Now, what about stem cell mobilization? There has been much discussion and opposition around the science of stem cells. The issue of using embryonic stem cells (ESC) for research purposes and for the development of treatments for various diseases is controversial because of the obvious ethical nature of harvesting cells from live human embryos and because of the Pandora's Box it opens involving genetic manipulation. Science does show that embryonic stem cells do have the ability to repair and heal any organ into which they are transplanted.

But there is an alternative!

Studies show that adult bone marrow stem cells have properties similar to ESC.[12]. In the early 2000's, Goodell et al[13] described how bone-marrow stem cells migrated from the bone marrow to the heart and helped repair the cardiac muscle and helped in the formation of new blood vessels after a cardiac arrest incident.

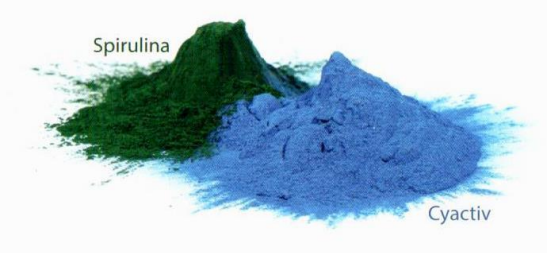
More studies were done to see if stem cells released from the bone marrow could cross the blood-brain barrier, migrate and then differentiate into brain cells. And this is pretty exciting! It was shown that stem cells do have the ability to cross the blood-brain barrier and reach the brain![14-17]

Christian Drapeau further reports in his book Primordial Food, that Jensen et al[12] originally proposed the *Stem Cell Theory of Healing, Regeneration and Repair*. This was a breakthrough theory suggesting that "bone marrow stem cells leave the bone marrow and travel throughout the body, providing for healing and regeneration of damaged organs during the entire lifetime of an individual. In other words, adult

bone marrow stem cells may be one of the natural mechanisms that the human body utilizes for healing, regeneration and repair."

Drapeau goes on to say, "According to this theory, there is no need to harvest embryonic stem cells, manipulate them, then inject them into individuals. Regeneration can take place simply by stimulating the release of stem cells from the bone marrow and stimulating their migration into tissues. The task is therefore simply to find natural compounds able to stimulate stem cell release and migration."

The National Institutes of Health (NIH), published by the U.S. Department of Health & Human Services, released a very interesting report that explains that the main role of adult stem cells in a living organism are to "maintain and repair the tissue."[18]



We now know that certain alga, nature's superfoods, have compounds that when isolated and concentrated, actively stimulate the release of stem cells from the bone marrow. The Cerule product Stem Enhance® Ultra is the result of 16 years of research and constitutes the most efficacious and scientifically proven stem cell nutrition on the market.

Through multiple clinical trials, Stem Enhance®Ultra has been documented to optimize stem cell function in the body by increasing the number of both stem cells and Endothelial Progenitor Cells (EPCs) in the blood which supports optimal tissue renewal and repair.

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