NATURAL IMMUNO-Oncology

Immune System Weakness is a Cause of Cancer

BY

DR. MARK SIRCUS
Hailed as one of the most exciting and unique cancer treatments of today, enhancing the immune system to take down cancer is exciting for doctors. Immuno-therapies are a cause for great hope in treating many types of cancer, including melanoma, lymphoma, and lung, kidney, and bladder cancers. They stimulate the immune system to help the body attack cancer from within. And unlike chemotherapy or radiation, which kill off healthy cells, immunotherapies are much more targeted, even in patients with late-stage disease.

“This is already much better for patients than the current treatments for cancer, which are principally surgery, chemotherapy and radiation. These treatments likely cause as much harm to patients as they do good, either leaving deadly cancer cells untreated, or killing off too many healthy cells in the body. Immuno-oncology allows cancer cells to be targeted, leaving the rest of the body unharmed. It also has far fewer limitations, being applicable to tumors at all stages of the disease with much higher efficiency and durability (meaning fewer recurrences!). Since the first immuno-oncology treatment was approved in 2010, it has proven effective in treating melanoma and lymphoma, as well as lung, kidney and bladder cancer.”

With these drugs, doctors have watched deadly tumors melt away, and patients who were supposed to die go into remission for years. While amazing turnarounds aren’t seen in everyone or for all cancer types, Dr. J. Leonard Lichtenfeld, the deputy chief medical officer of the American Cancer Society, said that immunotherapies have oncologists using a word they aren’t used to trotting out: cure.

Normally, our immune system is able to destroy cancer cells in our body, however sometimes cancer cells can adapt and mutate, effectively hiding from our immune system. This is when tumors develop and become a threat to our health. Immuno-oncology involves mobilizing lymphocytes to recognize and eliminate cancer cells using the body’s immune system.

“We are at the precipice of a revolution in cancer treatment based on using immunotherapy,” writes Dr. Stanley Riddell. Immune therapy works because an enhanced immune system has the ability to take cancer down. If one
chooses to do immunotherapy the pharmaceutic way it will cost you a fortune. Nivolumab costs $28.78 per mg of drug, whereas ipilimumab costs $157.46 per mg. “To put that into perspective, that’s approximately 4000 times the cost of gold,” commented Dr. Leonard Saltz, MD, from Memorial Sloan Kettering Cancer Center, New York City.

So strong in the belief of immunotherapy that a British company is talking about the impossible – a potential cure for cancer. They are developing a new approach to cancer treatment using the body's own immune system to fight tumor cells. Immunocore is harnessing the power of the immune system's natural-born killer cells: the T-cells of the blood which nature has designed over millions of years of evolution to seek out and kill invading pathogens, such as viruses and bacteria. Currently less than 40 percent of patients who receive immunotherapy get good results, although those who do respond are often dramatically better. Many of course suffer from side-effects.

Immunotherapy, or immuno-oncology as it is technically called, represents a sea change in terms of cancer treatment but it does not have to be done the pharmaceutical way. The Natural Allopathic Medicine protocol for cancer stimulates the immune defenses naturally and safely at low cost. A healthy, fully functioning immune system can combat the spread of cancer cells and eliminate tumors.
We are living in a moment when many of our most promising medical advances are far out of reach for the vast majority of people who could benefit from them. And nowhere is that truer than for cancer immunotherapy, the fast-moving field of cancer treatment.

Getting a cancer immunotherapy treatment costs more than a house in many cities in the US, more than putting a few kids through private college. The average cost of cancer drugs has increased from $50,000 per patient in the mid-1990s to $250,000 today. That’s four times the median US household annual income.

Immunotherapies in particular often cost more than $100,000 per patient. Doctors now use immunotherapies in combination with chemotherapy, which means those costs can quickly double or triple. For some of the newest immunotherapies, the price tag is even steeper: When you include the value of the medical support necessary to deliver these treatments, a price tag of $850,000 per patient is not unheard of, according to Ezekiel Emanuel, a professor of medical ethics and health policy at the University of Pennsylvania’s Perelman School of Medicine.

In terms of cost, Novartis’ CTL019 stands out. Novartis’ CTL019 is administered in a single treatment, which will cost US$475,000.
Cancer Vaccines

Patients stay at the La Pradera clinic in Cuba, where they administered cancer vaccines. Patients receive their first of several doses of the vaccine. Each dose consists of four injections — two to the arms and two to the buttocks. One dose costs about $860, so the total cost of the trip, including airfare, lodging and a supply of the medication to take back home, can run well over $10,000.

Low Cost of Natural Immunotherapy

The total cost for one year of the entire Natural Immunotherapy protocol, including the medical equipment needed, which can easily be shared by two people, is between 7,000 and 10,000 dollars for the first year and can actually be done for much less for the least expensive parts of the protocol are actually the most powerful.

Natural Immunotherapy can conform to the each person’s affordability. Modern oncologists and the organizations that back them have no empathy or compassion, no identification with the whole of the human race. What good is a cancer cure if hardly anyone can afford it? Their incredible solution, Immuno-oncology, is no solution at all. It is not even a sure thing for the rich who can afford it.

For 7,000 dollars one can set up a complete clinic in the home that one’s entire family can use. The high end cost would include infrared therapy bed mat (for two people), PEMF (Shuman wave pulse frequency therapy), Hydrogen Inhalation machine, Exercise with Oxygen therapy (EWOT) for those who are well enough to exercise, and breathing retraining equipment, which is only fifty dollars.

The rest of the expenses are with all the mineral medicines, vitamins, super-foods, and other natural substances and chelators one needs to use. Many people will elect out of necessity to go the bare bones of the protocol and they still will stand a high chance of conquering their cancer. When one considers how much one can do with one’s diet and the essential minerals and vitamins one does not have to give up hope because they do not have the funds to go with all the bells and whistles.

When it comes to calculating cost of equipment realize that they can be used for years and only make the process of recovering from cancer easier and more permanent.
Survival Rates

Patients who received checkpoint blockade immunotherapy had an average survival of 12.4 months (compared to 5.2 months for those who did not receive immunotherapy), and had a four-year survival rate of 28.1 percent (compared to 11.1 percent for those who did not receive immunotherapy).

Though we do not know the survival rates following a natural approach to immune system stimulation and revival we are playing for keeps in terms of Conquering Cancer.

Side Effects

Pharmaceutical companies often hide test results from the public that would reveal their drugs are less effective than advertised and have far riskier side effects. What are the long-term effects of immunotherapy? Because immunotherapy for lung cancer is new, doctors aren’t sure what the long-term effects or complications might be. They can include diabetes and thyroid problems, which would require ongoing medical care.

Immunotherapy drugs can have severe side effects that can lead to death. Once the immune system is activated, it may attack normal tissues as well as tumors. That would not be a problem with natural Immuno-oncology. Monoclonal antibodies has been known to cause high blood pressure, bleeding, blood clots, kidney damage, severe rashes and other serious risks.

Common Side Effects

These side effects are common but may not occur in all people or with all types of immuno-therapies.

- Feeling tired (fatigue)
- Diarrhea
- Fever
- Shortness of breath
• Rash and/or blisters, covering less than 10% of the body

• Nausea

• Vomiting

• Itching

• Headache

• Weight loss

• Difficulty falling or staying asleep

• Decreased appetite

**Dangerous side effects**

Severe side effects can be life threatening. They may occur right away or up to 2 years after treatment ends.

If you are treated with an immune checkpoint inhibitor, it is important that you are aware of these side effects and that you call your doctor right away if they occur. If caught early, they can be treated. The list below describes dangerous side effects and their symptoms.

• Side Effect: Inflammation of the lung (pneumonitis)

• New or worsening cough

• Shortness of breath

• Chest pain

• Side effect: Inflammation of the liver (hepatitis)

• Yellowing of skin (jaundice)

• Severe nausea or vomiting

• Pain on the right side of your stomach area
• Drowsiness
• Tea-colored urine
• Bleeding or bruising
• Feeling less hungry than usual
• Side effect: Inflammation of the colon (colitis)
• Diarrhea (loose stools) or more bowel movements than normal
• Blood in stools or black, tarry, or sticky stools
• Severe abdominal pain or tenderness
• Hormone or gland problems, especially the thyroid, pituitary, and adrenal glands and the pancreas
• Headaches that will not go away
• Extreme tiredness
• Weight gain or weight loss
• Dizziness or fainting
• Changes in mood or behavior, such as decreased sex drive, irritability, or forgetfulness
• Hair loss
• Feeling cold
• Constipation
• Voice getting deeper
• Excessive thirst or increased urination
• Side effect: Inflammation of the brain (neuropathy, meningitis, or encephalitis)

• Headache

• Fever

• Tiredness or weakness

• Confusion

• Memory problems

• Sleepiness

• Hallucinations (seeing or hearing things that are not there)

• Severe muscle weakness

• Numbness or tingling in your hands or feet

• Extreme sensitivity to light

• Neck stiffness

• Side effect: Kidney problems, including kidney failure

• Change in the color or amount of urine

• Blood in the urine

• Swelling in the ankles

• Loss of appetite

• Complicated skin reactions

• Rash that affects your quality of life

• Blisters covering over 30% of the body
• Itching

• Ulcers in the mouth, nose, ears, or other mucous membranes, making it difficult to eat or drink

• Side effect: Severe infections

• Fever

• Cough

• Flu-like symptoms

• Pain when urinating

• Side effect: Eye problems (may indicate a more widespread problem)

• Blurry vision, double vision, or other vision problems

• Eye pain or redness

• Side effect: Severe infusion reactions

• Chills or shaking

• Itching or rash

• Flushing

• Shortness of breath or wheezing

• Swelling of face or lips

• Dizziness

• Feeling like passing out

• Back or neck pain
Healthy ways to strengthen your immune system according to the mainstream:

- Don’t smoke.
- Eat a diet high in fruits and vegetables.
- Exercise regularly.
- Maintain a healthy weight.
- If you drink alcohol, drink only in moderation.
- Get adequate sleep.
- Take steps to avoid infection, such as washing your hands frequently and cooking meats thoroughly.

Compare this list to Natural Allopathic Medicines below. One look informs us that modern medicine is mentally crippled with ignorance.
NATURAL TREATMENTS TO STIMULATE THE IMMUNE SYSTEM

Below is a deep summary of the different ways of naturally stimulating the immune system. Its revolutionary, a leap forward, can be practiced by doctors, or by patients using it in the comfort of their own homes. Medicine is evolving before our very eyes yet sadly there are people and institutions that will have none of it. In other parts of the course we will dedicate entire chapters on each of the therapies mentioned below.

This presentation represents a breakthrough in medical thinking. Cancer immunotherapy is hailed as one of the most exciting and unique cancer treatments of today. The pharmaceutical approach, though in its infancy, is already demonstrating impressive clinical benefit in different malignancies and clinical oncologists are increasingly turning their attention to immune-oncology. However, now we have a natural approach to achieve the same end results but without toxicity, high cost and endless side-effects.

Damage to the Immune System is Rapidly Reversible

According to pathologist Dr. Mohammed Al-Bayati, “Damage to the immune system is rapidly reversible after removal of the true insulting agent or treatment of the true causes.” A healthy immune system is a function of a healthy life and one of its greatest depressors is malnutrition. “Atrophy in the lymphoid tissue in people suffering from malnutrition has been known since 1925. Malnutrition causes severe atrophy in the thymus and lymphoid organs and impairs the function of the T cells. These changes are reversible by feeding.

The size of the thymus in malnourished children increased from 20% of normal to 107% of normal, following nine weeks of feeding,” reports Al-Bayati.
Little to no attention has been paid to analyze the influence exerted by extracellular pH on the immune response. Tissue acidosis (pH 6.0 to 7.0) is usually associated with the course of infectious processes in peripheral tissues. Moreover, it represents a prominent feature of solid tumors. In fact, values of pH ranging from 5.7 to 7.0 are usually found in a number of solid tumors such as breast cancer, brain tumors, sarcomas, malignant melanoma, squamous cell carcinomas, and adenocarcinomas. Both the innate and adaptive arms of the immune response appear to be finely regulated by extracellular acidosis in the range of pH values found at inflammatory sites and tumors.[i]

Microenvironmental acidity impacts tumor immune surveillance, contributing to immune escape and cancer progression. Anti-tumor effectors such as T and NK cells tend to lose their function when exposed to low pH environments. Local acidity also profoundly influences bio-activity and distribution of antibodies, thus potentially interfering with antibodies including immune checkpoint inhibitors. Hence tumor acidity is a central regulator of cancer immunity that orchestrates both local and systemic immunosuppression.

None of this is strange to scientists who know that many viruses are pH sensitive. Certain viruses (including the rhinoviruses and coronaviruses that are most often responsible for the common cold and influenza viruses that produce flu) infect host cells by fusion with cellular membranes at low pH. Thus they are classified as "pH-dependent viruses."

The immune system is pH and temperature sensitive and we will talk about using heat to stimulate the immune system separately. We can use pH and/or temperature to stimulate the immune system. The illusive etiology of autoimmune disease is in part due to pH and/or temperature changes.[ii]

Over acidity, which is highly common today, is a dangerous condition that contributes to a host of serious health conditions, yet doctors refuse to test pH levels (much better and less expensive to do at home) and resist prescribing sodium bicarbonate, which is simple baking soda, to address this common condition. An acidic internal environment is the perfect place for
disease to thrive and that includes cancer. Normal pH environments resists disease and cancer formation. Sodium bicarbonate is the time-honored method to 'speed up' the return of the body's bicarbonate levels to normal. Sodium bicarbonate is a strong medicinal, one of the strongest; it will drive pH levels up quickly, as well as oxygen, throughout most of the tissues, and that is why it is so effective.

A number of studies have shown that the extracellular pH in cancers is typically lower than that in normal tissue and that an acidic pH promotes invasive tumor growth in primary and metastatic cancers. The external pH of solid tumors is acidic as a consequence of increased metabolism of glucose and poor perfusion. Acid pH has been shown to stimulate tumor cell invasion and metastasis.


Using Sunlight to Ramp Up Immune Response

Sunlight Offers Surprise Benefit, It Energizes Infection Fighting T Cells

reads the headlines. Georgetown University Medical Center researchers have found that sunlight, through a mechanism separate than vitamin D production, energizes T cells that play a central role in human immunity.

Professor Gerard Ahern, who lead the study at Georgetown said, “We all know sunlight provides vitamin D, which is suggested to have an impact on immunity, among other things. “But what we found is a completely separate role of sunlight on immunity. Some of the roles attributed to vitamin D on immunity may be due to this new mechanism.”

They specifically found that low levels of blue light, found in sun rays, makes disease fighting T cells in the skin move faster- marking the first reported human cell responding to sunlight by speeding its pace. Prof Ahern said: “T cells need to move to do their work, which is to get to the site of an infection and orchestrate a response. "This study shows that sunlight directly activates key immune cells by increasing their movement.”

Dr. Minsoo Kim is also experimenting with using light to stimulate T cells. At the University of Rochester Medical Center he is experimenting with ways to use light and optics to steer killer immune cells toward tumors.

"Strong association studies have found that Vitamin D is also very important in signaling the immune system. It appears to be necessary in adequate amounts to turn on your ability to survey the rest of your cells," says Dr. Michael Roizen, Chief Wellness Officer at Cleveland Clinic, Ohio. Since regular sun exposure is one of the most robust ways to up active Vitamin-D levels in your body, it can help beef up your immune system as well. "Inadequate levels of this vitamin have been associated with an increased rate of infection, cancer, and mortality rate after surgery," he adds.
USING OXYGEN TO RAMP UP IMMUNE RESPONSE

There are many chapters on oxygen in Conquering Cancer. With Exercise with Oxygen Therapy (EWOT) we can manipulate oxygen levels up and down to stimulate different parts of the immune system. There are many things we do in the Natural Allopathic protocol to increase oxygen delivery to the cells. As we do that naturally the consequence to the immune system is strengthening.

USING IODINE TO RAMP UP THE IMMUNE SYSTEM

Iodine is a case in point. The body’s ability to resist infection and disease is hindered by long-term deficiency in essential vitamins and minerals. Importantly poor immune response is correlated with impaired thyroid function; a deficiency in iodine can greatly affect the immune system primarily because low levels of iodine lead to problems with the thyroid gland.

In sufficient amounts iodine can not only adjust a dysfunctional thyroid, it can assist with a host of glandular imbalances as well as kill a wide assortment of internal as well as external bacteria, fungi, and virus’s. Iodine has many non-endocrine biologic effects, including the role it plays in the physiology of the inflammatory response.

Iodides increase the movement of granulocytes into areas of inflammation and improve the phagocytosis of bacteria by granulocytes and the ability of granulocytes to kill bacteria.[i]

“At 6 grams daily (which is 6 million micrograms/day or 6,000 milligrams/day!), a much higher dose, iodine has been used to cure syphilis, skin lesions, and chronic lung disease,” says Dr. Gabriel Cousens. “From a larger physiological perspective, it is important to realize that the thyroid is only one gland of many glands and tissues that needs iodine. Other glands/organs/systems with high iodine uptake are the breasts, ovaries, cervix, blood, lymph, bones, gastric mucosal, salivary, adrenal, prostate,
colon, thymus, lungs, bladder, kidney, and skin. Iodine is found and used in every hormonal receptor in the body,” he states. Though no one alive today uses such high dosages cancer patients should take notice and not be shy about how much iodine they should take.

A very important way of increasing immune system response is to increase body temperature with infrared therapy. 98,6° F is the natural operating temperature for most people. 98,6° F is the natural operating temperature for most people. Immune system function, vitality and metabolism decrease with temperature loss about 50-70%. The lack of warmth often appears with cold hands and feet, but also with the chronic cold illnesses: Depressions, burnout, tiredness, impotence, Parkinson's, MS and dementia as well as many other diseases. Cancer tumors grow faster when the body temperature is low. Low body temperature invites cancer because of the lowered ability of the immune system to clear the body of cancer cells.

The National Cancer Institute says, “Hyperthermia (also called thermal therapy or thermotherapy) is a type of cancer treatment in which body tissue is exposed to high temperatures. Research has shown that high temperatures can damage and kill cancer cells, usually with minimal injury to normal tissues. Many studies have shown a significant reduction in tumor size when hyperthermia is combined with other treatments.
The American Cancer Society says, “Hyperthermia refers to heat treatment—the carefully controlled use of heat for medical purposes. When cells in the body are exposed to higher-than-normal temperatures, changes take place inside the cells. These changes can make the cells more likely to be affected by radiation therapy or chemotherapy. Very high temperatures can kill cancer cells outright.”

Fever is meant to increase immune system strength and doctors noticed in the past that often when one of their patients ran high fevers because of infection their cancer was also cleared.
GLUTATHIONE

Our immune cells are designed to protect us, but what protects the immune cell? **Glutathione is the protector of the immune cell** and allows newly formed immune cells to proliferate to attack germs and viruses. Glutathione feeds, protects, and strengthens our **immune system**.

Glutathione is called the master antioxidant for good reason. This natural compound improves your body’s natural defenses and boosts immune function. Glutathione boosts white blood cell production to fight infection, particularly the T-cells, which are called lymphocytes. T-cells are at the core of our immunity, and tailor the body’s immune response to pathogens, viral and bacterial infections or anything the cells recognize as being invasive. Studies have shown that Glutathione is food for the immune cells, boosting the strength of lymphocytes. B-cell lymphocytes identify the unwanted pathogen that the T-cells then attack.

SELENIUM

**Selenium is a potent immune stimulator.** An 18-month study of 262 patients with AIDS that found those who took a daily capsule containing 200 micrograms of selenium ended up with lower levels of the AIDS virus and more health-giving CD4 immune system cells in their bloodstreams than those taking a dummy pill. These AIDS patients who took selenium were able to suppress the deadly virus in their bodies and boost their fragile immune systems.

Selenium-deficient lymphocytes are less able to proliferate in response to mitogen, and in macrophages, leukotriene B4 synthesis, which is essential for neutrophil chemotaxis, is impaired by this deficiency. These processes can be improved by selenium supplementation, especially when using **Dr. Emanuel Revici’s** type of selenium.

Dr. Revici’s greatest discovery was that if we want to deliver a nutrient to a sick cell – attach it to a fat. Unsaturated fats are the ultimate and perfect vehicle to deliver nutrients to stressed cells. This discovery enabled Dr. Revici to package therapeutic minerals, at will, to delivery only to sick cells. This gave him a huge advantage as a therapy developer – especially with selenium.
Revici used a **special molecular form of selenium** (bivalent-negative selenium) incorporated in a molecule of fatty acid. In this form, he can administer up to 1 gram of selenium per day, which corresponds to 1 million micrograms per day, reportedly with no toxic side effects. In contrast, too much selenite (hexavalent-positive selenium) has toxic effects on animals, so human intake of commercial selenite is limited to a dosage of only 100 to 150 micrograms by mouth. Dr. Revici often administered his nontoxic form of selenium by injection, usually considered to be four times more powerful than the form given orally.

**FASTING WILL SWITCH ON THE IMMUNE SYSTEM**

A person’s entire immune system can be rejuvenated by fasting for as little as three days as it triggers the body to start producing new white blood cells, a study suggests. Fasting for as little as three days can regenerate the entire immune system, even in the elderly, scientists have found in a breakthrough described as “remarkable.” Although fasting diets have been criticized by nutritionists for being unhealthy, new research suggests **starving the body kick-starts stem cells into producing new white blood cells, which fight off infection.**

Dr. Valter Longo, a professor of biological sciences at the University of Southern California. One of Longo’s **recent experiments** involved a small group of people who fasted for five consecutive days once a month, three months in a row. Among the study participants, markers of cell regeneration increased, while risk factors for diabetes, cancer, cardiovascular disease, and aging all dropped, he says.

**Dr. Luigi Fontana,** a professor of nutritional science at Washington University in St. Louis and Italy’s University of Brescia says when you go long periods without food, the resulting metabolic changes appear to stimulate “autophagy,” or a natural cleaning out of your body’s damaged cells. “Cells start to eat dysfunctional proteins, organelles, and mitochondria, and this kind of cleaning of garbage and regeneration may be very beneficial,” he explains.

**Juice fasting** has been a favorite of many to pack in super nutrition while in fasting mode. The immune system will respond to concentrated nutritional intake when done with foods that are easy to digest like spirulina and chlorella.
MAGNESIUM

Culture of lymphocytes from humans in Mg-deficient media, resulted in morphologically and functionally abnormal cells. Magnesium really is everywhere in the body – it’s the 4th most abundant mineral. It’s involved in hundreds of different biochemical reactions and enzyme systems and is crucial for proper immune system function. Mg has a strong relation with the immune system, in both nonspecific and specific immune response, also known as innate and acquired immune response.

Mg participates in immune responses in numerous ways: as a cofactor for immunoglobulin synthesis, C’3 convertase, immune cell adherence, antibody dependent cytolysis, IgM lymphocyte binding, macrophage response to lymphokines, T helper-B cell adherence, binding of substance P to lymphoblasts and antigen binding to macrophage RNA. Mg deficiency in rodents impairs IgG synthesis and cell-mediated immunity; complications include thymus atrophy, elevated IgE, hypereosinophilia, histaminosis and lymphoma.[i]

MEDICAL MARIJUANA

“Cannabinoids have been shown to modulate a variety of immune cell functions in humans and animals and more recently, have been shown to modulate T helper cell development, chemotaxis, and tumor development. Many of these drug effects occur through cannabinoid receptor signaling mechanisms and the modulation of cytokines and other gene products. It appears the immunocannabinoid system is involved in regulating the brain-immune axis and might be exploited in future therapies for chronic diseases and immune deficiency.”

The immune system is extremely vulnerable to stress, emotional and mental upset, as it is to changes in the environment, to radiation, chemical and heavy metal exposure, as well as to cold and damp. However, it is our inner levels of emotional and mental conflicts that inflicts constant damage and challenges to our immune system.

Thus changes in breathing can have interesting positive consequences on immune function because such changes help us calm and center ourselves bringing harmony and balance back to our inner worlds. Meditation, prayer and the use of affirmations is also helpful as well as getting in touch with the vulnerable feelings hidden in the heart.

One of the gurus of in the field of psychoneuroimmunology (PNI) is US psychologist Dr. Lydia Temoshok, who has identified a set of personality traits that, she claims, predisposes people to cancer. The two main ones are difficulty in expressing emotions, and a tendency towards helplessness/hopelessness. These add up to what she calls a ‘type C’ personality.[i]
Dr. Temoshok argues that these personality traits prevent people from ‘resolving stressors’, thus forcing the body into chronic stress-reaction mode which, in turn, overloads the immune system with stress chemicals, leaving an individual vulnerable to cancer.[ii]

It is no secret that the psycho-social state of a person has a direct impact on the immune system. Stress has many different effects on the endocrine systems, including the fight or flight response with its activation of the sympathetic adrenal-medullary (SAM) system, the hypothalamic-pituitary-adrenocortical (HPAC) system, and other endocrine systems.

**FULL HYDRATION**

"Bodily fluids carry your immune cells throughout your body and staying hydrated helps them get where they need to go to fight off infections," says Abbott research scientist Jennifer Williams. She explains that water is a critical component of lymph, a clear-to-white fluid that contains many of the white blood cells, including lymphocytes, that attack invaders in the blood to help you fight off illness.

Water helps to oxygenate the blood and that pumps up our cells and helps them function at full capacity. Healthy, happy cells that are packed with oxygen allows our bodies to enjoy a superior immunity.

**HYDROGEN INHALATION**

H2 appears to have an immuno-modulatory effects in which it can help decrease chronic inflammation and help regulate the immune system. Also it appears it may help attenuate radiation-induced immune dysfunction.

Recent studies showed that hydrogen can be used as an effective radio-protective agent through scavenging free radicals.[iii] The immune system is one of the most important defence mechanisms against various environmental agents including ionizing radiation. Epidemiological long-term studies have demonstrated that ionizing radiation could induce a dose-dependent impairment of the immune response as well as a persistent inflammatory status with deregulation of cytokines production.
Reactive oxygen species (ROS) produced by cellular metabolism play an important role as signaling messengers in immune system. Modulating the level of ROS, which hydrogen gas excels at, may be important to prolong survival of T cells and enhance their anti-tumor function.

Excess ROS is immunosuppressive, facilitates tumor invasion, metastasis, and resistance.[iv] ROS are immunosuppressive participants in tumor progression.[v] ROS production greatly contributes to inhibitory activities of tumor induced immuno suppressive cells.[vi] Therefore, ROS are not only mediators of oxidative stress, but also players of immune regulation during tumor development. Thus hydrogen inhalation would be an important therapy in Natural Immuno-Oncology.

[i] (Cancer Surv, 1987; 6: 545-67)
[ii] Ann NY Acad Sci, 2000; 917: 446-5
[iii] Protective effect of hydrogen-rich saline against radiation-induced immune dysfunction
Sanhu Zhao  Yanyong Yang Wen Liu  Zhiqiang Xuan  Shouming Wu  Shunfei Yu  Ke Mei
Yijuan Huang  Pei Zhang  Jianming Cai  Jin Ni  Yaoxian Zhao