

Riordan Health Hunters

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Riordan Clinic is a not-for-profit 501(c)(3), nutrition-based health facility in Wichita, Kansas cofounded in 1975 by Olive W. Garvey and Hugh D. Riordan. We have integrated lifestyle and nutrition to help you find the underlying causes of your illness. Since our inception in 1975, the mission has been clear and unwavering to "...stimulate an epidemic of health."



Stem Cell Therapy for Chronic Disease: An Interview with Dr. Neil Riordan (Part 1)

Neil Riordan, PhD is an accomplished scientist and one of the pioneers and leading experts in the use of non-

controversial stem cells. He began his research career at the Riordan Clinic leading the research team studying the pro-oxidant effects of high dose intravenous vitamin C on cancer. He went on to develop and refine mesenchymal stem cell technologies that he utilizes at the Stem Cell Institute in Panama, where these technologies continue to be implemented in patients with autoimmune and degenerative diseases and injuries. He is also the co-founder and Chief Science Officer of the Riordan-McKenna Institute in Dallas, Texas. In the stem cell arena, he and his colleagues have published more than 20 articles on multiple sclerosis, spinal cord injury, heart failure, rheumatoid arthritis, Duchenne muscular dystrophy, autism, and Charcot-Marie-Tooth Syndrome. His new book, Stem Cell Therapy: A Rising Tide: How Stem Cells Are Disrupting Medicine and Transforming Lives, has recently been published.

Anne: Can you tell us a little bit about your early research career at the Riordan Clinic? You talk about this in your book, the research you did studying the effects of high-dose vitamin C on cancer.

NR: I think the biggest discovery we made was that we could get vitamin C levels in the blood of cancer patients high enough that the vitamin C was able to kill cancer cells. We were able to do that because we had many tumor cells growing in cultures in the laboratory. The break-through study that led to our patents was we actually drew blood from cancer patients, who were receiving intravenous vitamin C in one arm, drew blood from the other arm and took the liquid part of the blood (the serum) out and put it on the tumor cells. The blood containing the high dose of vitamin C could actually kill tumor cells. That's why the patent office gave us such broad claims. To date, out of all the patents I have, it's the broadest claims we ever got out of the patent office, because no one had ever shown that before. There were studies of high dose vitamin C in cancer patients showing benefits



Therapy: A Rising Tide:

How Stem Cells Are Disrupting Medicine and Transforming Lives

Stem cells are the repair cells of your body. When there aren't enough of them, or they aren't working properly, chronic diseases can manifest and persist.

From industry leaders, sport stars, and Hollywood icons to thousands of everyday, ordinary people, stem cell therapy has helped when standard medicine failed. Many of them had lost hope. These are their stories.

Neil H Riordan, author of *MSC: Clinical Evidence Leading Medicine's Next Frontier*, the definitive textbook on clinical stem cell therapy, brings you an easyto-read book about how and why stem cells work, and why they're the wave of the future. that nobody had shown, that you could get blood levels of vitamin C to kill tumor cells. The cell culture part of that, learning at the Riordan Clinic how to grow cells, was hugely important to my career.

The next generation of treatment was trying to stimulate the body's own immune system to recognize and destroy cancer cells. One of the main players, which is now a drug called Provenge, is used for treating prostate cancer using **dendritic cells**. To get the immune response in the body, to get rid of these cancer cells, the **dentritic cell** is a huge player in that it stimulates the T cells. If it has the right information, it can pass it along to the T cells, which can then divide and create an army of cells that are active against the tumor cells themselves.

Monocytes can become shape-shifters in the presence of cancer. A monocyte that is in the tissue is called a macrophage, which means "super eater." When the macrophage adheres to a cancer cell, it takes a bite out of it. Inside the macrophage are little enzyme packets that act like stomach acid to break down the tumor cell into smaller and smaller bits. After consuming the tumor cell, the macrophage knows it needs to alert the rest of the body to the presence of this dangerous intruder. In many instances, the macrophage next transforms itself into a dendritic cell, which is a highly effective messenger to the body warning it that it must immediately begin a powerful immune system response to battle the tumor." (RIORDAN, 2017, P. 22-23)

Our next leg of research was cases of patients who got vitamin C in lower levels, that weren't toxic to tumor cells and yet the tumor cells went into complete remission. We found that interesting, and the more obvious conclusion is that the vitamin C is having a biologic response modification benefit; it's not directly killing the tumor cells, although there could be some of that. But when we looked at the



data, looked backwards, some of these patients received only 15 grams which we know is not enough, and 25 grams is not enough to be cytotoxic to tumors, so we believe that the immune system was ultimately identifying and destroying the cancer. We started looking at dendritic cells as a way to stimulate this transfer of knowledge to the immune system about the tumors, and that's where I got into stem cells, because the dendritic cells are the progeny of one white blood cell in the body called the monocyte or the macrophage. When the macrophages are out of the body, you can convert them into dendritic cells. What we did was harvest large amounts of white blood cells from the patient, take the monocytes and convert them to dendritic cells, give those cells information about the tumor, and then that was a therapeutic vaccine for the patient.

Anne: How did this transition into your work with stem cells?

The reason I got into stem cells was, after leaving the Riordan Clinic, when I was in the Bahamas, we wanted bigger and better dendritic cell vaccines, and in order to do that we'd give the patients a drug called GCSF (granulocyte-colony stimulating factor), which would stimulate the bone marrow to produce more of these stem cells to be harvested from the peripheral blood. We would convert those stem cells to monocytes, the monocytes into dendritic cells. So the basis for my whole first stem cell company was taking this certain

type of stem cell and growing it in the laboratory to make a bigger, better vaccine.

That was the early stuff with stem cells, but there are actually two major kind of stem cells in the body. There are HSCs (hematopoietic stem cells), which are bone marrow stem cells that basically make all of the blood products (white blood cells, red blood cells and platelets). Then there are MSCs (mesynchymal stem cells) and they are found in bone marrow, but they are also found in every tissue in your body. They actually reside next to every stem cell of whatever organ you are in. In the liver there are stem cells and right next to those are the MSC, which supports and nurtures the liver stem cell. It is the same thing in the heart, kidney, intestine, etc. Every tissue in your body has stem cells that are specific to the tissue and every one of those is supported by an MSC.

Mesenchymal stem cells (MSCs) used for treatment may come from the patient (autologous, or selfderived) or from a donor (allogeneic.) MSCs can be obtained from many tissues in the body, including fat, bone marrow, and umbilical cord. Bone marrow contains cells that are useful for regeneration, including MSC and CD34+ cells. Bone marrow MSCs are usually extracted from the hip or the knee. In many cases, it is useful to concentrate the extracted cells that will be the most helpful – this is known as bone marrow aspirate concentrate (BMAC). Bone marrow MSCs have been used to safely treat various conditions with positive results.

The perception is that all stem cells come from the unborn and that in order to harvest the life-saving properties of these cells, a scientist must sacrifice a yet-to-be-born child. The whole idea of taking life from one being to give it to another makes many people uncomfortable and raises moral and ethical questions. It makes me very uncomfortable too, for additional reasons. First, I believe the best stem cells – the ones with the best healing and regenerative power as

well as the fewest complications - are adults

stem cells, which can be obtained from donated umbilical cord blood; umbilical cord tissue from healthy, live births; or from a patient's own body – from the bone marrow or fat tissue, for example. Adult stem cells are not mired in controversy. In fact, the Baptist church endorses research with adult stem cells and the Catholic church has been funding adult stem cell research." (RIORDAN, 2017, P.32-33)

Human mesenchymal stem cells

Rose Spear | Cambridge University

So the work that we do now, since 2001, is utilizing MSCs to stimulate healing. We do it in three major categories through the secretions of the cells. It's not the cells becoming another cell.



We thought in the early days that they could become many kinds of tissues, and in the lab we and others have gotten very good at converting them to liver cells, heart cells, and they kind of default toward connective tissue. It's simple to convert them in the lab but when you inject them in the body they do not differentiate. The benefit of these cells has nothing to do with them becoming something; it has to do with what they secrete while they are alive in the body. The three major categories are: they secrete things to decrease inflammation, modulate the immune system, and they stimulate regeneration. They also have anti-scarring effects, anti-cell-death effects, but those three mechanisms are where they have so much value.

Anne: How can one cell treat so many different things?

The reason one cell can do this is because the root cause of the majority of chronic diseases is either a lack of these cells or a dysfunction of these cells or a combination: these cells just aren't doing their jobs anymore. We know the exact molecule that they don't produce in lupus patients, we know they are dysfunctional in multiple sclerosis (MS) patients, we know in rheumatoid arthritis they don't secrete what they're supposed to, so basically every auto-immune disease, I believe, is a net result of a lack or dysfunction of these cells. Aging, unfortunately, is the leading cause of having a low number of these cells, not only the total number but their ability to repair something. If you take one of these cells from an infant,

you can grow it in a lab and watch it divide every 24 hours, at the end of the month, that's 1 billion cells. So if you have an issue that needs 800 million cells you can fix it, but at age 35 you can take the same cell and it'll only divide every 48 hours. At the end of the month you have 32,000 cells, so at the end of the month if you require 100,000 cells, you have a math problem. At age 65 that one cell divides every 60 hours, so at the end of the month you have 200 cells. At 65 you have a lot of 500 cell problems and only 200 cells.

The Riordan Clinic identifies things that can be detrimental to your MSCs, and the nutrients they need. The clinic really does stem cell work, removing what harms the stem cells and replenishing it with things that are beneficial.

Serving you in Wichita, Hays and Shawnee, Kansas



To find complete Check Your Health information, please visit https://riordanclinic.org/check-your-health

The Value of Anti-Aging **Hormone Monitoring**

One of the most frequent questions asked of the nursing staff is, "Why do I have to get laboratory testing so often?" The nurses are directed by the doctors to authorize refills on medications, specifically, the various thyroid hormone prescriptions and gender hormone prescriptions. The refill policy of Riordan Clinic is to authorize refills for a six month supply IF the patient is compliant with laboratory testing and follow-up appointments every six months. It is most helpful to the doctors if the patient can complete the testing two to three weeks before the scheduled appointment, so the results are back to review with the patient at the appointment. Reviewing the results with the patient is helpful to correlate symptoms, test results, and then adjust the hormone dosage appropriately.

The laboratory testing helps your doctor achieve correct dosing, which is important for many reasons. If you are taking an inadequate dose, then you are probably not getting symptom relief. If the levels are too high, there is the possibility of adverse effects, even though these are "natural hormones." For example, if the thyroid dosage is too high, you can experience symptoms of insomnia,



headache, and anxiety, progressing to more serious conditions affecting the heart such as rapid or irregular heart rate, increased blood pressure, and cardiac arrest. If the gender hormone levels are too high, symptoms of emotional instability, headaches, sleep disorders, and menstrual cycle changes can occur.

RIORDAN CLINIC DOCTORS HAVE BECOME KNOWN AS "THYROID EXPERTS" BECAUSE THEY HAVE LEARNED NOT ONLY TO READ THE LAB RESULTS ON PAPER, BUT ALSO TO "READ" THE PATIENTS AND THEIR SYMPTOMS.

The thyroid gland may appear to be functioning normally on a TSH report, but further thyroid testing may reveal a dysregulation and imbalance of the overall thyroid-metabolic system. We are committed to helping you achieve an optimal dosage specifically for you so you can feel your best. Estrogen, progesterone, testosterone, DHEA, adrenal, and thyroid hormones are most involved in the aging process. Bio-identical and natural hormones help us age with a bit more grace and ease.



As you check in with the doctor

regularly, you may discover that as your health improves, you may be able to lower your dosage. Often as you improve your diet, avoid and or detoxify from environmental pollutants and lower inflammatory processes, the damage to your thyroid and adrenals can be repaired. Therefore the glands may be restored to better function, so the supplementation dosage often can be adjusted to a lower dosage.

In addition, if you are taking medications other than hormones, blood testing may also be necessary. For example, Diflucan and ketoconazole are anti-fungal medications that require liver function monitoring, as long-term use can cause liver toxicity. Also, if there is an underlying dysfunction of the liver or kidneys, which are usual routes of excretion of medications, the metabolism of the medication would be impaired. If the medication cannot be eliminated efficiently, toxic levels can build up in the body. The liver and kidney's ability to metabolize certain drugs decreases with age. Cardiac output can also be decreased with age.

We also require monitoring of our IV patients who receive frequent and/or high dose Vitamin C. To continue IV therapy, monitoring of the kidney function, liver function, and electrolyte levels are necessary to be sure the body is able to handle the fluid volume infuse.

If laboratory testing remains stable, symptoms are relieved, sense of well-being is restored, and dosage is not changed for two consecutive tests, then the patient may reduce the testing and appointments to yearly checks. Yearly testing and appointments are required for all medication refills.

Bio-identical and natural hormone replacement does indeed work and is safe if monitored. Improved health and sense of well-being, and reduced incidence of osteoporosis, aging skin and hair, loss of libido, loss of muscle-mass, brain fog, sleep disturbances, and reduced incidences of cardiac and circulatory problems have been demonstrated.

Anti-aging hormone replacement is part of an overall lifestyle care program which will allow you to make dramatic improvements in your health status. As Dr. Ron says, "lifestyle care is the medicine of the future." This can help prevent and get to the root cause of illness. Lifestyle changes in relaxation, smoking cessation, weight loss, chronic pain management, increased MYBA (moving your body around, a favorite phrase of Dr. Riordan), and improved dietary choices are all necessary to optimize your health. The best way for us to live a long and healthy life is to treat our bodies the best we can. Laboratory testing for analysis of hormone levels, nutrient levels, toxic, infectious, and allergic processes are available at Riordan Clinic. We are here to help create an epidemic of health!

Contact the Editor

Please send any comments or suggestions to newseditor@riordanclinic.org. Thank you for reading,



Dr. Anne Zauderer Editor

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Riordan Clinic Research Spotlight



"Changes in the rate of PSA progression and the level of alkaline phosphatase during high dose vitamin C treatment of patients with prostate cancer"



Riordan Clinic scientist Nina Mikirova, PhD and Chief Medical Officer Ronald Hunninghake, MD have recently had an article published in the *Journal of Functional Food for Health and Disease* entitled "Changes in the rate of PSA progression and the level of alkaline phosphatase



during high dose vitamin C treatment of patients with prostate cancer."

Intravenous high dose vitamin C (IVC) is a commonly used therapy among naturopathic doctors and other integrative oncology healthcare practitioners. Many studies demonstrate evidence of a good safety profile of IVC treatments and improvement of the quality of life in cancer patients. IVC has been proposed as a treatment for cancer as an adjuvant in conjunction with other therapies. THERE APPEARS TO BE A CORRELATION BETWEEN THE FREQUENCY OF HIGH DOSE VITAMIN C TREATMENTS AND THE TUMOR GROWTH, WITH A DECREASING OF THE RATE OF TUMOR MARKER PSA GROWTH AS IVC FREQUENCY INCREASES.

from the Riordan Clinic database that covered 20 years of patients' treatment (1994-2015).

The purpose of this study was to determine if IVC therapy could suppress tumor growth in prostate cancer patients, and has an effect on suppression of metastatic osteoclastic processes in bones, expressed by alkaline phosphatase levels.

Data was collected on the following patient characteristics at diagnosis and during the courses of IVC therapy: tumor stage, Gleason score, serum prostate specific antigen (PSA), alkaline phosphatase (ALP) levels, and location of metastases.

In cases where pharmacokinetic data are available, it was found that patients with higher Gleason scores and/or with metastases attain lower plasma ascorbate levels with a given dose infusion. In addition, PSA and ALP concentrations correlated with Gleason scores and the presence of metastasis in our patient group.

There appears to be a correlation between the frequency of high dose vitamin C treatments and the tumor growth, with a decreasing of the rate of tumor marker PSA growth as IVC frequency increases. As the

To investigate high dose ascorbic acid potential in treating prostate cancer, a retrospective study was conducted using clinical data

PSA concentration varies (depending upon tumor differentiation, tumor volume, and the extent of disease), the relationship between the PSA rate of change and frequencies of IVC treatment may indicate inhibitory effect of the treatment on the prostate cancer.

For more information or to register for any of these events, please call 316-682-3100 or email: reservations@riordanclinic.org.

Food as Medicine

Wednesday, Sept 6th 11:30am – 1:30pm Cost: FREE

This in-depth course will connect the dots and



address some fundamental questions behind how our diet impacts our health and well-being and how it contributes to the progression of chronic disease. **PLEASE NOTE:** This course is available in-person at the Wichita campus, and online. For more information please visit: riordanclinic.org/food-as-medicine (Hays) 21-Day Detox Program Tuesdays, September 5th, 12th, 19th and 26th 2:30pm – 3:30pm Dr. Dustin Moffitt Cost: \$39

Dr. Moffitt will lead classes through a detox program while also discussing important topics related to avoiding toxins in our environment. Class is limited to 15 participants. Class includes: group class/discussion on detox, jump drive with recipes, and detox booklet. Cost: \$39



This study is the first to address dynamic changes of the easily available biomarker of metastasis ALP during alternative therapy by high dose IVC. ALP levels have been associated with the progression of skeletal metastases in patients with prostate cancer and also have been shown to be significant predictors of early death. While

osteoclastic processes are seen as a potential target for prostate cancer therapy, chemotherapeutic drugs aimed at inhibition of these processes offer only a few months advantage over placebo in prolonging survival time, and often carry very serious side effects.

This study underlined the possibility of ALP decline, which is a marker of suppression of osteoblast bone formation by IVC treatment. In the several cases where we found both PSA and ALP measurements recorded, these variables tended to track each other, and they both tended to decrease during IVC therapy.

From the analysis of the data, both the tumor marker PSA and metastatic marker ALP demonstrated the clinical benefit of IVC for prostate cancer patients.



The full text of the article can be found at our website:

riordanclinic.org/research/journal-articles.shtml

Wichita | FRIDAYS, SEPT 8TH, 15TH, 22ND & 29TH | 2:30-3:30

Hays | TUESDAYS, SEPT 5TH, 13TH, 19TH & 26TH | 2:30-3:30



Reservations can be made by calling 316-682-3100 or emailing: reservations@riordanclinic.org

For more information or to register for any of these events, please call 316-682-3100 or email: reservations@riordanclinic.org.

21-Day Detox Program

Fridays, September 8th, 15th, 22nd, 29th 2:30pm – 3:30pm Dr. Anne Zauderer Cost: \$39

Join Dr. Anne for classes in a group setting discussing how to properly do a detox program. She will walk participants through a 4-week program while also discussing important topics related to avoiding toxins in our environment. Class is limited to 15 participants. Cost is \$39 (price includes classes only.)

Lecture: IVC and Mitochondrial Energy

Wednesday, September 13th 12:00pm -1:00pm Dr. Ron Hunninghake Cost: FREE

Join Dr. Ron Hunninghake for the second in a three-part lecture series where he will explore one of nature's most powerful remedies in the realms of cancer care, mitochondrialenergy, and chronic disease.

Upcoming Events

(Hays) Lecture: What is Metabolism? Thursday, September 21st 11:30am -12:30pm Dr. Dustin Moffitt Cost: FREE

We have all heard of it, and we often blame it for a decrease in our ability to eat late night snacks and copious amounts of fast food. But do we really understand it? Come learn what metabolism really is, and how it works within our bodies.

2 Months to a Healthier You

Month 9: Cut the Sugar!

AUTHOR

Anne Zauderer, DC

It's no secret that most of us eat more sugar than we should. Whether it's the occasional ice cream after dinner or Starbucks coffee on a cold day, we all love it. We are biologically primed to enjoy the taste of sugar. For our ancestors, this was an advantage because sugar most abundantly available from fruit, which was only available during certain seasons of the year, specifically, the end of summer. When they would eat the fruit, they would store up excess energy (as fat), which would sustain them over the winter. In the United States today, refined sugar is added to almost all processed foods. According to the United States Department of Agriculture (USDA), the average American consumes between 150 – 170 pounds of sugar per year, which equals up to a half a pound of sugar per day!

Does that seem unbelievable? Half of a pound would be 227 grams. How does one eat 227 grams of sugar in one day? Here's a breakdown of some of our favorite foods and the amount of sugar in each:

Food/Drink Item	Grams of Sugar
Starbucks White Chocolate Mocha (16 oz.)	53
Coca Cola (16 oz.)	52
Clif Bar (Chocolate Chip)	21
Nutella (2 tbsps.)	21
Noosa Yoghurt (vanilla, 1 serving)	16
Bertolli Marinara sauce (1 serving)	13
Hidden Valley Honey Mustard Dressing (1 tbsp.)	6
Heinz Ketchup (1 tbsp.)	4

As you can see, it's not just our favorite dessert items that have added sugar in them. To make the cheap ingredients in processed food taste better food companies add sugar. Typically they are adding a cheap source of sugar called high fructose corn syrup (HFCS) rather than cane sugar.

To decrease the amount of sugar you are consuming here are a few strategies that I will recommend:



- 1. Read food labels! Look at the amount of added sugar in the foods you are consuming. Choose brands that have little or no added sugar and the source of that sugar is cane sugar rather than HFCS.
- Be mindful of the number of servings you are consuming. Ketchup might only have 4 grams of sugar in it, but if you consume 5 servings of it, that's a whopping 20 grams of sugar!
- Don't drink your sugar. Beverages are a significant source of added sugar and because we are drinking them versus eating them, we tend not to be as mindful about the amount of sugar.
- Prepare your food from scratch. If you prepare your food at home, you can limit the amount of sugar you use. Most recipes you can cut the sugar in half without noticing a difference in taste.
- 5. Try using sources of sweeteners in recipes that are lower on the glycemic index such as honey, maple syrup, xylitol, and stevia.

Continued from page 3

Conditions treated with autologous bone marrow mesenchymal stem cells:

- Multiple sclerosis
- Duchenne muscular dystrophy
- Spinal cord injury
- Osteoarthritis
- Heart failure
- Wound healing
- Autism spectrum disorders
- Myocardial infarction
- Liver failure

- Orthopedics
 - Cartilage repair Tendon injuries Arthroscopy enhancement Bone healing and non-union
- Parkinson's disease
- Diabetes
- Ophthalmology
- Amyotrophic lateral sclerosis
- Crohn's disease

Dr. Neil Riordan will be giving a lecture about stem cell therapy at the Riordan Clinic on **Friday**, **October 6 at 6:30PM.**

This lecture is open to the public and he will be signing copies of his new book.

Register for this lecture or learn more at: riordanclinic.org/events

Reference:

Riordan, N.H. (2017). *Stem Cell Therapy: A Rising Tide: How Stem Cells Are Disrupting Medicine and Transforming Lives*. United States of America: (n.p.).