



# Health Hunters

## Newsletter

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## High-dose Intravenous Vitamin C as a Successful Treatment of Viral Infections

by Nina Mikirova, PhD

Do you know that injections of mega doses of vitamin C were successfully used in treating polio, diphtheria, herpes zoster (shingles), herpes simplex, chicken pox, influenza, measles, mumps, and viral pneumonia in the middle of the 20th century? Most of these treatments are described in the book "Injectable Vitamin C: Effective Treatment for Viral and Other Diseases." This book is a tribute to and acknowledgment of the important thinking and work of Dr. Fred R. Klenner and other physicians and researchers who worked in medicine from the 1930s to the 1970s. They made the pioneering efforts on the medical use of injectable vitamin C in the treatment of viral infection.



One of the first studies in the inactivation of poliomyelitis virus in an in vitro setting using crystalline vitamin C (ascorbic acid) was designed by C. W. Jungeblut, MD in 1935.

**In 1949, Dr. Klenner reported successful treatment of polio, diphtheria, herpes zoster, herpes simplex, chicken pox, influenza, measles, mumps, and viral pneumonia with injections of large doses of vitamin C. "The results," he wrote, "which we have reported in virus diseases using vitamin C as the antibiotic may seem fantastic."**

In the poliomyelitis epidemic in North Carolina in 1948, 60 cases of this disease came under his care. The treatment employed was vitamin C in massive doses. It was given like any other antibiotic every two to four hours. The initial dose was 1000 to 2000 mg, depending on age. This schedule was followed for 24 hours. After this time the fever was consistently down, so the vitamin C was given 1000 to 2000 mg every six hours for the next 48 hours. All patients were clinically well after 72 hours.

In the treatment of other types of virus infections, the same dose schedule was adopted. In herpes zoster, 2000 to 3000 mg of vitamin C was given every 12 hours; this was supplemented by 1000 mg in fruit juice by mouth every two hours. Eight cases were treated in this series, all adults. Seven experienced cessation of pain within two hours of the first injection and remained so without the use of any other analgesic medication. Seven of these cases showed drying of the vesicles within 24 hours and were clear of lesions within 72 hours. They received from five to seven injections. Chicken pox gave an equally good response, the vesicles responding in the same manner as did those of herpes.

In addition, Dr. Klenner treated many cases of influenza with vitamin C. The size of the dose and the number of injections required were in direct proportion to the fever curve and to the duration of the illness. Further the response of encephalitis virus to ascorbic acid therapy was dramatic. Six cases of encephalitis were treated and cured with vitamin C injections. Two cases were associated

## Contact the Editor:

Please send any comments or suggestions to [newseditor@riordanclinic.org](mailto:newseditor@riordanclinic.org).

Thank you for reading,

**Tiffany Hurley**  
Marketing Manager  
Editor

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with the pneumonia virus; one followed chicken pox, one mumps, one measles and one a combination of measles and mumps. In all these cases definite evidence was found to confirm the belief that massive, frequent injections are necessary in treating virus infections with vitamin C.



Dr. Klenner published all studies of a variety of diseases successfully treated through massive injections of vitamin C and suggested that that due to effectiveness of injectable vitamin C, this vitamin can be considered as a super antibiotic.

Another pioneer in the therapeutic use of injectable vitamin C, Dr. W.J. McCormick, notes that while until 1952 vitamin C had been used "primarily and solely" to counteract deficiencies of the vitamin, it also has potent chemotherapeutic properties when given in large repeated doses, preferably intravenously or intramuscularly.

In 1954 the article, "Treatment of hepatitis with infusions of ascorbic acid: comparison with other therapies," by H. Baur and H. Staub was published in a Swiss (German) medical journal. The article reported that injectable vitamin C was used successfully to treat 11 hepatitis patients at the University of Basel Medical Clinic between 1951 and 1952. Results compared favorably with those obtained in 195 patients who were treated by other means. The vitamin C injections were 10 grams per day.

Later in 1962, Dr. W.L. Dalton described treating a severe case of acute hepatitis in his article, "Massive doses of vitamin C in the treatment of viral diseases." This study reports on the successful use of a preparation for intravenous administration consisting of 2000 mg of ascorbic acid per dose fortified with certain B-vitamins to treat several different viral-caused diseases including hepatitis, mononucleosis, and pneumonia.

**Despite all these studies, there was resistance by the medical profession to the use of large amounts of vitamin C in treating viral disease. As Linus Pauling complained, "the medical community requires rigorous evidence supporting vitamin C but accepts flimsy evidence against it."**

According to recent knowledge, people with viral infections have low serum levels of vitamin C, which may be due to increased utilization of vitamin C for the detoxification of reactive oxygen species (ROS) during inflammation caused by infection. Viral infections produce severe oxidative stress, contributing to cellular damage and disease progression. Low serum vitamin C in these individuals may be due to the increase in inflammatory and oxidative processes that take place during a pathological state.

When subjects are exposed to a viral infection, the need for vitamin C is increased, depending on the body's immune function. It was therefore proposed that in the clinical management of viral infections, especially in the early stages, considerable benefits will be noticed from antioxidant repletion with dosages substantially above recommended daily allowances.



In recent years, vitamin C has been under investigation for its role as an antiviral agent, either by itself or as an adjunctive therapy to be administered in company with a conventional treatment. It was shown that vitamin C at sufficiently high doses can prevent viral disease and greatly speed recovery from an acute viral infection.

Most studies use an in-vitro (outside of a living organism) setting. In vivo studies (those using

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# Fighting Fatigue with Intravenous Vitamin C

by Chris Brannon, RN

Epstein-Barr virus (EBV) is a common human virus in the herpes family of viruses, including those that cause cold sores and chicken pox. EBV causes infectious mononucleosis. Most people will become infected with EBV in their lifetime, but many don't realize it because they never feel sick. Once the body is infected, however, the virus remains forever.

In the early 1980's, a young woman came to our clinic looking for relief from 15 months of extreme fatigue. At that time she had been recently diagnosed with Epstein-Barr virus and mononucleosis.

With the knowledge that EBV persists for the rest of the individual's life, this co-learner knew that something had to be available to help the fatigue. Our doctor prescribed a treatment course of 25gm infusions of intravenous vitamin C (IVC). After her very first infusion, she immediately knew the solution was found. She came back for a second IV vitamin C infusion and had the same response. The energy that had been lacking from the lasting viral infections was being restored.

With a successful treatment behind her, this patient continued seeing her doctor here at the Clinic to maintain her health. Thirty years later, she continues to receive infusions for a better quality of life. Looking back she is happy that these past years were not lost in a self-limiting disease. With the help of IV vitamin C, she was able to have a very successful and joyful life.

To find out more about how our medical team can help you or to make an appointment, call **316-682-3100** and start your journey to better health.

*High-dose Intravenous Vitamin C as a Successful Treatment of Viral Infections continued from page 2...*

a live organism) are scarce because the use of animals that have the ability to synthesize ascorbic acid is problematic.

Several mechanisms for vitamin C's antiviral effect are known or suggested from these studies. First, the antioxidant property of vitamin C promotes a reducing environment in the bloodstream and tissues, enhancing the body's response to oxidative stress from inflammation, thereby helping to fight microbes and viruses that propagate in stressful conditions.



Viral infections often lead to oxidative stress to the infected cells, and therefore, antioxidants are expected to suppress oxidative stress and work as antivirals or 'drugs,' improving inflammatory symptoms. Among these substances, the protective effect of ascorbic acid has been assumed due to its powerful scavenging and antioxidative property.

Vitamin C is also involved in enhancing several functions of the immune system. Cells of the immune system have one of the highest concentrations of vitamin C: white blood cells have an 80 times concentration of vitamin C in

their cytoplasm, allowing them to create a vitamin C concentration surplus at the site of infection. Vitamin C can also enhance the production of interferon, which helps prevent cells from being infected by a virus, stimulate the activity of antibodies and cytokines, and in mega-doses, play a role in mitochondrial energy production. It can enhance the ability of specialized immune cells to ingest bacteria.

In addition to this general neutralizing effect, vitamin C interferes with the assembly of viral RNA and DNA. In a recent study (2012), in vitro experiments showed ascorbate's ability to kill isolated influenza viruses, as well as viruses from normal human bronchial epithelial cells. There was a dose-dependent effect—a concentration of 2.5mM was able to eliminate 90% of the virus present and a 20 mM solution completely stopped the replication of the virus. The antiviral effect of ascorbate is greater when introduced in the early stages of infection.

It was also proved that the antiviral activity of ascorbic acid is not virus-specific. The researchers used 3 different types of viruses and measured relative virus yields and fraction of dead cells after the addition of solutions of ascorbic acid or dehydroascorbic acid. The virus yield decreased as the reagent concentration was increased, and in the presence of 30 mM of the reagent, the yields of these viruses were approximately one tenth of those in the absence of the vitamin C. These results show that ascorbic acid inhibits the multiplication of viruses of widely different structures, i.e., regardless of enveloped or non-enveloped, double-stranded DNA or single-stranded RNA genome, and regardless whether the replication and transcription of the viral genome occur in the nucleus or in the cytoplasm of the infected cells.

For characterization of the mode of action of ascorbic acid, authors suggest that either free radical formation or direct binding to virus, or both, is responsible for the antiviral activity of vitamin C.

Among in vivo studies, we can mention a multicenter prospective cohort study of 16 general practitioners from Germany, involving 67 symptomatic herpes-zoster (shingles) patients that received intravenous vitamin C treatment, with dosage of 7.5g/50ml for 2 weeks,



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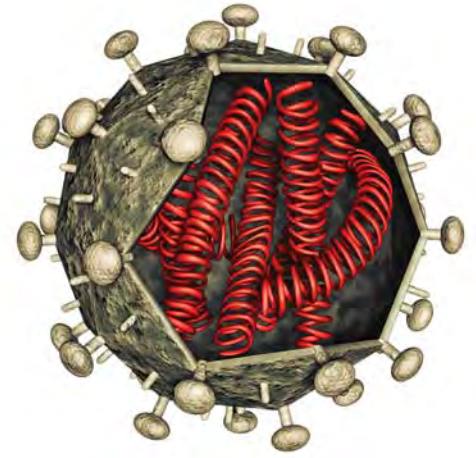
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High-dose Intravenous Vitamin C as a Successful Treatment of Viral Infections continued from page 3...

in addition to standard treatment for shingles. The data provide evidence that concomitant use of intravenously administered vitamin C along with the shingles treatment may have beneficial effects on herpes zoster-associated pain, dermatologic findings and accompanying common complaints.

In our Clinic, we analyzed the effect of intravenous vitamin C therapy on patients with Epstein-Barr virus (EBV). EBV is a member of the herpes family that targets lymphocytes and epithelial cells. While the infection is usually benign, it can in some cases lead to acute infectious mononucleosis and can impair the immune system. EBV is linked to several malignancies, including Burkett's lymphoma, post-transplant lymph-proliferative disease, Hodgkin's disease, and several autoimmune diseases.



There has been very little success treating acute EBV infection and mononucleosis with drugs. Corticosteroids may be helpful in treating complications of infectious mononucleosis, including central nervous system involvement, myocarditis, tonsillar enlargement causing airway obstruction, and hemolytic anemia. However, a double-blind study showed that acyclovir had no significant effect on symptoms of EBV-related infectious mononucleosis.

Our data provide evidence that high dose (7.5 to 50 grams) intravenous vitamin C (IVC) therapy may have a positive effect on disease duration and may reduce viral antibody levels. The benefit

seems to be dependent upon the number of IVC treatments given, as patients given ten or more IVCs had significantly greater reduction in viral antibody load when compared to untreated controls.



Further research and clinical studies are warranted in finding the effect of ascorbic acid on the boosting of the immune system, stimulation of anti viral activity of leukocytes (white blood cells) and proving the mechanisms underlying the action of vitamin C in viral disease. To read more about the research conducted at Riordan Clinic, visit our website at [www.riordanclinic.org/research](http://www.riordanclinic.org/research).

If you are a patient or are interested in becoming a patient and receiving high-dose vitamin C treatments for a viral infection, call us at 1-800-447-7276.



Purchase online at  
[www.riordanclinic.org](http://www.riordanclinic.org)

Expires February 28, 2014



## New Art on Display



We are pleased to continue showcasing Kansas artists. The artwork adds color to Riordan Clinic waiting areas and “feeds the soul.”

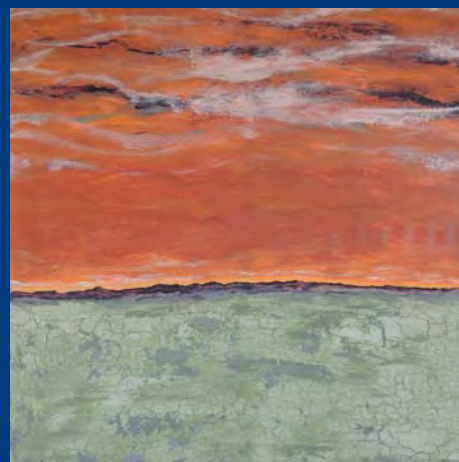
Four artists, all members of Gallery XII in Wichita, are now exhibiting their paintings and photographs. The artists are painters Martha Wherry and Jan Klassen, and photographers Justin Bayles and John Ellert. Three-dimensional wall art by freelance artist Robert Schmidt is also on display.



The artwork is for sale. Riordan Clinic will receive a portion of each sale, with the funds to be used for the Clinic’s professional and public education efforts.

We are grateful to the artists and especially to Diane Curtis for her help in coordinating this opportunity for the enjoyment of the co-learners and visitors to the Clinic. Stop by to take a look.

If you have questions, please contact Mona Wilson at Riordan Clinic at 316-682-3100.



## Vitamin C—Nature's Viral Enemy

by Laurie Roth-Donnell | Master Herbalist and Holistic Health Practitioner



Each person's need for vitamin C differs because of genetics and individual biochemistry. Further, our bodies undergo different stresses and we all eat different foods. Therefore, the daily need for ascorbate to maintain health for an adult varies between 2,000 – 20,000 mg/day. Linus Pauling personally took 18,000 mg of vitamin C daily and was ridiculed for this; it is

interesting to note that Dr. Pauling had two more Nobel prizes than any of his critics and lived to the age of 93. Abram Hoffer, MD, a colleague of Pauling's, also took mega doses of vitamin C and successfully gave it to thousands of patients over 55 years of medical practice; he died at age 91.

### Antiviral Function

When we are challenged with a viral infection, our need for vitamin C can raise dramatically, depending on the body's immune function, level of injury, infection, or environmental toxicity such as cigarette smoke. Ascorbate at sufficiently high doses can prevent viral disease and greatly speed recovery from an acute viral infection. (As seen in Dr. Mikirova's article on page 1 of this newsletter.) Surprising to some, this was originally observed by physicians in the 1940s, verified, and re-verified over the last 60 years by doctors who achieved quick and complete recovery in their patients with ascorbate mega-doses. The effective therapeutic dose is based on clinical observation and bowel tolerance. Clinical observation is essentially "taking enough C to be symptom free, whatever that amount may be." Bowel tolerance means exactly what you think it means: the amount that can be absorbed from the gut without causing loose stools.

Very high doses up to 200,000 mg, divided up throughout the day, are remarkably non-toxic and have been documented by physicians as curing viral diseases as various as the common cold, flu, hepatitis, viral pneumonia, and even polio.

Several mechanisms for vitamin C's antiviral effect are known or suggested from studies while the antioxidant property of ascorbate promotes a reducing environment in the bloodstream and tissues, enhancing the body's response to oxidative stress from inflammation, thereby helping to fight microbes and viruses that propagate in stressful conditions. Ascorbate has been shown to have specific antiviral effects in which it inactivates the RNA or DNA of viruses, or in the assembly of the virus.

Vitamin C is also involved in enhancing several functions of the immune system. Ascorbate can enhance the production of interferon, helping prevent cells from being infected by a virus. Ascorbate stimulates the activity of antibodies and in mega doses seems to have a role in mitochondrial energy production. It is thought to enhance phagocyte function, which is the body's mechanism for removing viral particles and other unwanted debris. White blood cells, involved in the body's defense against infections of all types, concentrate ascorbate up to 80 times plasma levels, which, if you take enough vitamin C, allows them to bring huge amounts of ascorbate to the site of the infection. Many different components of the immune response, B-cells, T-cells, NK cells, and cytokine production,



*Vitamin C—Nature's Viral Enemy continues on page 6...*

# Marie's Cafe And Bakery

at the Riordan Clinic

**Cafe Hours** 9:00 am – 3:00 pm M–F  
**Bakery Hours** 9:00 am – 3:30 pm M–F  
(Located on the lower level of the Riordan Clinic Supplement Store)

To prevent the flu or any illness from taking hold, sticking with a healthy lifestyle is key. A well nursed immune system is better able to fight off infections. Even if you've been exposed to the flu, you can give your body the tools it needs to help fight the virus: good nutrition, regular exercise, and plenty of sleep. Daily meals should be fueled with lots of vitamins and antioxidants like those found in a variety of healthy foods served at Marie's Café and Bakery.

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Vitamin C—Nature's Viral Enemy continued from page 5...

all with important roles in the immune response, are enhanced by ascorbate and improve the immune response from vaccinations.

Vitamin C at high doses is effective in preventing viral infection and enhancing recovery by boosting the body's cellular immune system. When taken at an appropriate dose in a timely manner, ascorbate is our best tool for curing acute viral illness. Exploration of IVC (intravenous vitamin C) for this and other doctor recommended protocols may be a solution to combating the common viruses that attack anyone at anytime. Consult with your primary care physician regarding IVC therapy and other treatments to combat viruses.

### Sources:

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Pauling L (1986) *How to Live Longer And Feel Better*, by Linus Pauling (Paperback — May 2006) ISBN-13: 9780870710964  
Hoffer A, Saul AW (2009) *Orthomolecular Medicine for Everyone: Megavitamin Therapeutics for Families and Physicians.* ISBN-13: 9781591202264  
Levy TE (2002) *Curing the Incurable: Vitamin C, Infectious Diseases, and Toxins.* ISBN-13: 9781401069636



## 4<sup>TH</sup> Riordan IVC and Cancer Symposium

# Addressing the Metabolic Roots of Cancer

*3 days of lectures, conversations, and camaraderie with other medical professionals who use high-dose vitamin C in their practices.* This symposium will serve as an excellent opportunity for IVC practitioners to become more involved with IVC Therapy, adjunct therapies and expound new approaches to treating cancer.

**NEW** to the SYMPOSIUM

**Riordan IVC Academy** | Thursday, October 2

The Riordan IVC Protocol for Cancer is well recognized in the integrative and orthomolecular medicine community and is commonly used as an effective adjunct to conventional oncologic therapy. We've added a one day pre-symposium certification course in the safe administration of IVC according to the Riordan IVC Protocol. Spend the day with Riordan Clinic doctors, staff and our guest, Dr. Virginia Osborne, learning all the ins and outs of IVCs, including how to successfully start IVs in your office, mix and administer to patients, the potential legal issues surrounding IVC prescriptions, and more.

Symposium (October 3 and 4, 2014) \$495\* | IVC Academy (October 2, 2014) \$250\*

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Nutrition-based medicine is a solution for true health and wellness and Riordan Clinic has taken a leadership role in research, education and clinical services. The following are two ways you can make a substantial gift to Riordan Clinic. You will receive tax incentives while investing in the growing field of nutritional medicine.

- **Bequest Through a Will:** One of the simplest ways to support the continued work of the clinic is through your estate and you do not surrender ownership of the gift during your lifetime. You can make a gift bequest after others have been provided for. You may designate a dollar amount, specific property, a percentage of the estate, or whatever is left (remainder).
- **Gift of Life Insurance:** A simple way to make a significant gift is to name Riordan Clinic as the beneficiary to receive all or a portion of the proceeds of an existing life insurance policy. You will receive a tax deduction in the year of the gift, generally close to the cash surrender value of the policy.

To learn more about these charitable giving options, please contact Paula Smith at Riordan Clinic: 682-3100 or at [psmith@riordanclinic.org](mailto:psmith@riordanclinic.org).



Bio-Center  
Lab

## Know Your Nutrients

Vitamin C is a water-soluble compound that human bodies cannot produce, and hence must be included in our diets or supplements. It resists degradation in acid solutions, but is considered the least stable vitamin and is very sensitive to oxygen; exposure to light, heat and air will reduce its potency.

**Sources for vitamin C:** sweet red peppers, kale, broccoli, cauliflower, Brussels sprouts, citrus fruits, guava, persimmon, strawberries and papaya.

### Primary functions:

- vital to the manufacturing of collagen (a protein necessary for the formation of connective tissue, tendons, and cartilage)
- antioxidant with anti-viral, anti-bacterial and anti-cancer properties, plus protection of thiamin, riboflavin, folic acid, pantothenic acid, vitamins A and E through its antioxidant properties
- promotes the absorption of iron, calcium and manganese (protects against the toxic effects of heavy metals such as mercury and cadmium)
- has an antihistamine effect—necessary for the conversion of tryptophan to serotonin in the brain
- used in the manufacturing of adrenal gland hormones (Concentrations of vitamin C in the body are highest in adrenal glands and brain.)



## Lunch & Lecture Series 2014

### Lunch and Lectures: A Look Ahead...

<b>March 20, 2014</b>	Do you know your nutritional status? Laboratory testing can help.	Dr. Ron Hunninghake and all Riordan Clinic doctors
<b>May 8, 2014</b>	Is a Healthy Diet Always a Fat Loss Diet? How to eat and exercise to lose weight	Dr. Jennifer Kaumeyer
<b>July 17, 2014</b>	Which Comes First—Aging or Hormone Loss?	Dr. Mike Bauerschmidt
<b>November 13, 2014</b>	Conquer Stress by Renewing Your Adrenals	Dr. Anne Zauderer

*Dates, topics and titles are subject to change.*

### Reservations REQUIRED

Call **316-927-4723** or email us at [reservations@riordanclinic.org](mailto:reservations@riordanclinic.org)

