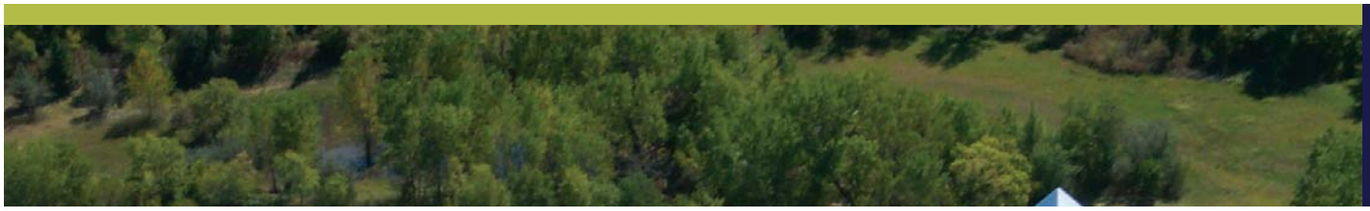
June 2011
Vol. 25
No. 6



Riordan Clinic

Health Hunters Newsletter

A service of the Riordan Clinic, cofounded in 1975 by Olive W. Garvey and Hugh D. Riordan. The Riordan Clinic is a not-for-profit 501(c)(3) corporation.

Inside This Issue

Treating Cancer the Riordan Clinic Way

by Ron Hunninghake, M.D.

"... it takes much more than logic and clear-cut demonstrations to overcome the inertia and dogma of established thought."—Irwin Stone

IRWIN STONE was an early thinker and writer about vitamin C (its scientific name is ascorbic acid). He knew it would be an uphill battle to change the way the medical profession viewed vitamin C. While most doctors accept that scurvy is a vitamin C-deficiency illness, few have made the rather humongous jump to seeing high-dose intravenous vitamin C as a major player in the management of cancer.

There is actually a wide spectrum of medical uses for vitamin C. Vitamin C has been documented as the best anti-viral agent now available…if used at the proper dose. Vitamin C can neutralize and eliminate a wide range of toxins. Vitamin C will enhance host resistance, greatly augmenting the immune system's ability to neutralize bacterial and fungal infections. Now the National Institutes of Health has published evidence demonstrating the anti-cancer properties of vitamin C. With so many medical benefits, why do so few doctors know of them?

ONE EXPLANATION stems from the designation of ascorbic acid as a "vitamin". Consider Dorland's *Illustrated Medical Dictionary's* definition of "vitamin": **A general term for a number of unrelated organic substances that occur in many foods in small amounts... that are necessary in trace amounts for the normal metabolic functioning of the body.** As a vitamin, only a minuscule amount of ascorbic acid, 60 mg, is needed to prevent symptoms of scurvy. As a medical treatment for cancer, life threatening infections, and exposure to toxins, tens of thousands of milligrams of ascorbic acid must be administered, often by the intravenous (IV) as well as the oral route.

The clinic's founder, Dr. Hugh Riordan, was a true scientist who believed in the power of scientific measurement over dogma. With the establishment of the Riordan Clinic in 1975, he routinely checked plasma vitamin C levels in chronically ill patients. He found these patients to be consistently low in their plasma C levels. Interestingly enough, the cancer patients he was seeing had VERY LOW vitamin C reserves. This matched the scientific literature that documented low levels of vitamin C in cancer patients. Cancer cells were actively taking up vitamin C and depleting tissue reserves.

PET SCANS are commonly ordered by oncologists to evaluate their cancer patients for metastases (cancer spread to other organs). What is actually injected into the patient at the start of the scan is radioactive glucose. Cancer cells are anaerobic obligates, which means they depend upon glucose as their primary source of metabolic fuel. Cancer cells employ transport mechanisms called glucose transporters to actively pull in glucose.

Treating Cancer the Riordan Clinic Way continues on page 2...

Letter from the Editor:

by Amanda Hawkinson

Dear Readers,

It is estimated that in 2011, 1,529,560 men and women will be diagnosed and 569,490 individuals will die of cancer. These are shocking numbers! What can you do to help prevent cancer, and what treatment options are out there?

This issue of the *Health Hunter's Newsletter* focuses on surviving cancer the Riordan Clinic way. We hope to inform our readers about cancer prevention as well as complementary cancer treatment options, such as high-dose intravenous vitamin C, that are offered at our clinic.

Take a look at Dr. Hunninghake's article "Treating Cancer the Riordan Clinic Way" to understand the benefits of high-dose vitamin C therapy when used on its own or in conjunction with chemotherapy and radiation. To understand why everyone needs vitamin C, read the article "Know Your Nutrients: Vitamin C" on page 5, and for cancer prevention tips take a look at the American Cancer Society's Healthy Guidelines on page 4.

If you or someone you know would like to learn more about the Riordan Clinic, please call us at 316-682-3100 to schedule an appointment. We want to help!

For more information on upcoming events and Riordan Clinic specials, please take a look at our website
www.riordanclinic.org
and don't forget to "Like" us on
Facebook.

Thank you for reading!
Amanda Hawkinson
Editor
newseditor@riordanclinic.org

Treating Cancer the Riordan Clinic Way continued from page 1...

In the vast majority of animals, vitamin C is synthesized from glucose in only four metabolic steps. Hence, the molecular shape of vitamin C is remarkably similar to that of glucose. Cancer cells will actively transport vitamin C into themselves, possibly because they mistake it for glucose. Another plausible explanation is that cancer cells are using vitamin C as an antioxidant. Regardless, vitamin C accumulates in cancer cells.

If large amounts of vitamin C are presented to cancer cells, large amounts will be absorbed. In these unusually large concentrations, the anti-oxidant vitamin C will start behaving as a pro-oxidant as it interacts with intracellular copper and iron. This chemical interaction produces small amounts of hydrogen peroxide.

Because cancer cells are relatively low in an intracellular anti-oxidant enzyme called catalase, the high-dose of vitamin C induction of peroxide will continue to build up until it eventually lyses the cancer cell from the inside out! This effectively makes high-dose intravenous vitamin C (IVC) a nontoxic chemotherapeutic agent that can be given in conjunction with conventional cancer treatments. Based on the work of several vitamin C pioneers before him, Dr. Riordan was able to prove that vitamin C was selectively toxic to cancer cells if given intravenously. This research was recently reproduced and published by Dr. Mark Levine at the National Institutes of Health.

AS FEARED BY MANY ONCOLOGISTS, small doses of vitamin C may actually help the cancer cells because small amounts may help the cancer cells to arm themselves against the free-radical -induced damage caused by chemotherapy and radiation. Only markedly higher doses of vitamin C will *selectively* buildup as peroxide in the cancer cells to the point of acting in a manner similar to chemotherapy. These tumor-toxic dosages can be obtained only by intravenous administration.

Over a span of 15 years of vitamin C research, Dr. Riordan's RECNAC (cancer spelled backwards) research team generated 20 published papers on vitamin C and cancer. RECNAC even inspired its second cancer research institute, known as RECNAC II, at the University of Puerto Rico. This group recently published an excellent paper in *Integrative Cancer Therapies*, titled "Orthomolecular Oncology Review: Ascorbic Acid and Cancer 25 Years Later." RECNAC data has shown that vitamin C is toxic to tumor cells without sacrificing the performance of chemotherapy.

INTRAVENOUS VITAMIN C also does more than simply kill cancer cells. It boosts immunity. It can stimulate collagen formation to help the body wall off the tumor. It inhibits hyaluronidase, an enzyme that tumors use to metastasize and invade other organs throughout the body. It induces apoptosis to help program cancer cells into dying early. It corrects the almost universal scurvy in cancer patients. Cancer patients are tired, listless, bruise easily, and have a poor appetite. They don't sleep well and have a low threshold for pain. This adds up to a very classic picture of scurvy that generally goes unrecognized by their conventional physicians.

WHEN RIORDAN CLINIC cancer patients receive IVC, they report that their pain level goes down, and that they are better able to tolerate their chemotherapy. They bounce back quicker because the IVC reduces the toxicity of the chemotherapy and radiation without compromising their cancer cell killing effects (this finding has recently been reproduced and documented by Dr. Qi Chen at the University of Kansas School of Medicine in the use of Gemzar for pancreatic cancer). IVC is complementary to oncologic care. IVC is not "either/or"—it is a good "both/and" proposition. IVC can help cancer patients withstand the effects of their traditional therapies, heal faster, be more resilient to infection, develop a better appetite, and remain more active overall. These things promote a better response to their cancer therapy.

IVC has been used for three decades here at the Riordan Clinic. There have been no serious complications, but patients should be screened for a couple of potential complications. Because vitamin C enhances iron absorption, iron overload must be ruled out. The high sodium load of IVC can create a fluid overload in a patient with congestive heart failure, or renal insufficiency or failure. We also check our patients for deficiency of G6PD (an enzyme used to maintain stability of the red blood cell membranes). Although many physicians worry that large doses of vitamin C may cause kidney stones, we have rarely seen the phenomenon, and several huge clinical trials in the medical literature refute this misconception.

Treating Cancer the Riordan Clinic Way continues on page 3...

Patient Profile

by Kameron Hodges

For the Riordan Clinic, vitamin C is seen as both a foundational and fundamental essential vitamin for health, well-being, and battling disease. When this topic was picked for the June edition of *Health Hunter Newsletter,* choosing a patient for profile became a challenge, not for the shortage of success stories, but rather because most of the patients seen at Riordan Clinic have benefited in one way or another from its use. Here is just one story we thought was worthy of sharing.

Our patient was diagnosed with left breast cancer in May 2001 after having a routine mammogram. A subsequent lumpectomy and lymph biopsy proved that the cancer was contained. Her oncologist had recommended a double mastectomy with chemotherapy and radiation. However, for this patient, conventional mainstream oncological care felt impersonal and lacked a sense of hope.

After reading literature on the nutritional approach to cancer treatment, she came to the Riordan Clinic on August 20, 2001. Once on campus, she met with our doctors, who explained that abnormal cancer cells love vitamin C; they soak it up until they become overwhelmed and destroyed. She found this meeting logical, informative and inspiring—the things she felt were missing during interactions with her oncologist.

Surgery and harsh medications were of no interest to this patient, so she began high-dose vitamin C treatment. Her cancer markers came into normal range and remained there for eight years. In December 2009, she had a bone scan that revealed metastatic bone cancer. Her oncologist gave her 2-6 months to live, with or without treatment. At this time, the patient opted for some radiation and increased frequency of high-dose vitamin C. She is alive and well in 2011. Her cancer markers continue to stay low, and bone scans in July and December 2010 revealed that the bone cancer is receding.

The choices this individual faced after cancer diagnosis dealt with quality of care and quality of life. She feels she has found an abundance of both at the Riordan Clinic. Sitting in an oncologist's office, this patient was once told she had "too much optimism." However, because of her choice to use nutrition to fight cancer, she explains that she feels "courage and hope that came through science. I feel I have been treated like a human being with a problem, instead of a problem that happens to be a human being."

Although the Riordan Clinic does not make recommendations to favor or discourage the use of chemotherapy or radiation to treat cancer, it does strongly recommend the use of high-dose vitamin C as a conjunctive and supplemental treatment that can slow abnormal cell growth, minimize the side effects of harsh pharmaceuticals, and improve strength and energy.

If you have chronic health issues, make an appointment today by calling 316-682-3100. The health, hope, and healing we provide can make a positive impact in your life, just as it did for this patient.

Treating Cancer the Riordan Clinic Way continued from page 2...

TO SUMMARIZE, most organisms make their own vitamin C. When they are under stress, either by illness or injury, Mother Nature has provided them with a means to facilitate healing: they synthesize more ascorbic acid. As a result, they are in less pain, they remain active, they can sleep, and they have a better appetite: all functions which promote healing.

DR. RIORDAN once said that here at the Riordan Clinic, we don't treat cancer … we treat people who happen to have cancer. IVC is a tool that allows our clinic physicians to harness a healing mechanism that our human ancestors lost long ago: the ability to dramatically increase tissue levels of vitamin C. Research shows that the astonishingly high levels achievable only by IVC not only help fight the risk of infection and the pain of metastases, they actually aid in the defeat of the cancer cells themselves, through a very elegant mechanism that does no harm to healthy cells. It's a discovery that the medical world is only beginning to ascertain.

If you or someone you know has been diagnosed with cancer and would like to learn more about the Riordan Clinic's IVC cancer care, please visit our website www.riordanclinic.org and call **316-682-3100** to schedule an appointment with one of our physicians.

Yoga in the Pyramid!

Yoga is good for what ails you! Research shows that yoga helps manage or control anxiety, arthritis, asthma, back pain, blood pressure, carpal tunnel syndrome, chronic fatigue, depression, diabetes, epilepsy, headaches, heart disease, multiple sclerosis, stress and other conditions and diseases. What's more, yoga:

- Improves muscle tone, flexibility, strength and stamina
- Reduces stress and tension
- Boosts self esteem
- Improves concentration and creativity
- Lowers fat
- Improves circulation
- Stimulates the immune system
- Creates a sense of well being and calm.

Wow—who couldn't use those benefits?! Come to the new yoga class at the Riordan Clinic and reap the proven benefits of this wonderful exercise.

Class: Vinyasa Power Yoga—This eight-week class is a mindful flow from one posture (asana) to another using breath-synchronized movement. The class involves many vinyasas (lots of movement) and focuses on balance and strength. The teacher will offer pose modifications for students who prefer to move at a slower pace.

Teacher: Leigh Ann Ablah is a Yoga Alliance Member and has completed RYT 200 HR Certified Yoga Teacher Training. In addition to private classes, Leigh Ann teaches at the YMCA, WSU Heskett Center and conducts a children's yoga class at Watermark Books on Sunday's. Leigh Ann has been practicing yoga for several years and is continually progressing in her own practice by attending numerous workshops.

Date: Wednesday's 5:30-6:30 p.m.

This 8-wk session has started, but you can still stop by for a drop-in class for only $10 each! Call 316-927-4723 to reserve your spot or email reservations@riordanclinic.org.

Location: Riordan Clinic, **3100 N. Hillside, Wichita, KS 67219**. Classes will be in the pyramid on the Riordan Clinic grounds or outside on our serenity deck, as weather permits.

Equipment: Please bring a yoga mat, towel and water.

HCG Weight-Loss Intervention—The Success Continues!

Since introducing the HCG Weight-Loss Intervention program in January, participants have lost over 1,600 pounds! Here is one success story:

A 58-year-old female entered the clinic in a state of hopelessness. She was seeing a Cardiologist because of fluid around her heart and on her lungs. After being sick for several months, she had several tests performed only to find nothing to pinpoint the cause. At one point, she could not breathe. Finally, she went to the ER. The doctors pulled a 1/2 gallon of fluid the color of lager beer from her lungs. She was running a temperature of 106.0 F, and the only treatment given was a high-powered broad spectrum antibiotic.

There was no explanation of what was happening. Test after test was performed and still no conclusion. She remained on antibiotics for 2 months with no diagnosis.

During this time, her weight crept up. Although she had been small most of her life, she found herself weighing 170 pounds. She began to have problems with her thyroid not functioning correctly, and she felt awful most of the time.

At her peak weight of 180 pounds, she made the decision to start a diet. She took part in several diet programs, including the 800 calorie cookie diet where she would lose the weight but gain it all back. She then tried the Metagenics weight loss system and lost 6 pounds in 12 weeks only to end up gaining it all back. She even did a lifestyle weight loss program but plateaued immediately without progressing any further.

Then she heard about the Riordan Clinic HCG Weight-Loss Intervention. When she started the program her waist was 35 inches. Now at the end of her program, her waist is down to 27.5 inches.

Her current weight is 120 lbs. After losing 60 pounds, she is down 10 jean sizes! To this day, she continues to maintain her weight by eating healthy, nutritionally dense foods that help her body stay healthy.

This patient is a great example of the weight loss success that awaits you with the Riordan Clinic HCG Weight-Loss Intervention. Go to www.riordanclinic.org for additional information. If you are ready to improve your health and well-being, call 316-682-3100 to get started today!

American Cancer Society (ACS) Guidelines on Nutrition and Physical Activity for Cancer Prevention

As the Riordan Clinic continues on its mission to "… stimulate an epidemic of health," we encourage readers to take control of their health in an effort to prevent disease. It is important to eat a well-balanced diet of fresh, whole foods and to get regular exercise. From the American Cancer Society's website, www.cancer.org, below are basic guidelines that everyone can follow to maintain good health and to prevent cancer.

ACS recommendations for individual choices:

- **Maintain a healthy weight throughout life.**
  - Balance calorie intake with physical activity.
  - Avoid excessive weight gain throughout life.
  - Achieve and maintain a healthy weight if currently overweight or obese.
- **Adopt a physically active lifestyle.**
  - Adults: Engage in at least 30 minutes of moderate to vigorous physical activity, above usual activities, on 5 or more days of the week; 45 to 60 minutes of intentional, physical activity are preferable.
  - Children and adolescents: Engage in at least 60 minutes per day of moderate to vigorous physical activity at least 5 days per week.
- **If you drink alcoholic beverages, limit your intake.**
  - Drink no more than 1 drink per day for women or 2 per day for men.
- **Eat a healthy diet, with an emphasis on plant sources.**
  - **Choose foods and beverages in amounts that help to achieve and maintain a healthy weight.**
    - Pay attention to standard serving sizes, and read food labels to become more aware of the number of actual servings you eat.
    - Eat smaller portions of high-calorie foods. Be aware that "low-fat" or "nonfat" does not mean "low-calorie" and that low-fat cakes, low-fat cookies, and other low-fat foods are often high in calories.

    - Switch to vegetables, fruits, and other low-calorie foods and beverages to replace calorie-dense foods and beverages such as French fries, cheeseburgers, pizza, ice cream, doughnuts and other sweets, and regular sodas.
    - When you eat away from home, choose food low in calories, fat, and sugar, and avoid large portions.
  - **Eat 5 or more servings of vegetables and fruits each day.**
    - Include vegetables and fruits at every meal and for snacks.
    - Eat a variety of vegetables and fruits each day.
    - Limit French fries, snack chips, and other fried vegetable products.
    - Choose 100% juice if you drink vegetable or fruit juices.
  - **Choose whole grains over processed (refined) grains and sugars.**
    - Choose whole grain rice, bread, pasta, and cereals.
    - Limit intake of refined carbohydrates (starches), such as pastries, sweetened cereals, and other high-sugar foods.
  - **Limit intake of processed meats and red meats.**
    - Choose fish, poultry, or beans instead of beef, pork, and lamb.
    - When you eat meat, choose lean cuts and eat smaller portions.
    - Prepare meat by baking, broiling, or poaching, rather than by frying or charbroiling.

This document is a condensed version of the article describing the American Cancer Society (ACS) Nutrition and Physical Activity Guidelines. Please visit **cancer.org** for more information.

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THESE OFFERS EXPIRE 6/30/2011

Know Your Nutrients —Vitamin C

by Penny Lasater

What do humans, primates, guinea pigs and fruit bats have in common? This diverse group of mammals, of which we are a member, cannot produce vitamin C in their bodies. In order to get what we need, we have to rely solely on our daily dietary intake.

One of the foundation principles of the Riordan Clinic is the use of high-dose vitamin C to treat chronic illnesses. We have published medical research and decades of treatment success to support this fact. Knowing that vitamin C is effective for chronic illnesses, the question then becomes, does taking increased doses of vitamin C help to *prevent* chronic illness?

Vitamin C is an essential nutrient required by the body for the development and maintenance of scar tissue, blood vessels, and cartilage. It is also necessary for creating adenosine-5′-triphosphate (ATP), dopamine, peptide hormones, and tyrosine. As a powerful antioxidant, vitamin C helps lessen oxidative stress to the body and is thought to lower cancer risk. With this knowledge, many in the medical community, including the Riordan Clinic, recommend increased vitamin C intake, beyond the recommended daily allowance (RDA), to maximize health benefits.

The current RDA suggested by the United States Government's National Academy of Sciences for an adult over the age of 19 is 75-90 mg. It is reasonable to assume that the average person could get this amount of vitamin C per day based on a moderately healthy diet. The food chart below details the amount of vitamin C found in some common fruits and vegetables. It may be surprising to many people that sweet red pepper, not orange juice, is the best source of vitamin C.

FOOD	SERVING	VITAMIN C (mg)
Orange Juice	3/4 cup (6 ounces)	62–93
Grapefruit Juice	3/4 cup (6 ounces)	62–70
Orange	1 medium	70
Grapefruit	1/2 medium	38
Strawberries	1 cup, whole	85
Tomato	1 medium	16
Sweet Red Pepper	1/2 cup, raw chopped	95
Broccoli	1/2 cup, cooked	51
Potato	1 medium, baked	17

Source: USDA Food Composition Data Base

For a healthy adult, the Riordan Clinic generally recommends a daily vitamin C intake of up to 2000 mg or to bowel tolerance. The 2000 mg daily intake mirrors the Tolerable Upper Limit (UL) RDA published by the government. Because each person is biochemically unique, the most accurate way to determine the specific amount of vitamin C you need is to have your blood and urine vitamin C levels tested. Based on the results, a Riordan Clinic doctor can prescribe the specific amount of vitamin C you need to maximize your health.

It is best to obtain as much vitamin C possible from your daily dietary intake. If you are unable to absorb enough through your diet, supplementation is an option. The Riordan Clinic is offering a June special on vitamin C supplements and on vitamin C blood and urine testing. The details of these offers are contained in this newsletter.

Laboratory *Special*

Vitamin C is a strong, water-soluble antioxidant that promotes the normalization of cell function throughout the body. In addition to free radical stabilization, with vitamin C you may see improvements in your health including fewer colds, prevention of bleeding gums, reduction of anxiety, fewer asthmatic episodes, and reduction of overall allergies. Vitamin C is found most abundantly in citrus fruits and green vegetables.

Testing your vitamin C levels is important. This month, our laboratory is offering the vitamin C-plasma and vitamin C- urine tests at a special price. If you'd like to know more about the level of vitamin C in your body, call 316-684-7784 to schedule a vitamin C plasma and urine test today.

special $99

Riordan Clinic Research Institute

For over three decades, the Riordan Clinic has investigated the use of ascorbic acid to treat cancer. Primary intravenous vitamin C (IVC) therapy, with or without other nutritional supplementation, has shown success in decreasing symptoms, improving quality of life, and prolonging survival in cancer patients. The Riordan IVC Protocol is named for Hugh D. Riordan, M.D. and his research team's ground-breaking work in defining the therapeutic range for IVC therapy cancer treatment.

For those not wanting to settle on IVC therapy alone, it is interesting to note that using IVC in conjunction with standard chemotherapy and radiation may augment the effectiveness and decrease the side effects of these treatments.

To learn more about the Riordan Clinic IVC and Cancer research, visit our website at www.riordanclinic.org to view our most recently published articles.

Lunch and Lecture Series 2011

Preventing Cancer the Riordan Clinic Way

Dr. Ron Hunninghake

Speaker: Dr. Ron Hunninghake
Thursday, June 16, 2011
12:00 p.m. to 1:00 p.m.
Cost: $15—Lunch is included.

The Riordan Clinic is known for its adjunctive lifestyle care of patients with cancer. Using blood-based nutrient testing, diet assessment, supplementation, and dietary changes, the Clinic strives to prevent cancer from occurring in patients by keeping the body as healthy as possible. Dr. Hunninghake, Chief Medical Officer at the Riordan Clinic, will be the Lunch and Lecture speaker on June 16, 2011. He will discuss "preventing cancer the Riordan Clinic way."

Dr. Hunninghake will review the emerging role of lifestyle modifications as a means not only of preventing cancer but also of slowing the progression of existing cancers. In addition, he will review the Riordan Clinic's leadership in researching adjunctive cancer care plans such as intravenous vitamin C. You will also be introduced to one of the Clinic's cancer survivors and hear her story.

Don't miss this informative lecture! Join us and learn more about "Preventing Cancer the Riordan Clinic Way."

For reservations: call 316-927-4723 or email us at reservations@riordanclinic.org

FUEL UP TO PLAY

by Amanda Hawkinson

On May 11, 2011, the Riordan Clinic staff visited College Hill Elementary School to give a presentation on healthy eating and exercising. Nurse Nichole discussed the importance of the food pyramid, pointing out that although we should limit our intake of fats, oils, and sweets, we should get 2 servings of meat, 3 servings of dairy, 4 servings of fruits and vegetables, and 6 servings of grains every day. Participants were also reminded that they can influence their parents' choices in the grocery store by requesting healthier food substitutes (i.e. real fruit vs. fruit snacks).

Nurse Nichole emphasized that exercising is equally important because not only does it help build strong bones and muscle, but it keeps you from getting sick by boosting your immune system, opening up your lungs, and keeping blood moving to carry vitamins, minerals, nutrients, and oxygen throughout the body. By eating healthy and exercising regularly, we can ward off unwanted disease.

If you would like a Riordan Clinic medical professional to speak at your business/ school, please contact **Tiffany Hurley at 316-682-3100** ext 331.

The Nutrition Reporter™

The independent newsletter that reports vitamin, mineral, and food therapies

Grass-Fed Beef: A Good Source of Omega-3s and Other Nutrients

Salmon and other types of coldwater fish are recognized as rich sources of two key omega-3 fats, specifically eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Both EPA and DHA have numerous health benefits in reducing inflammation, protecting the heart, and maintaining healthy moods.

But beef from grass-fed cattle also contains ample amounts of EPA and DHA. While it does not contain quite as much EPA and DHA (ounce for ounce), grass-fed beef contains many other nutrients as well – and is much healthier than grain-fed beef.

Until the 1940s, nearly everyone ate beef that came mostly from grass-fed (or range-fed) animals. Grasses are high in alpha-linolenic acid, which ruminants efficiently convert to EPA and DHA. During the 1950s, however, cattle were increasingly fed grains to promote faster weight grain and more intramuscular fat, known as marbling.

The shift from grass-fed to grain-fed changed the fat profile of meats and, not surprisingly, has had health consequences. One of the changes is that the amount of anti-inflammatory omega-3 fats has decreased, while some saturated fats and pro-inflammatory omega-6 fats have increased.

In a recent comparison of grass-fed and grain-fed beef, Cynthia A. Daley, PhD, and her colleagues at California State University, Chico, reported that beef from grass-fed cattle was almost always nutritionally superior to meat from grain-fed cattle.

In Daley's analysis of seven studies, grass-fed beef had consistently higher levels of EPA and DHA, gram for gram, compared with grain-fed beef. Conversely, grain-fed beef had low to negligible amounts of EPA and DHA.

Historically, people consumed an omega-6 to omega-3 ratio ranging from 1:1 to 4:1. The typical American diet now provides an 11:1 to a 30:1 ratio of omega-6s to omega-3s, a shift that is related to an increase in inflammatory diseases.

Grass-fed beef approximates the more traditional and healthier ratio of approximately equal amounts of omega-6 and omega-3 fats. In contrast, the omega-6 to omega-3 ratio in grain-fed beef is 7:1.

Grass-fed beef also contains larger amounts of conjugated linoleic acids (CLA), a type of fat that may have benefits in reducing both weight and cancer risk. When cattle are fed grains, the types of CLA shift to less healthy forms.

Although grass-fed and grain-fed beef contain approximately the same amounts of saturated fat, ounce for ounce, the composition of that fat is significantly different. Grass-fed beef has a higher proportion of stearic acid, which does not affect cholesterol levels. Meanwhile, grain-fed beef is higher in myristic and palmitic acids, two saturated fats that do raise cholesterol levels.

In addition, the fat in grass-fed beef contains more vitamin E, beta-carotene, and glutathione, compared with grain-fed beef. Grain-fed beef, however, contains substantially more oleic acid, a healthy fat also found in olive oil.

Reference: Daley CA, Abbott A, Doyle PS, et al. A review of fatty acid profiles and antioxidant content in grass-fed and grain-fed beef. *Nutrition Journal*, 2010;9:10. ❑

Perspectives

How Nature Can Help Nurture

Over the past few months, a number of health writers have referred directly or indirectly to "Vitamin N." The N stands for nature.

It turns out – no big surprise, really – that people who are constantly connected to their electronics (email, smart phones, texting) suffer from a lack of down time. And the problem isn't just with adults, but with children and teenagers who can also be compulsive users of text mail.

Many adults constantly multitask and, as a consequence, have very little downtime. Staying

More research summaries on next page

connected to the digital world becomes a stress.

A recent article noted that constant use of technology creates anxiety and inhibits deep contemplative thought. In fact, it often seems as though people will do anything to avoid being alone with their own thoughts.

Spending a little time in nature can help restore a balance. But sometimes it's hard to disconnect. When I'm out hiking, I often see school groups. Standing in the middle of a magnificent landscape, there are usually at least a couple of kids with their eye glued to text messages, not the mountains.

Sometimes it take a few days to recalibrate oneself. I find this to be the case when I go on a vacation where I can't check voice messages or emails. A few days pass, and I'm more in sync with life on the road or on a boat. I stop missing and worrying about my email.

And every now and then, disconnecting reminds me of what's important. For example, I've done a lot of travel this year to lecture about nutrition, and one of my other passions, photography, suffered from a lack of time. I took an afternoon off to photograph wildflowers and waterfalls in the mountains – and realized that I had forgotten part of what provides balance in my life. That afternoon helped reconnect me to the natural environment – vitamin N – instead of the artificial one we're usually connected to. *–JC*

Omega-3 Fish Oils Help People with "Neuropathic" Pain

The omega-3 fish oils are well-documented for their benefits in inflammatory pain – after all, they are the precursors to a variety of anti-inflammatory substances, including prostaglandin E3. But some types of pain are related to nerve, or neuropathic, disease, in which inflammation may play a lesser or different role.

In a recent report, a group of Canadian doctors and researchers reported the successful treatment of five patients with various types of neuropathic pain, including fibromyalgia, carpal tunnel syndrome, nerve compression, slipped disc, and burn injury.

Gordon D. Ko, MD, of the Canadian Centre for Integrative Medicine, in Markham, Ontario, and his colleagues treated the patients with very large amounts of fish oils – 2,400 to 7,200 mg daily of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).

One of the patients, a 50-year-old man was diagnosed with a herniated disc, started taking 4,800 mg of EPA and DHA (combined dosage) and increased the amount to 7,200 mg daily. He had such dramatic relief that he was able to have pain-free workouts at the gym. He also noted feeling clear-headed and having sharper cognitive function.

When Ko submitted his report for publication, the patients had been taking fish oil capsules for four to 17 months.

"It should be noted that omega-3 fatty acids are just one component of an overall integrative medical approach in treating pain and optimizing wellness," wrote Ko. The other components should include lifestyle changes, improved eating habits, weight loss, stress reduction, better sleep habits, and a positive (as opposed to negative) outlook.

Reference: Ko GD, Nowacki NB, Arseneau L, et al. Omega-3 fatty acids for neuropathic pain. *Clinical Journal of Pain*, 2010;26:168-172. ❑

Vitamin C Supplements Boost Moods of Hospitalized Patients

Modest amounts of vitamin C can improve the moods of patients hospitalized for a variety of diseases, including cancer, heart disease, diabetes, and infections.

L. John Hoffer, MD, PhD, of McGill University, Montreal, noted that an earlier study found that 60 percent of patients in an acute medical ward of a teaching hospital had low to deficient levels of vitamin C, compared with just 16 percent of outpatients.

In Hoffer's latest study, patients' moods were assessed with the Profile of Mood States (POMS) questionnaire, which gauges their levels of anger, anxiety, depression, and other moods.

The patients were given 500 mg of vitamin C twice daily or 1,000 IU of vitamin D daily.

Patients getting the vitamin C benefited from a 34 percent reduction in mood problems. The vitamin D did not have a significant effect, possibly because many of the patients had already been taking the vitamin.

Reference: Zhang M, Robitaille L, Eintracht S, et al. Vitamin C provision improves mood in acutely hospitalized patients. *Nutrition*, 2010; epub ahead of print. ❑

Vitamins and Minerals Counter Stress Feelings from Multitasking

Multitasking is a stress, but taking a multivitamin/multimineral supplement can help keep people from stressing out.

David O. Kennedy, PhD, of Northumbria University, Newcastle, England, and his colleagues tested the effects of multitasking on 216 women

ranging from 25 to 50 years of age. The participants took a computer-based multitasking test, in which they had to work on several unrelated tasks simultaneously. Then, before the next multitasking test, the women were asked to take either a multivitamin supplement or placebo daily for nine weeks.

Women taking the vitamins were able to multitask faster and more accurately, and they experienced less fatigue and moodiness.

Kennedy wrote that the B vitamins and other nutrients play essential roles in the production and regulation of neurotransmitters, the chemicals that influence moods. He added that a "sizeable proportion" of people are marginally deficient in one or more of these nutrients.

The supplement used in this study contained about three times the governmental recommended amounts of water-soluble vitamins, but more modest amounts of fat-soluble vitamins and minerals.

Reference: Haskell CF, Robertson B, Jones E, et al. Effects of a multi-vitamin/mineral supplement on cognitive function and fatigue during extended multitasking. *Human Psychopharmacology*, 2010;25:448-461. ❑

Ample Intake of Selenium May Lower Risk of Bladder Cancer

Eating a diet rich in selenium appears to reduce the risk of bladder cancer, especially in women.

Nuria Malats, MD, PhD, of the Spanish National Cancer Research Center, Madrid, and her colleagues analyzed the findings of seven previously published studies on selenium and bladder cancer. Those studies collectively included almost 20,000 people.

Overall, people with a high dietary intake of selenium had a 39 percent lower risk of developing bladder cancer. However, women seemed to benefit far more than did men; women had a 45 percent lower risk of bladder cancer if their diets contained a lot of selenium.

Selenium is an essential dietary mineral and is needed to make glutathione peroxidase, an antioxidant enzyme that is also involved in detoxifying hazardous compounds.

Reference: Amaral AF, Cantor KP, Silverman DT, et al. Selenium and bladder cancer risk: a meta-analysis. *Cancer Epidemiology, Biomarkers and Prevention*, 2010;19: 2407-2415.❑

A Little Green Tea Each Day Reduces DNA Damage in People

Drinking green tea can substantially reduce genetic damage within four weeks. The benefits would, at least theoretically, slow age-related DNA damage and reduce the long-term risk of cancer.

Iris F. Benzie, MD, of the Hong Kong Polytechnic University and her colleagues conducted two studies on green tea, one on people and another in white blood cells.

Eighteen healthy people were randomly asked to consume two different types of green tea or water – five ounces twice daily for four weeks each. Each phase of the study was separated by a six-week period when they did not consume the green teas.

When the subjects consumed either of the green teas, they had 20 percent reduction in DNA damage, based on an analysis of their cells using the comet assay technique. In the other study, cells were exposed to green tea, and Benzie reported that they became more resistant to DNA damage.

She added, "The results indicate that green tea has significant genoprotective effects and provide evidence for green tea as a 'functional food'."

Reference: Han KC, Wong WC, Benzie IFF. Genoprotective effects of green tea (Camellia sinensis) in human subjects: results of a controlled supplementation trial. *British Journal of Nutrition*, 2010; doi 10.1017/S007114510003211. ❑

Vitamin D May Protect Brain Against Dementia and Parkinson

Two new studies strongly suggest that low levels of vitamin D may boost the risk of cognitive decline and Parkinson disease and, conversely, that high levels of the vitamin may be protective.

In the first study, David J. Llewellyn, PhD, of the University of Exeter, England, and his colleagues tracked 858 Italian adults, age 65 and older. The subjects were given several cognitive tests at the beginning of the study, three years later, and then six years after the study began. The tests focused on overall cognition, attention, and executive function (the ability to plan, organize, and prioritize).

People who had severe deficiencies in vitamin D were 60 percent more likely to experience a substantial cognitive decline over six years, as well as a 31 percent decline in executive function.

Meanwhile, a three-decade study has found that maintaining relatively high blood levels of vitamin D may reduce the risk of Parkinson disease by about two-thirds.

Paul Knecht, DPH, of the National Institute for Health and Welfare, Helsinki, Finland, and his colleagues tracked 3,173 women and women who participated in a study beginning in the late 1970s. The subjects, ages 50 to 79 years, were given physical exams and their blood levels of vitamin D were measured at that time.

Continues on next page

Quick Reviews of Recent Research

• More evidence that fish oils help the heart

Dutch researchers investigated the dietary habits and omega-3 fat intake of 21,342 men and women ranging from 20 to 65 years of age. Over 9-14 years of follow up, people with the highest intake of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) had a 62 percent lower risk of experiencing a fatal heart attack and a 49 percent lower risk of cardiovascular disease.

de Goede J. *Journal of Nutrition*, 2010;140;1023-1028.

• Vitamin D protects muscle

U.S. and Canadian researchers investigated blood levels of vitamin D, muscle strength, and the infiltration of fat in muscle tissue in 90 women ages 16 to 22 years. Almost two-thirds of the young women had low vitamin D levels, and one-fourth of that group had outright deficiencies. Women with low vitamin D levels were more likely to have more fat infiltration in their muscle cells, which can potentially impact strength.

Gilsanz V. *Journal of Clinical Endocrinology and Metabolism*, 2010;95:1595-1601.

• Phosphates in soft drink pose health hazards

Researchers at the Harvard University used mice to assess the health effects of excess phosphates (a form of phosphorus), one of the ingredients in soft drinks. Large amounts of phosphates resulted in accelerated aging, kidney disease, calcification of blood vessels, and muscle atrophy.

Ohnishi M. *FASEB Journal*, 2010; doi 10.1096/fj.09-152488.

• Mushrooms have anti-inflammatory effect

Various types of mushrooms have an anti-inflammatory effect, according to a cell study by an American researcher. The study found that white button, crimini, shiitake, oyster, and maitake mushrooms reduced the activity of several types of adhesion molecules. Adhesion molecules are known to help promote inflammation.

Martin KR. *Nutrition Journal*, 2010;9:29.

• Resveratrol may protect the eyes

In a study using laboratory mice, American researchers found that reservatrol can help prevent the abnormal growth of blood vessels in the retina, a characteristic of some types of eye diseases. The effect was independent of reservatrol's well-established effect on the Sirt1 gene.

Khan AA. *American Journal of Pathology*, 2010;177: 481-492.

• SAMe supplements ease depression

Researchers at the Harvard Medical School tested the effects of 1,600 mg daily of S-adenosylmethione (SAMe) on 39 patients being treated with medications for depression. Thirty-four other patients received placebos. Clinical tests showed that people taking SAMe were about twice as likely to benefit from the supplement, compared with people taking placebos. SAMe is a metabolic product of the B vitamins and amino acid methionine, and previous studies have also found it helpful in reducing depression.

Papakostas GI. *American Journal of Psychiatry*, 2010: doi 10.1076/appi.ajp.2009.09081198.

• Vitamin C has anti-cancer effect

Studies on cells, animals, and people have found that high-dose vitamin C can inhibit the proliferation of cancer cells. French researchers studied the effects of large amounts of vitamin C on mice with cancer, as well as on genes involved in cancer growth. The research confirmed that the high-dose vitamin C – which would be achievable through intravenous administration in people, had anti-cancer benefits.

Belin S. *PLoS One*, 2009;4:e4409.

Vitamin D and Cognition...

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After 29 years, 50 cases of Parkinson disease had been diagnosed in the group. When Knecht analyzed patterns, he found that people with low levels of vitamin D were 67 percent more likely to develop Parkinson disease.

Knecht wrote that "Parkinson disease may be caused by a continuously inadequate vitamin D status leading to a chronic loss of dopaminergic neurons in the brain."

References: Llewellyn DJ, Lang IA, Langa KM, et al. Vitamin D and risk of cognitive decline in elderly persons. *Archives of Internal Medicine*, 2010;170:1135-1141. Knecht P, Kilkkinen A, Rissanen H, et al. Serum vitamin D and the risk of Parkinson disease. *Archives of Neurology*, 2010;67:808-811. ❑

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The Nutrition Reporter™
Post Office Box 30246 • Tucson AZ 85751-0246 USA
Editor and Publisher: Jack Challem
Copy Editor: Mary E. Larsen